Volume 5

Draft Supplemental Recirculated Environmental Impact Report REVISIONS to Title 19-KERN COUNTY ZONING ORDINANCE – (2020 A), Focused on Oil and Gas Local Permitting

SCH# 2013081079

Draft Environmental Impact Report
REVISIONS to Title 19-KERN COUNTY ZONING ORDINANCE – (2015 C)
Focused on Oil and Gas Local Permitting
Chapter 7 – Response to Comments

Kern County Planning and Natural Resource Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2370
(661) 862-8600

August 2020

This page intentionally left blank.

Volume 5

Draft Supplemental Recirculated Environmental Impact Report REVISIONS to Title 19-KERN COUNTY ZONING ORDINANCE – (2020 A), Focused on Oil and Gas Local Permitting

SCH# 2013081079

Draft Environmental Impact Report
REVISIONS to Title 19-KERN COUNTY ZONING ORDINANCE – (2015 C)
Focused on Oil and Gas Local Permitting
Chapter 7 – Response to Comments

Kern County Planning and Natural Resource Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2370
(661) 862-8600

Technical Assistance by:
Ecology and Environment, Inc., member of WSP
333 SW 5th Ave. Suite 600
Portland, OR 97204
(503) 248-5600

August 2020

This page intentionally left blank.

Chapter 7
Responses to Comments

SCH# *2013081079*

Volume 3

REVISIONS to the KERN COUNTY ZONING ORDINANCE – 2015 (C)
Focused on Oil and Gas Local Permitting

Kern County
Planning and Community Development Department
Bakersfield, California

September 2015

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: September 25, 2015

To: See Attached Mailing List

FROM: Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661) 862-8607; MynkC@co.kern.ca.us

RE: **Response to Comments for Draft Environmental Impact Report** – Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Ladies and Gentlemen:

Enclosed is a document entitled Volume 3 - Chapter 7 - Response to Comments, for the above-referenced project. Section 15088 of the California Environmental Quality Act Guidelines requires the Lead Agency to evaluate comments on environmental issues received from persons who reviewed the Draft Environmental Impact Report (EIR) and prepare a written response addressing each comment. This document is Chapter 7 of the Final EIR.

A public hearing has been scheduled with the Kern County Planning Commission to consider this request on October 5, 2015 at 5:00 p.m. or soon thereafter, at the chambers of the Board of Supervisors, first floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California.

Thank you for your participation in the environmental process for this project. If you have any questions regarding this letter please contact Christopher B. Mynk, AICP, Supervising Planner at (661) 862-8607 or email at: MynkC@co.kern.ca.us.

Sincerely,

Christopher B. Mynk, AICP
Supervising Planner

COMMENTING AGENCIES AND INTERESTED PERSONS: SEE MAILING LIST ATTACHED

Robert Alberstadt,
2215 A St
Bakersfield, CA 93301

Bakersfield Association of Realtors
Sheri Anthes, President
2300 Bahamas Drive
Bakersfield, CA 93309

Kern Economic Development Corp
Tamara Baker, Investor Relations
2700 M Street, Suite 200
Bakersfield, CA 93301

Kern County Water Agency
James M. Beck, General Manager
P.O. Box 58
Bakersfield, CA 93302-0058

Leland Bell Farms, Inc.
David Bell,
1499 East Los Angeles St
Shafter, CA 93263

Matt Berry
NO MAILING OR EMAIL ADDRESS PROVIDED

Kirk Blair,
15301 Mabel Ct
Bakersfield, CA 93314

California Natural Resources Agency - Division of Oil, Gas, & Geothermal Res.
Dr. Steven Bohlen
801 K Street - MS 18-05
Sacramento, CA 95814

Kenneth Bork
10403 Camino Media
Bakersfield, CA 93311

State Water Resources Control Board
John Borkovich, P.G., Groundwater P.O. Box 100
Sacramento, CA 95812-0100

CA Dept. of Toxic Substances Control
Rick Brausch, Chief
1001 "I" Street, 11th Floor
Sacramento, CA 95812-0806

Home Builders Association of Kern County
Donna L. Carpenter, Executive Director
P.O. Box 21118
Bakersfield, CA 93390

Howard E. Caywood,
500 Hillard Street
Taft, CA 93268-2647

Lucy Clark,
HC3 Box 88
Bakersfield, CA 93308-9124

Lawrence Corcoran,
201 Spruce St
Bakersfield, CA 93304

Five America North Combustion
Peter Decker
3232 Rio Mirada, Suite C4
Bakersfield, CA 93308

North Kern Water Storage District
Richard Diamond, General Manager
P.O. Box 81435
Bakersfield, CA 93380-1435

Trudy Douglass
NO MAILING OR EMAIL ADDRESS PROVIDED

Walter Dunbar,
4800 Stockdale Hwy
Bakersfield, CA 93309

Tom Frantz,
29389 Fresno Avenue
Shafter, CA 93263

Kern County Superindendent of Schools
Christine Frazier, Superintendent
1300 17th Street - City Centre
Bakersfield, CA 93301-4533

Ken Gabbani,
2163 Harris Ave.
Rosamond, CA 93560

Gilbert Garcia,
600 Georgia Pine Way
Bakersfield, CA 93313

Earthjustice
Yana Garcia,
50 California St., Suite 500
San Francisco, CA 94111

Victoria Golden,
1911 Buena Vista Street
Bakersfield, CA 93304

Natural Resource Defense Council
Guilia C. S. Good Stephani,
111 Sutter St., 20th Floor
San Francisco, CA 94104

Mike Haddon,
2331 Cepheus Court
Bakersfield, CA 93309

City of Bakersfield
Harvey Hall, Mayor
1600 Truxtun Ave.
Bakersfield, CA 93301

National Association of Royalty Owners
Edward S. Hazard, President
179 Niblick Road, #418
Paso Robles, CA 93446-4845

Robert and Kristina Holtermann,
NO MAILING OR EMAIL ADDRESS PROVIDED

Tim and Jenny Holtermann,
P.O. Box 507
Wasco, CA 93280

Timothy and Karen Holtermann,
P.O. Box 759
942 Oak Avenue
Wasco, CA 93280

Shute Mihaly & Weinberger LLP
Rachel B. Hooper, Attorney
396 Hayes Street
San Francisco, CA 94102

Hopkins Ag, Inc.
Michael Hopkins,
NO MAILING OR EMAIL ADDRESS PROVIDED

David Hurst,
2331 Cepheus Court
Bakersfield, CA 93309

Charles Jones,
9414 Val Di Chiana Dr.
Bakersfield, CA 93314

Nathaniel Jones,
15828 Carparzo Dr.
Bakersfield, CA 93314

California Department of Transportation
District 6
Alec Kimmel, Associate Transportation Planner
1352 W. Olive Avenue
Fresno, CA 93778-2616

Holly A. King,
13501 Arbolado Court
Bakersfield, CA 93314

Center for Biological Diversity
Hollin Kretzmann,
1212 Broadway, Suite 800
Oakland, CA 94612

Kern County Public Works Dept.
Floodplain Managment Section
Aaron Leicht,

Wonderful Orchards
Joseph C. MacIlvaine, President
6801 East Lerdo Highway
Shafter, CA 93263

Kern Groundwater Authority
Joe Macllvaine, President
P.O. Box 20820
Bakersfield, CA 93390-0820

San Joaquin Valley Air Pollution Control District
Arnaud Marjollet, Director of Permit Services
34946 Flyover Court
Bakersfield, CA 93308-9725

Warren D. Maxwell
County of Kern Public Works Department

Lee Meyer,
13404 Michaelangelo Dr.
Bakersfield, CA 93314

South Valley Farms
Eric Miller, General Manager
15443 Beech Avenue
Wasco, CA 93280

CA Governor's Office of Planning and Research
State Clearinghouse and Planning Unit
Scott Morgan, Director
P.O. Box 3044
Sacramento, CA 95812-3044

CA - Governor's Office of Planning and Research
State Clearinghouse & Planning Unit
Scott Morgan, Director
P.O. Box 3044
Sacramento, CA 95812-3044

Sequoia Riverland Trust
Soapy Mulholland,
427 South Garden Street
Visalia, CA 93277

Sierra Club
Kern-Kaweah Chapter
Babak Naficy, Attorney
1504 Marsh St.
San Luis Obispo, CA 93401

Renee Nelson,
12430 Backdrop Court
Bakersfield, CA 93306

Clean Water and Air Matter (CWAM)
12430 Backdrop Court
Bakersfield, CA 93306

The Center on Race, Poverty & the Environment
Sofia Parino, Senior Attorney
1012 Jefferson Street
Delano, CA 93215

Jack Patterson,
381 Owl Road
Bakersfield, CA 93308

Joe Pena,
2331 Cepheus Court
Bakersfield, CA 93308

J.M. Rademacher,
132 Western Dr.
Bakersfield, CA 93308

Kerri Roberts,
2331 Cepheus Court
Bakersfield, CA 93308

Chris Romanini
12107 Hurst Park Drive
Bakersfield, CA 93311

North of the River Parks and Recreation
Steph Sanders,
405 Galaxy Avenue
Bakersfield, CA 93308

D.S. Schroeder OST,
11911 Sandy River Ct.
Bakersfield, CA 93311

Vaquero
Wyatt Shipley, Operations Manager
15545 Hermosa Road
Bakersfield, CA 93309

Bob Shore
NO MAILING OR EMAIL ADDRESS PROVIDED

Kern Citizens for Sustainable Government
Lauren Skidmore, Director
P.O. Box 81075
Bakersfield, CA 93380

Janet Stockton,
18050 Johnson Rd.
Bakersfield, CA 93314

Kern County Taxpayers Association
Michael Turnipseed, Executive Director
331 Truxtun Avenue
Bakersfield, CA 93301

CA Department of Fish & Wildlife
Central Region
Julie Vance, Acting Regional Manager
1234 East Shaw Avenue
Fresno, CA 93710

Kern County Farm Bureau
Greg Wegis, President
801 South Mount Vernon Avenue
Bakersfield, CA 93307-2888

James M. Beck
Kern County Water Agency
P.O. Box 58
Bakersfield, CA 93302

Eric Miller
South Valley Farms
15443 Beech Avenue
Wasco, CA 93280

Department of California
4040 Buck Owens Blvd
Bakersfield, CA 93308

State Air Resources Board
Stationary Resource Division
P.O. Box 2815
Sacramento, CA 95812

Carolyn Lozo
Oil and Gas GHG Mitigation Branch
Industrial Strategies Division
P.O. Box 2815
Sacramento, CA 95812

Chapter 7
Response to Comments

SCH# 2013091062

Volume 3

REVISIONS to the KERN COUNTY ZONING ORDINANCE – 2015 (C)
Focused on Oil and Gas Local Permitting

Kern County Planning and Community Development Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2370
(661) 862-8600

Technical Assistance by:
Ecology and Environment, Inc.
401 West A Street, Suite 775
San Diego, CA 92101
(619) 696-0578

September 2015

Table of Contents

7.1 Introduction 7-1

7.1.1 Purpose 7-1

7.1.2 Environmental Review Process 7-1

7.1.3 Revised Project Description 7-3

7.1.4 Revised Summary of Impacts, Mitigation Measures & Significance Conclusions 7-46

7.2 Responses to Comments 7-95

7.2.1 Global Responses 7-95

1: Ministerial Permit Process 7-95
2: Project vs. Program EIR 7-101
3: EIR Shelf Life 7-110
4: Surface Owners and Agriculture 7-112
5: Use of EIR by Responsible Agencies 7-126
6: Baseline: 2012 7-129
7: Baseline: Legacy Conditions 7-133
8: Future Well Projections 7-137
9: DOGGR: SB 4 EIR 7-143
10: DOGGR: Regulations 7-144
11: Regulatory Developments: General 7-147
12: CCST: General 7-149
13: CCST - Well Stimulation 7-160
14: DOGGR Well Count Reconciliation 7-162
15: CCST: Hydraulic Stimulation Enabling/Production Inducing 7-163
16: Mitigation Measures 7-165
17: EIR Review Time/Comment Period 7-166
18: Monterey Shale Recovery in Project Area 7-167
19: Enforcement of Mitigation Measures and Ordinance 7-169
20: Recirculation 7-173
21: Use of Best Available Information 7-174
22: Compliance with Regulations as CEQA Mitigation 7-176

Ag-1: Agricultural Impacts and Farmland Mitigation Program 7-178
Ag-2: Rangeland 7-180

Air-1: Air Permitting, Indirect Sources, and Emission Estimates 7-183
Air-2: Emission Reduction Agreement As Mitigation 7-186
Air-3: Sufficiency of Health Risk Assessment (July 2015) 7-214
Air-4: Air Quality Methodology and Emissions Estimates 7-220
Air-5: Cumulative Analysis: Health Risk Assessment 7-227
Air-6: Revised Health Risk Assessment: SJVAPCD Methodology 7-228
Air-7: HARP Model 7-232
Air-8: Well Stimulation Emissions 7-234
Air-9: CCST: Air Emissions 7-235
Air-10: HRA Setbacks and Other Setbacks in EIR 7-236
Air-11: Emissions from Sumps, Ponds, and Pits 7-239
Air-12: Lifecycle 7-241

Bio-1: Mitigation Measures, Mitigation Criteria and Ratios 7-247
Bio-2: Valley Floor HCP, LoKern and Elk Hills HCP 7-251

Geo-1: CCST: Produced Water and Earthquake Risk 7-261

GHG-1: GHG Methodology and Emission Estimates 7-264

Haz-1: Pipeline Integrity 7-272
Haz-2: Idle Wells 7-276

Noise-1: Noise and Vibration 7-277

TR-1: Traffic Analysis and Mitigation Program 7-284

Water-01: Disposal into Unlined Ponds and Sumps 7-291
Water-02: Exempt Aquifers and Underground Injection Program 7-300
Water-03: Sustainable Groundwater Management Act 7-306
Water-04: Feasibility of Potable Water Use Ban 7-321
Water-05: Water Supply and Demand Data Update 7-323
Water-06: Response to Issue Raised in CCST Recommendations 7-336
Water-07: SB 1281 Industry Water Use Reports 7-339
Water-08: Produced Water Irrigation 7-341

Alt-1: Alternatives Eliminated from Consideration 7-345
Alt-2: Alternatives Evaluated in Detail in the EIR 7-357

7.2.2 State Agencies 7-369

1 San Joaquin Valley Air Pollution Control District 7-369
2 California Department of Conservation Division of Oil, Gas, and Geothermal Resources 7-370
3 California State Water Resources Control Board 7-371
4 California Department of Fish and Wildlife 7-372
5 California Department of Toxic Substances Control 7-373
6 State of California – Governor's Office of Planning and Research 7-374
7 California Department of Transportation 7-375
8 California Department of Highway Patrol 7-376

7.2.3 Local Agencies 7-377

9 Kern County Water Agency 7-377
10 North Kern Water Storage District 7-378
11 North Kern Water Storage District 7-379
12 Kern County Superintendent of Schools 7-380
13 City of Bakersfield 7-381
14 Kern County Public Works Department 7-382
15 Kern County Public Works Department 7-383
16 Kern Groundwater Authority 7-384

7.2.4 Interested Parties 7-385

17 Janet Stockton 7-385
18 J.M. Rademacher 7-386
19 Gilbert Garcia 7-387
20 Robert Alberstadt 7-388
21 Walter Dunbar 7-389
22 Kenneth Bork 7-390
23 Nathaniel Jones 7-391

24 Tamara Baker, Kern Economic Development Corp. 7-392
25 Holly A. King 7-393
26 Steph Sanders, North of the River Parks and Recreation....7-394
27 Lawrence Corcoran....7-395
28 Ken Gabbani 7-396
29 Charles Jones 7-397
30 Bob Shore 7-398
31 Lee Meyer....7-399
32 D.S. Schroeder OST 7-400
33 Holly A. King 7-402
34 Chris Romanini....7-403
35 Leland Bell Farms Inc....7-404
36 Jack Patterson 7-405
37 Holly A. King 7-406
38 Howard E. Caywood....7-407
39 Tim and Jenny Holtermann....7-408
40 Lucy Clark 7-409
41 Kirk Blair....7-410
42 Peter Decker, Five America North Combustion 7-411
43 Chris Romanini....7-412
44 Shute, Mihaly & Weinberger LLP....7-413
45 Center for Biological Diversity....7-414
46 The Center on Race, Poverty & the Environment....7-415
47 Earthjustice 7-416
48 Natural Resource Defense Council....7-417
49 Sierra Club....7-418
50 Kern County Farm Bureau....7-419
51 Sequoia Riverland Trust 7-420
52 Clean Water and Air Matter....7-421
53 Matt Berry....7-422
54 Robert and Kristina Holtermann....7-423
55 Timothy and Karen Holtermann 7-424
56 Vaquero Energy....7-425
57 Bakersfield Association of Realtors....7-426
58 Home Builders Assoc. of Kern County 7-427
59 Trudy Douglass....7-428
60 National Assoc. of Royalty Owners – California Inc. 7-429
61 Wonderful Orchards 7-430
62 South Valley Farms 7-431
63 Kern Citizens for Sustainable Government 7-432
64 Kern County Taxpayers Assoc. 7-433
65 Tom Frantz 7-434
66 Victoria Golden 7-435
67 Mike Haddon 7-436
68 Michael Hopkins....7-437
69 David Hurst....7-438
70 Joe Pena 7-439
71 Kerri Roberts 7-440

7.3 Letters of Support....7-441

References 7-442

List of Tables

7-1: Scoping Meetings and Community Workshops 7-1

7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation 7-47

7-3: Statewide Wells Drilled Compared to Notices Filed 7-163

7-4: Potential Health Risk from Well Construction, Drilling, and Completion Emissions 7-231

7-5: Potential Health Risk Levels from Well Construction, Drilling, and Completion Emissions 7-232

7-6: Summary of Covered Species 7-256

7-7: Summary of Allowed Uses, WST and Non-WST Well Fluids and Produced Water 7-296

7-8: Scenario 1 (Pro-Rata Increase) and WST, Non-WST Supply Availability 7-297

7-9: Scenario 2 (50% Surface Disposal Reduction) and WST, Non-WST Supply Availability 7-298

7-10: Scenario 2 (50% Surface Disposal Reduction) and WST, Non-WST Supply Availability 7-299

7-11: Project Area Aquifers Historically Treated as Exempt and Under Review by DOGGR, the SWRCB and the USEPA 7-302

7-12: Western Subarea 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet) 7-324

7-13: Eastern Subarea 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet) 7-326

7-14: Project Area 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet) 7-327

7-15: Oil and Gas Exploration and Production Produced and M&I Water Supply and Demand 2012 and 2035 (Scenarios 1, 2, and 3), Revised WSA Estimates 7-329

7-16: Net Difference between DEIR Table 4.9-27 and Table 7-15 Projections (acre-feet) 7-330

7-17: 2009 Kern County Oil Reserves 7-348

7-18: District 4 Production from 2010 to 2014 7-348

Appendices

B-1 Planning and Community Development Department Response Letter to Extension of Time Requests

D-1 Kern County Zoning Ordinance Amendments Public Workshop Notes

M Health Risk Assessment Report (July 2015)

M-1 Revised Health Risk Assessment

S-1 Revised Water Quality Assessment Report

T-1 Revised Water Supply Assessment Report

V-1 Revised Noise Assessment

V-2 Vibration Assessment Report

Chapter 7

Responses to Comments

Chapter 7

Responses to Comments

7.1 Introduction

7.1.1 Purpose

As defined by Section 15050 of the California Environmental Quality Act (CEQA) Guidelines, the Kern County Planning and Community Development Department is serving as "Lead Agency" for preparation of the Environmental Impact Report (EIR) for the proposed Draft EIR (DEIR) for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting ("Project" or "proposed Project"). The Final EIR (FEIR) presents the environmental information and analyses that have been prepared for the Project, including comments received addressing the adequacy of the DEIR, and responses to those comments. In addition to the responses to comments, clarifications, corrections, or revisions have been made to the DEIR. The FEIR, which includes the responses to comments, the DEIR, and the Mitigation Monitoring Program, will be used by the Planning Commission and Board of Supervisors in the decision-making process for the Project.

7.1.2 Environmental Review Process

Kern County prepared and circulated an Initial Study (IS)/Notice of Preparation (NOP) to the State Clearinghouse (SCH# 2013081079), public agencies, special districts, responsible and trustee agencies, and other interested parties for review and comment on August 30, 2013. In conjunction with this public notice, four scoping meetings and community workshops were held by Kern County at the locations and dates identified in Table 7-1. The purpose of these workshops/meetings was to introduce the Project and to solicit input from agencies, organizations, and other interested parties regarding the proposed Project, alternatives, mitigation measures, and environmental impacts to be analyzed in the EIR. Comments received during the review period were used in the preparation of the DEIR.

Table 7-1: Scoping Meetings and Community Workshops

Location	Date	Time
Lost Hills Recreation Building, Lost Hills Park Highway 46, Lost Hills, CA	Sept. 16, 2013	6:30 p.m.
Taft Veterans Hall, Room 1 218 Taylor Street, Taft, CA	Sept. 18, 2013	6:30 p.m.
Kern County Board Chambers, 1st Floor Board Chambers 1115 Truxtun Avenue, Bakersfield, CA	Sept. 23, 2013	6:30 p.m.

Table 7-1: Scoping Meetings and Community Workshops

Location	Date	Time
Shafter Veterans Building, Room 2 309 California Avenue, Shafter, CA	Sept. 25, 2013	6:30 p.m.

The DEIR prepared incorporated public and agency responses to the IS/NOP and scoping process. The DEIR was circulated for review and comment to appropriate agencies and additional individuals and interest groups who have requested to be notified of EIR projects. Per Section 15105 (Public Review Period for a DEIR or a Proposed Negative Declaration or Mitigated Negative Declaration) of the State CEQA Guidelines, Kern County provided a 60-day public review period, which included an extension to the comment period. The extension was noticed on July 29, 2015 to agencies and all parties on the Kern County distribution list for EIR projects.

Three public workshops were held to receive comments on the DEIR at the following locations:

- Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, CA on July 27, 2015
- Shafter Veterans Building, 309 California Avenue, Shafter, CA on August 10, 2015
- Taft Veterans Hall, 218 Taylor Street, Taft, CA on August 17, 2015

Comments received and PowerPoints used during the three public workshops are included in Appendix B-1.

Some commenters requested an extension of time to submit comment letters on the Draft EIR, either at these workshops or in separate correspondence to the County. The County extended the review period, from August 24 to September 11, 2015. The letters and correspondence are included in Appendix B-1.

Some commenters offered their opinions about the benefits and costs of continuing, curtailing, and/or ending oil and gas extraction activities in Kern County. Some commenters noted charitable and other contributions made by the oil industry, jobs and tax revenues created by the oil industry, and financial returns from many small mineral rights holders. Others commented on the rights and interests of surface owners on split estates. More commenters stated that oil and agricultural uses were compatible than those who raised concerns about agricultural impacts from the oil industry. Several commenters also noted the ongoing importance of hydrocarbon fuels to the local and national economy, and the benefits of producing oil locally rather than relying on oil imports.

Other workshop commenters offered questions, suggestions or criticisms regarding the Amended Ordinance. For example, some commenters endorsed a new local permit process, and others raised concerns about compliance costs. Some wanted clarifications or expansion of public or surface owner notice procedures, and measures to address existing and abandoned equipment. As described

in Section 7.1-3 below, these workshop comments as well as written comments were considered and informed the changes made to the Revised Draft Ordinance.

Some workshop commenters offered questions, suggestions or criticisms regarding the impacts and mitigation measures included in the Draft EIR. For example, some wanted assurances that mitigation dollars would be used on local improvements, others were concerned about the adequacy of air and agricultural impacts and mitigation measures, and roads. These workshop comments, along with written comments, were considered and informed the changes made the Project Mitigation Measures included in Section 7.1.4, and overlapped with concerns raised in written comments for which detailed responses have been provided in Section 7.2.

7.1.3 Revised Project Description

Several commenters requested changes to the Amended Ordinance. Some requested changes related to administrative processing requirements (e.g., contents of applications, staff review time), others requested changes to notice and meeting requirements (e.g., adding additional notice requirements to surface owners of split estates), and several requested changes to substantive requirements (e.g., setback requirements) and clarifications or changes to implementation and enforcement procedures. Some commenters requested the elimination of the proposed ministerial permit process for or some types of oil and gas activities, and advocated instead for a "conditional use permit" discretionary permit process that, in the view of these commenters', would automatically trigger the need for additional review under the California Environmental Quality Act (CEQA) as well as create third party administrative and judicial appeal rights to challenge each such permit.

Most of these requested changes do not relate to the identification or mitigation of environmental impacts, and instead raise policy issues about the content and implementation of the County's zoning authority.

The County has revised the Amended Ordinance included in the Draft EIR (Revised Amended Ordinance) based on these comments and further internal policy discussions. The physical activities that are regulated by the Revised Amended Ordinance have not changed, and thus the ordinance implementation activities that are considered in the EIR have not changed. Clarifications and other modifications in the Revised Amended Ordinance do not authorize any new activity that was not allowed under the Amended Ordinance, and impose new restrictions on some activities (e.g., the number of well permits that can be issued annually under this EIR is now subject to a cap). The Revised Amended Ordinance does not itself create, or allow through activities regulated under this ordinance to create, any new or worse significant impact than those considered in the Draft EIR.

The Revised Amended Ordinance, with changes marked from the ordinance version included in the Draft EIR, is included in its entirety beginning on the following page. It should be noted that consistent with County practice and zoning laws, County staff, the Planning Commission, and the Board of Supervisors, will all review – and may make further changes to – this Revised Amended Ordinance. Approval of amended Ordinances is a legislative decision of the Board of Supervisors. Subsequent modifications to the Revised Amended Ordinance will continue to be evaluated to assure ongoing CEQA compliance.

REVISED AMENDED DRAFT (09/25/2015)

C H A P T E R 19.98

OIL AND GAS ACTIVITIES

SECTIONS:

19.98.010 PURPOSE AND APPLICATION
19.98.020 DEFINITIONS OF OIL AND GAS PRODUCTION ACTIVITIES
19.98.030 OIL AND GAS PRODUCTION BOUNDARY AREA AND TIER AREAS
19.98.040 OIL AND GAS ACTIVITIES BY MINISTERIAL PERMIT
19.98.050 OIL AND GAS ACTIVITIES BY CONDITIONAL USE PERMIT
19.98.060 IMPLEMENTATION STANDARDS AND CONDITIONS
19.98.070 OIL AND GAS CONFORMITY REVIEW AND APPROVAL — REQUIRED
19.98.080 OIL AND GAS CONFORMITY REVIEW — APPLICATION CONTENTS (TIER 1)
19.98.085 OIL AND GAS CONFORMITY REVIEW AND CONDITIONAL USE PERMIT — APPLICATION CONTENTS (TIERS 2-5)
19.98.090 OIL AND GAS CONFORMITY REVIEW – WITH REQUIRED SURFACE OWNER SIGNATURE
19.98.100 OIL AND GAS CONFORMITY REVIEW – WITHOUT REQUIRED SURFACE OWNER SIGNATURE
19.98.110 MINOR ACTIVITY REVIEW — APPLICATION CONTENTS
19.98.120 MINOR ACTIVITY REVIEW
19.98.130 SELF_CERTIFICATION
19.98.140 INSPECTION COMPLIANCE
19.98.145 IDLE WELLS
19.98.150 PLUGGED AND ABANDONED
19.98.160 PERMIT REVOCATION AND MODIFICATION
~~**APPENDIX A**~~

19.98.010 PURPOSE AND APPLICATION

The purpose of this chapter is to promote the economic and streamlined recovery of oil, gas, and other hydrocarbon substances in a manner compatible with surrounding land uses and protection of the public health and safety by establishing reasonable limitations, safeguards, and controls on exploration, drilling, and production of hydrocarbon resources. The procedures and standards contained in this chapter shall apply to all exploration drilling and production activities related to oil, gas, and other hydrocarbon substances carried out within the unincorporated San Joaquin Valley portion of Kern County (See Figure 19.98.015). This effective date of this version of Chapter 19.98 is MONTH, DAY, YEAR.

19.98.020 DEFINITIONS OF OIL AND GAS PRODUCTION ACTIVITIES

Oil and Gas exploration and operations contain many highly technical activities. For the purposes of this Chapter 19.98, definitions of activities are located throughout the Chapter, were applicable~~in Appendix A~~. Unless otherwise indicated in this Chapter, the definitions in Chapter 19.04 remain applicable.

19.98.030 OIL AND GAS PRODUCTION BOUNDARY AREA AND TIER AREAS

Oil and Gas production in Kern County occurs within the portion of Kern County depicted in Figure 19.98.015. This~~The~~ Oil and Gas ~~Production~~Activities Boundary Area is divided into five (5) Tier Areas and depicted in Figure 19.98.015. Changes to the Oil and Gas Production Boundary Area and Tier boundaries of Figure 19.98.015 shall be through the procedures in Chapter 19.112.

The Tier Areas were designated based on the following land use planning considerations~~are generally, described as follows~~:

A. Tier 1 Area is defined as all areas in which oil and gas activity is the primary land use. The existing well and activity densities preclude almost all other uses except for passive uses such as grazing.

B. Tier 2 Area is defined as all areas~~land~~ that ~~is~~ are classified ~~with the~~ Exclusive Agriculture (A) or Limited Agriculture (A-1) Districts, have ~~and has~~ agriculture as the primary surface land use, and are not ~~already~~ included in Tier 1.

C. Tier 3 Area is defined as other areas not within ~~the~~a Tier 1 Area that are located ~~and~~ in one of the following zone districts:

- Natural Resource (NR)
- Recreation Forestry (RF)
- Light Industrial (M-1)
- Medium Industrial (M-2)
- Heavy Industrial (M-3)
- Floodplain Primary (FPP)
- Drilling Island (DI)
- Zone Districts that have the Petroleum Extraction (PE) Combining District

D. Tier 4 Area is defined as areas not within Tier 1, 2, or 3, that include~~containing~~ at least one of the following zone districts:

- Estate (E)
- Low–Density Residential (R-1)
- Medium-Density Residential (R-2)
- High-Density Residential (R-3)
- Commercial Office (CO)
- Neighborhood Commercial (C-1)
- General Commercial (C-2)
- Highway Commercial (CH)
- Open Space (OS)
- Platted Lands (PL)
- Mobilehome Park (MP)

Authorized oil and gas activities in Tier 4 are subject to approval of a conditional use permit in accordance with 19.104 of this Title. ~~The Open Space (OS) District are those areas where oil or gas exploration and production activities are prohibited, but ancillary facilities are an~~

~~allowable use.~~

E. Tier 5 are areas including all current and future Specific Plan boundaries either adopted with a Special Planning (SP) District or which include specific provisions for oil and gas operations. Oil or gas exploration and production activities would be allowed with a conditional use permit or as permitted by the regulations contained within the adopted Specific Plan in Tier 5 areas.

F. All other areas not defined as Tier 1-5 Areas within the Oil and Gas Production Area are considered Non-Jurisdictional because they are not within the jurisdiction of Kern County.~~, including are considered Non-Jurisdictional~~ including . ~~These areas include~~ lands ~~under the administration of~~Lands owned by the United States, State of California or land within an incorporated city are exempt, unless under the authority of a written agreement with the Board of Supervisors. The regulations set forth in this chapter pertain only to accessory structures, facilities or uses that are physically connected to, provide access or services to, or otherwise support, oil and gas activities in these Non-Jurisdictional Areas.~~do not pertain to these areas.~~

19.98.040 OIL AND GAS ACTIVITIES BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any Tier 1, 2, ~~3~~ and ~~5~~3 Areas until an application for Oil and Gas Conformity Review or Minor Activity Review has been submitted to and approved by the Planning Director as consistent with the standards set out in Section 19.98.060 of this chapter and in accordance with the procedures set out in Sections 19.98.070 through 19.98.120 of this chapter. No such well may be drilled, or related accessory equipment, structure, or facility installed, in a Tier 5 Area unless the Specific Plan procedures for authorizing such activities have been completed, or if no such procedures are included in a Specific Plan unless the Oil and Gas Conformity Review or Minor Activity Review has been submitted and approved consistent with the procedures applicable to Tier 1, 2 and 3 areas.

B. Disposal of nonhazardous oilfield fluid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield fluid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield fluid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity or by reciprocal agreement among oil and gas operators in Kern County.

C. The provisions of this Section apply to the first three thousand six hundred and forty seven (3,647) new well permits issued each calendar year, within the Oil and Gas Production Boundary Area. Any new well permits beyond three thousand six hundred and forty seven (3,647) applied for in a calendar year would be subject to a conditional use permit.

19.98.050 OIL AND GAS ACTIVITIES BY CONDITIONAL USE PERMIT

A. In Tier 4, n~~N~~o well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, ~~or~~ facility or use may be installed in any zoning district described in this title in which such uses are permitted as conditional uses, or on land owned by the State of California subject to provisions of 19.98.030, until an application for a conditional use permit, which includes the information specified in Section 19.98.080, has been submitted to and approved by the Planning Commission as consistent with the standards set out in Section 19.98.060 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.98 of this title. In approving a conditional use permit, the Planning Commission may waive any condition set out in Section 19.98.060 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity, based on findings of fact and compliance with the California Environmental Quality Act.

B. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility, outside the boundaries as defined in Figure 19.98.015, may be installed in any zoning district described in this title in which such uses are permitted, or on land owned by the State of California subject to provisions of 19.98.030, until an application for a conditional use permit, which includes the information specified in Section 19.98.080, has been submitted to and approved by the Planning Commission as consistent with the standards set out in Section 19.98.060 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.98 of this title. In approving a conditional use permit, the Planning Commission may waive any condition set out in Section 19.98.060 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity, based on findings of fact and compliance with the California Environmental Quality Act.

C. Should any activity requiring approval of an Oil and Gas Conformity Review or Minor Activity Review pursuant to Sections 19.98.070 through 19.98.120 of this chapter, not be able to comply with the Implementation Standards and Conditions set forth in Section 19.98.060, an application for a conditional use permit, which includes the information specified in Section 19.98.080, shall be submitted to and approved by the Planning Commission in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.98 of this title. In approving a conditional use permit, the Planning Commission may waive/modify any condition set out in Section 19.98.060 of this chapter if it determines that such waiver or modification will not result in material detriment to the public welfare or the property of other persons located in the vicinity, based on findings of fact and compliance with the California Environmental Quality Act.

D. If a ~~producing~~ well ~~or service well~~ is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any approved ~~extended~~

period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning activities, or related operations, in a well on the lands covered by such permit, which activities were commenced while said permit was otherwise in effect. Continuous activities are those suspended for not more than ~~thirty~~ninty (~~30~~90) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the decision making authority, upon a written request of the permittee, may extend the permit for the additional time requested by permittee for the completion of such drilling ~~program~~, in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180.

E. The following accessory uses shall require a Conditional Use Permit:
1. Cogeneration facility
2. Landfills

19.98.060 IMPLEMENTATION STANDARDS AND CONDITIONS

Pursuant to this chapter, all activities for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related accessory buildings, structures, facilities ~~and~~, and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within:

1. One hundred (100) feet of any public Major or Secondary highway or building not necessary to the operation of the well;
2. ~~One hundred and ninety~~Two hundred and ten (~~190~~210) feet of any ~~dwelling unit (single or multifamily)~~sensitive receptor (single or multi-family dwelling unit, place of public assembly, institution, school or hospital); or
3. ~~Three hundred (300) feet of any building used as a place of public assembly, institution, or school; or~~
3. One hundred (100) feet of any building utilized for commercial purposes, not used for oil and gas operations.

B. All drilling and production activities shall conform to all applicable fire and safety regulations. Firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil, ~~and~~ Gas and Geothermal Resources ~~(DOGGR)~~
2. Kern County Fire Department
3. Kern County Public Health Department
4. Regional Water Quality Control Board
5. San Joaquin Valley Air Pollution Control District
6. Kern County Public Works Department
7. California Department of Fish and Wildlife
8. United States Bureau of Land Management
9. United States Fish and Wildlife Service

10. United States Environmental Protection Agency

D. The applicant shall demonstrate compliance with all applicable Mitigation Measures as listed in the approved Mitigation Monitoring and Reporting Program (MMRP) for the Revisions to the Zoning Ordinance (C) - 2015.

19.98.070 OIL AND GAS CONFORMITY REVIEW AND APPROVAL ── REQUIRED

In Tiers 1, 2, 3 and 5, ~~E~~except as provided in this section, no permitted use shall be established, no permitted development shall occur, and no building permit or grading permit shall be issued for any permitted use or development subject to this chapter until an Oil and Gas Conformity Review or Minor Activities Review has been submitted to and approved by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

Oil and Gas Conformity Review and Minor Activities Review

Activity	Conformity Review	Minor Activity Review	No Permit Required
Drilling & Completion			
Production Well (including cyclic steam production well) A well drilled to produce oil and or natural gas	✓		
Reworked Well	✓		
Injection Well A U.S. Environmental Protection Agency class 2 injection well into which fluids are injected rather than produced with the primary objective typically is to maintain reservoir pressure, conduct EOR operations or dispose of produced water or gas, including: steamflood, waterflood or gas injection	✓		
~~Temperature~~ Observation Well A well for the purpose of observing parameters such as temperature, fluid levels and pressure changes	✓		
SB4-Regulated Activities An activity regulated under California Senate Bill 4 (SB4) designed to enhance oil and or gas production or recovery. SB4 activities do not include activities such as steam flooding, water flooding, cyclic steaming, routine well cleanout, well maintenance or removal of formation damage due to drilling, chemical treatments that do not meet the requirements in 584, bottom hole pressure surveys, or routine activity Sidetracking, Deepening, activities that do not affect the integrity of the well of the formation	✓		
Drilling Pit or Sump A drilling pit or sump that requires a permit from the Central Valley Water Quality	✓		

Activity	Conformity Review	Minor Activity Review	No Permit Required
Control Board			

Sidetrack Change in well type, perforate new or existing perforations in casing, run or remove or cement liners, place or drill out any plug (cement, sand, mechanical): essentially, any operation that permanently alters the casing of a well	✓		
Deepening To deepen or permanently alter the casing in a well. Altering includes actions that require a DOGGR permit	✓		
Exploration and Development			
Geophysical Survey or Drilling by Scientific Means Tests conducted to determine the extent of and presence of oil and natural gas reserves and whether the resources for development	✓ *	✓	
Well Pad Preparation Construction activity consisting of clearing and grading of a new surface disturbance to accommodate the well and drilling activity or ancillary facilities that may be required for oil and gas drilling and operations	✓ *	✓	
Access Road Construction New surface disturbance that occur during the construction of a new road or expansion that includes new surface disturbance	✓ *	✓	
Electric Distribution Line Applies to new surface disturbance that occur during the construction of an electrical distribution line or expansion that includes new surface disturbance	✓ *	✓	
Pipeline Applies to new surface disturbance that occur during the construction of a pipeline or expansion that includes new surface disturbance	✓ *	✓	
Production Operations			
~~Steamflood~~	~~✓~~		
~~Waterflood~~	~~✓~~		
~~Gas Injection~~	~~✓~~		
~~Chemical EOR~~	~~✓~~		

Well ~~Workover~~ Operations and Maintenance Not Requiring a DOGGR permit			✓
Geophysical Monitoring			✓
Oil/Gas Treatment	✓ *	✓	
Produced Water Treatment	✓ *	✓	
Well Maintenance	✓ *	✓	
Well Testing			✓
Pipelines	✓ *	✓	
~~Pipelines (Oil, Produced Water, Waste Gas)~~	~~✓~~	~~✓~~	
Electric Lines	✓ *	✓	
Wastewater Treatment and Injection Disposal	✓ *	✓	
Wastewater Treatment and Surface Disposal	✓ *	✓	
Waste Treatment and Disposal	✓ *	✓	
Access Road	✓ *	✓	
Vegetation			✓
Reactivation of Idle Wells	✓ *	✓	
Support Facilities			
Administrative Building or Support Facility Building	✓ *	✓	
Steam Generator Boilers that generate steam for oil and gas field production purposes	✓ *	✓	
Flare A gas combustion device used primarily for burning off raw, waste, or unusable flammable gas that cannot be effectively commercialized	✓ *	✓	
Electric Lines Overhead or buried electrical distribution lines used for oil and gas field operations	✓ *	✓	
Electric Substations Electric substations used for oil and gas field operations	✓ *	✓	
~~Export~~ Pipelines Pipelines that part of an oil and gas field operation	✓ *	✓	
Tanks Tanks used for oil field operations	✓ *	✓	
Oil/Water Treatment Oil/ water treatment equipment used in oil and gas operations	✓ *	✓	
Produced Water Treatment Equipment used to treat produced water in an oil and gas operation	✓ *	✓	
~~Production Sump~~	~~✓~~ *	~~✓~~	
Produced Water Percolation Pond/Sump Produced water percolation and or evaporation ponds permitted by the Central Valley Regional Water Quality Control Board and used during oil and gas field operations	✓ *	✓	

Emergency Pit, Sump or Secondary Containment	✓ *	✓	
Fencing Fencing used to protect and prevent unauthorized individuals from coming into contact with oil and gas equipment and to prevent trespassing			✓
Well Abandonment A DOGGR process to plug and abandon a well used for oil and or gas activities including production, observation, and injection.			✓
Revegetation The processes taken to establish vegetation at an oil and gas operation			✓
Short Term Employee Housing Short Term Employee Housing Temporary housing for individuals involved in oil and gas operations that require onsite 24 hour 7 day a week oversight	✓ *	✓	
Pre-Ordinance Activities that Cause New Ground Disturbance and/or Subject to the Emission Reduction Agreement	✓ *	✓	
Note: * - Ongoing operations of existing wells, facilities and equipment, including minor modifications such as new interconnections between such facilities, does not trigger conformity review or minor activity review. When these accessory uses, equipment and facilities are proposed as part of the same project as an activity that requires an Oil and Gas Conformity Review, then these accessory activities are required to be included in the Oil and Gas Conformity Review. In all other circumstances, where new ground disturbance occurs, these accessory activities are subject to Minor Activity Review. ~~All activities denoted with a check mark in multiple columns, above, are subject to Oil and Gas Conformity Review only when in conjunction with another activity subject to only Oil and Gas Conformity Review; otherwise are only subject to Minor Activity Review. These activities shall be considered incidental to the Oil and Gas conformity Review for fee purposes.~~			

19.98.080 OIL AND GAS CONFORMITY REVIEW — APPLICATION CONTENTS (TIER 1)

Applications for an Oil and Gas Conformity Review within Tier 1 Areas, pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name, telephone number and address of the applicant.

B. Name(s), telephone number(s) and address(es) of the surface property owner(s), mineral owner(s), oil and gas operator (if different than the applicant).

C. Assessor's parcel number(s) of all parcels located within the boundaries of the proposed operation, including accessory equipment, structures, and/or facilities. Latitude/Longitude coordinates for all existing and proposed wells.

D. Description of the project area, including total site acreage, accessory equipment, structures, and/or facilities.

E. A site plan drawn to scale, sufficient in size to show all necessary details, no larger than 11x17, with multiple sheets (if necessary), which includes the following information:

1. Project boundary lines and dimensions, including lease lines and property lines.

2. Location and coordinates of all proposed well holes and related accessory equipment. Location of all roadways, pipelines, tanks, treatment or other structures and facilities to be installed. Distance from proposed well holes to section/midsection lines, located within ½ mile.

3. Location of all existing dwellings and structures, located within fifteen hundred and fifty (1,550) feet for all wells proposed to be drilled less than ten thousand (10,000) feet in depth or located within three thousand two hundred and seventy (3~~000~~,270) feet, for all wells proposed to be drilled greater than ten thousand (10,000) feet in depth, of the proposed well holes~~,~~. ~~I~~Identification of the use of each structure, and distances between well holes and existing buildings shall be noted. Location of existing property lines and distance from well site to property line.

4. Location of all new flare gas production lines, lines for production, electrical lines, and location of tank farms to be used.

5. North arrow, date the site plan was prepared, and scale.
6. Location of all accessory/ancillary facilities (including trucking parking, onsite storage, etc.) to be installed with the proposed wells.
7. California Division of Oil, Gas and Geothermal Resources permit application number, if available.
8. Identify the proposed source of water (domestic or production), if applicable.
9. Show location of all proposed underground pipelines.
10. Location of any existing Oil and Gas Conformity Review boundaries within and/or contiguous to the proposed boundary, including total site acreage and identification of Tier Area.
11. Written documentation in sufficient detail to allow the County to determine that all conditions required in Section 19.98.060 will be complied with, including all applicable mitigation measures as listed in the approved Mitigation Monitoring and Reporting Program for the Revisions to the Zoning Ordinance (C) – 2015.
12. Evidence that notice was provided to Land/Surface Owners as required by Section 19.98.080 G.

G. Notification Requirements

1. A physical letter of notification of application that requires a signature for delivery shall be sent by the applicant to all Land/Surface Owners of the property for which the Conformity Review is being requested, if the Land/Surface Owners are different from the mineral owners. The notice shall include all information required by State law. The letter of notification package shall include a copy of proposed site plan, including an official County handout explaining the conformity review process. The package shall be sent 30 days before submittal of the application. The application

shall include evidence that the letter was sent and the signatures received. Any application for which the Land/Surface Owner letter is returned for failure to obtain a signature, the Applicant shall provide evidence that the Land/Surface Owner of the property cannot be located through normal means such as tax records. A dated letter of authorization, with specific Assessor Parcel Numbers and the period of time applicable, from the Land/Surface Owner addressed to the County of Kern may be submitted asking that the notification be waived as allowed by State law. In site locations where mineral rights are owned by the United States Government and the surface is privately owned, the application package shall include confirmation that the proposed site plan has been submitted to the United States Bureau of Land Management.

2. A second letter shall be sent, by the applicant, when the application is submitted to the County. A dated letter of authorization, with specific Assessor Parcel Numbers and the period of time applicable, from the Land/Surface Owner, addressed to the County of Kern, may be submitted asking that the notification of application submitted be waived.

3. Access of the surface for purposes of conducting pre-application activities, such as surveys, shall be subject to any existing agreement between the Mineral Owner and the Land/Surface Owner, and State regulations. Such access is not subject to the notification requirements set forth in this title.

19.98.080~~5~~ OIL AND GAS CONFORMITY REVIEW AND CONDITIONAL USE PERMIT — APPLICATION CONTENTS (TIERS 2-5)

Applications for an Oil and Gas Conformity Review within Tiers ~~1~~ 2, 3, or Tier 5 Areas, pursuant to Section 19.98.040 of this chapter, or for a conditional use permit, for oil and gas activities within a Tier 4 Area, pursuant to Section 19.98.050 of this chapter, shall include the following:

A. Name, telephone number and address of the applicant.

B. Name(s), telephone number(s) and address(es) of the surface property owner(s), mineral owner(s), oil and gas operator (if different than the applicant).

C. Assessor's parcel number(s) of all parcels located within the boundaries of the proposed operation, including accessory equipment, structures, and/or facilities. Latitude/Longitude coordinates for all existing and proposed wells.

D. Preliminary Title Report, not over ninety (90) days old. A Guarantee of Title may be submitted for parcels with a Preliminary Title Report on file, over (90) days old.

E. Legal description of the project area, including total site acreage, located within the boundaries of the proposed operation, including accessory equipment, structures, and/or facilities in aliquot format, unless a more precise legal description is determined to be needed by the Planning Director.

F. A site plan drawn to scale, sufficient in size to show all necessary details, no larger than 11x17, with multiple sheets (if necessary), which includes the following information: ~~All~~

~~information required in Tier 2, 3, 4 and 5. Tier 1 information to be determined based on density of pre-ordinance oilfield development, as determined by the Director.~~

1. Topography and proposed grading of the site plan.

2. Project boundary lines and dimensions, including lease lines and property lines.

3. Location and coordinates of all proposed well holes and related accessory equipment. Location of all roadways (access roads), any proposed landscaping, pipelines, tanks, treatment or other structures and facilities to be installed, and any existing or abandoned wells if such are known to exist.

4. Location of all existing dwellings and structures, located within fifteen hundred and fifty (1,550) feet for all wells proposed to be drilled less than ten thousand (10,000) feet in depth or located within three thousand two hundred and seventy (3~~000~~,270) feet in depth, for all wells proposed to be drilled greater than ten thousand (10,000) feet, of the proposed well holes~~,~~. ~~I~~Identification of the use of each structure, and distances between well holes and existing buildings shall be noted. Location of existing property lines and distance from well site to property line.

5. Location of all new flare gas production lines, lines for production, electrical lines, and location of tank farms to be used.

6. North arrow, date the site plan was prepared, and scale.
7. Location of all recorded easements onsite, roads, section/midsection lines, located within ½ mile of the proposed wells.
8. Location of all accessory/ancillary facilities (including trucking parking, onsite storage, etc.) to be installed with the proposed wells. Location of planned ground disturbance on irrigated or prime agricultural land.
9. Description of ~~parcel~~project boundary in relation to Tier areas as ~~indicated~~defined in Figure 19.98.015.
10. ~~DOGGR~~ California Division of Oil, Gas and Geothermal Resources permit application number, if available.
11. Identify the location of the 100-year floodplain, if applicable.
12. Identify the proposed source of water (domestic or production), if applicable.
13. Show location of all new proposed underground pipelines. ~~Identify if pipelines connect to a Gas Distribution System.~~
14. Location of any existing Oil and Gas Conformity Review boundaries within and/or contiguous to the proposed boundary.
15. Written documentation in sufficient detail to allow the County to determine that all conditions required in Section 19.98.060 will be complied with, including all applicable mitigation measures as listed in the approved Mitigation Monitoring and Reporting Program for the Revisions to the Zoning Ordinance (C) – 2015.
16. Evidence that notice was provided to Land/Surface Owners as required by Section 19.98.085 H.

G. Signature Block and Statement (Land/Surface Owner, Mineral Owner and Operator.
The following statement shall be included to the first page of the site plan. ~~In Tier 1 Areas it shall be signed by both the Mineral Owner and the Operator.~~ ~~In Tier 2, 3, 4 and~~

~~5 Areas it~~ The statement shall be signed by all parties, irrespective of ownership relationship. Multiple lines may be added for multiple ownership signatures. A dated letter of authorization, with specific Assessor Parcel Numbers, from the Land/Surface Owner addressed to the County of Kern may be submitted asking that the signature on the site plan be waived.

REQUIRED STATEMENT

The undersigned Land/Surface Owner is the owner of APN#_____. The undersigned is the Mineral Owner and/or Operator or Lessee of the Mineral Owner. The Land/Surface Owner and the Mineral Owner and/or the Operator or Lessee have come to an agreement regarding the use of the surface of the property in connection with the Kern County permit that is being issued with this site plan.

Land/Surface Owner:	Mineral Owner:	Operator:
_____	_____	_____
Print Name	Print Name	Print Name
_____	_____	_____
Title/Company	Title/Company	Title/Company
_____	_____	_____
Signature	Signature	Signature
_____	_____	_____
Date	Date	Date

H. Notification Requirements - Tier ~~1,~~ 2, 3, 4 and 5 Areas.

1. A physical letter of notification of application that requires a signature for delivery shall be sent by the applicant to all Land/Surface Owners of the property for which the Conformity Review is being requested, if the Land/Surface Owners are different from the mineral owners. The notice shall include all information ~~providing the notice~~ required by State law. The letter of notification package shall include a copy of proposed site plan, ~~and~~ including an official County handout explaining the conformity review process. The package shall be sent 30 days before submittal of the application. The application shall include evidence that the letter was sent and the signatures received. Any application for which the Land/Surface Owner letter is returned for failure to obtain a signature, the Applicant shall provide evidence that the Land/Surface Owner of the property cannot be located through normal means such as tax records. A dated letter of authorization, with specific Assessor Parcel Numbers and the period of time applicable, from the Land/Surface Owner addressed to the County of Kern may be submitted asking that the notification be waived as allowed by State law. In site locations where mineral rights are owned by the United States Government and the surface is privately owned, the application package shall include confirmation that the proposed site plan has been submitted to the United States Bureau of Land Management.

2. Access of the surface for purposes of conducting pre-application activities, such as surveys, shall be subject to any existing agreement between the Mineral Owner and the Land/Surface Owner, and State regulations. Such access is not subject to the notification requirements set forth in this title.

~~1. Within a Tier 1 Area only, a second letter shall be sent, by the applicant, when the~~

~~application is submitted to the County. A dated letter of authorization, with specific Assessor Parcel Numbers, from the Land/Surface Owner, addressed to the County of Kern, may be submitted asking that the notification of application submitted be waived.~~

19.98.090 OIL AND GAS CONFORMITY REVIEW – WITH ~~REQUIRED~~APPLICABLE SURFACE OWNER SIGNATURE

A. An applicant for a ministerial Oil and Gas Conformity Review permit pursuant to this chapter shall submit an application to the Planning Director in the format and number of copies specified by the Planning Director. The application shall contain all the information specified for the application by the applicable section of this chapter. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.040 of this Title. For Tier 2, 3 and 5 Areas, a copy of the application shall be provided to the Land/Surface owner per the requirements of 19.98.085.~~F~~H above. The application must contain the signature block and statement pursuant to Section 19.98.08~~05~~.~~F~~G, or shall contain a letter from the Land/Surface Owner waiving the need for said signature on the specified parcel of the proposed application. The waiver letter must be dated and provide specific language as to the length of time the letter is valid if to be used for future Oil and Gas Conformity Reviews.

B. The Planning Director shall ~~make reasonable efforts to~~ inform the applicant in writing within seven (7) business days of receipt that the application is complete and shall issue the permit if he/she determines that the proposed use meets the implementation standards and conditions specified in the applicable provisions of this chapter or inform the applicant that additional information is needed to complete the application and therefore the application is deemed incomplete.

C. Within three (3) business days of reviewing the second submittal, if required, to correct any deficiencies, the Planning Director shall ~~make reasonable efforts to~~ issue the permit if he/she determines that the proposed use meets the implementation standards and conditions specified in the applicable provisions of this chapter or inform the applicant that additional information is needed to complete the application and therefore the application is deemed incomplete.

D. Within seven (7) business days of reviewing the third submittal to correct any deficiencies, the Planning Director shall ~~make reasonable efforts to~~ issue the permit if he/she determines that the proposed use meets the implementation standards and conditions specified in the applicable provisions of chapter. If the application remains incomplete ~~additional information is needed~~, a mandatory in person meeting with the applicant, and any consultant processing the application on behalf of the applicant, will be required to resolve the issues preventing issuance of the permit. The in-person meeting cannot be waived, and shall be held at the Kern County Planning and Community Development Department.

E. Failure of the Planning Director to meet any deadline for application review or permit issuance as provided in this section shall not cause a permit to be deemed approved.

F. Any reviews beyond three (3), as provided above, shall require additional fees to be paid, as set forth pursuant to Section 19.06.040 of this Title, and shall be ~~conducted~~completed within thirty (30) days after the application is deemed complete.

~~F~~G.Prior to conducting any drilling activity the applicant (or operator, if acting on behalf of an applicant) must have received and have on file both the approved Permit to Conduct Well Operations from ~~DOGGR~~ California Division of Oil, Gas and Geothermal Resources and an approved Oil and Gas Conformity Review unless the activity involves facility placement not subject to ~~DOGGR~~ California Division of Oil, Gas and Geothermal Resources permit approval.

~~G~~H. Upon issuance of this permit~~.~~:

1. ~~t~~The County shall send a notification to the applicant, applicable responsible agencies, and the land/surface owner (if different from the mineral owner) stating a permit has been issued by the County~~, to facilitate the responsible agencies compliance with and that the agency has certain requirements under the California Environmental Quality Act as a responsible agency.~~ The approval letter shall include a stamped site plan, list of applicable conditions and mitigation measures, and a determination that the permit approval falls within the scope of the Environmental Impact Report prepared for the Revisions to the Zoning Ordinance (C) – 2015, and that other state, regional, and local agencies are responsible agencies under the California Environmental Quality Act.

2. The applicant shall notify the Land/Surface owner of the proposed dates for access of the property to commence operations and/or to comply with mitigation measures. Such notification may take the form of multiple letters. A dated letter of authorization, with specific Assessor Parcel Numbers and the period of time applicable, from the Land/Surface Owner, addressed to the County of Kern, may be submitted asking that the notification of access be waived or has already been satisfied with a single notification letter.

I. If the development for which a permit has been approved pursuant to this article has not commenced within one (1) year of the granting of the permit, or if the permit has been unused, abandoned, discontinued, or has ceased for a period of one (1) year, the permit shall become null and void and of no effect, unless an extension has been granted by the Planning Director upon written request for an extension before the expiration of the one- (1-) year period. A copy of any expiration or extension shall be provided to the Land/Surface Owner.

19.98.100 OIL AND GAS CONFORMITY REVIEW - WITHOUT REQUIRED SURFACE OWNER SIGNATURE

The provisions contained in this section apply only to applications submitted within Tier 2, 3 and 5 Areas, which do not contain the surface owner signature as required by Section 19.98.070, above:

A. An applicant for a ministerial Oil and Gas Conformity Review permit pursuant to this chapter, which does not include the Land/Surface Owner signature required pursuant to Section 19.98.085 F, shall submit an application to the Planning Director in the format and number of copies specified by the Planning Director. The application shall contain all the information specified for the application by the applicable provisions of this chapter. A copy of the application shall be provided to the Land/Surface Owner per the requirements of Section 19.98.080.F above. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.040 of this Title.

B. The Planning Director shall ~~make reasonable efforts to~~ inform the applicant in writing on the~~within~~ thirtieth (30) calendar day~~s~~ of receipt that the application is complete or that additional information is needed to complete the application and therefore the application is deemed incomplete. ~~No sooner than thirty (30) calendar days from issuance of the Kern County Oil and Gas Conformity Review and any other necessary state or federal permits, the applicant may begin construction of the facility.~~ The Planning ~~and Community Development Department~~Director shall notify the Surface/Land Owner ~~that the permit has been issued~~of their option for an in-person meeting with the Department to discuss the conformity review process and answer questions regarding the site plan, to be scheduled within the thirty (30) day period stated above.

C. ~~Additional~~Second Thirty (30) Day Review Period ~~Within~~.

1. If the application is deemed complete during the thirty (30) day period in Section 19.98.100 B, a mandatory second thirty (30) calendar day review will commence immediately following the end of the first review period.

2. If the application is found to be incomplete during the review period in Section 19.98.100 B, a subsequent thirty (30) day review period will commence at the time of submittal by the Applicant of the additional documentation~~thirty (30) calendar days will be of reviewing the second submittal, if required, to correct any deficiencies.~~.;

3. The Planning Director shall notify the Surface/Land Owner of their option for an additional in-person meeting with the Department to answer questions including review of any revisions to the site plan, to be scheduled within the thirty (30) day period stated above.

4. The Planning Director shall request to schedule a mandatory in-person meeting with the Applicant to review the current site plan and discuss the conformity review process.

5. On the first business day following the 30 day review period, the Planning Director shall ~~make reasonable efforts to~~ issue the permit if he/she determines that the proposed use meets the implementation standards and conditions specified in the applicable provisions of this chapter or inform the applicant that additional information is needed to complete the application and therefore the application is deemed incomplete.

D. ~~Within~~All subsequent reviews, due to incomplete application submittals, shall require a mandatory thirty (30) calendar day~~s of reviewing the third submittal, if required,~~ review period. ~~to correct any deficiencies, t~~The Planning Director shall ~~make reasonable efforts to~~ issue the permit if he/she determines that the proposed use meets the development standards and conditions specified in the applicable provisions of this chapter or inform the applicant that additional information is needed to complete the application and therefore the application is deemed incomplete. If application remains incomplete, ~~additional information is needed,~~ a mandatory in-person meeting with the applicant, and any consultant processing the application will be required to resolve the issues preventing issuance of the permit. The in-person meeting cannot be waived.

E. Any reviews beyond three (3), as provided above, shall require additional fees to be paid, as set forth pursuant to Section 19.06.040 of this Title, and shall be completed within thirty (30)

days after the application is deemed complete.

F. At any time during the review periods in Sections 19.98.100.A ~~or B~~ D the applicant submits proof of the required surface owner signature on the site plan, the application will be deemed acceptable to be processed under the provisions set forth in Section 19.98.090.

G. Failure of the Planning Director to meet any deadline for application review or permit issuance as provided in this section shall not cause a permit to be deemed approved.

~~F~~H. No sooner than thirty (30) calendar days from issuance of the Kern County Oil and Gas Conformity Review and any other necessary state or federal permits, the applicant may begin construction of the facility. This period shall be used to coordinate deposits and inspections pursuant to 19.98.140 (Inspection Compliance). Prior to conducting any drilling activity the operator must have received and have on file both the approved Permit to Conduct Well Operations, from ~~DOGGR~~ California Division of Oil, Gas and Geothermal Resources and an approved Oil and Gas Conformity Review unless the activity involves facility placement not subject to ~~DOGGR~~ California Division of Oil, Gas and Geothermal Resources permit approval.

~~G~~I. Upon issuance of this permit~~,~~;

1. ~~t~~The County shall send a notification to the Applicant, applicable responsible agencies, and the Land/Surface Owner stating a permit has been issued by the County. ~~to facilitate the responsible agencies complance with and that the agency has certain requirements under the California Environmental Quality Act as a responsible agency.~~ The approval letter shall include a stamped site plan, list of applicable conditions and mitigation measures, and a determination that the permit approval falls within the scope of the Environmental Impact Report prepared for the Revisions to the Zoning Ordinance (C) – 2015, and that other state, regional, and local agencies are responsible agencies under the California Environmental Quality Act.

2. The Applicant shall notify the Land/Surface owner of the proposed dates for access of the property to commence operations and/or to comply with mitigation measures. Such notification may take the form of multiple letters.

J. If the development for which a permit has been approved pursuant to this article has not commenced within one (1) year of the granting of the permit, or if the permit has been unused, abandoned, discontinued, or has ceased for a period of one (1) year, the permit shall become null and void and of no effect, unless an extension has been granted by the decision-making authority upon written request for an extension before the expiration of the one- (1-) year period. A copy of any expiration or extension shall be provided to the Land/Surface Owner.

19.98.110 MINOR ACTIVITY REVIEW — APPLICATION CONTENTS

An application for Minor Activity Review ministerial permit for Tier 1-3 and 5 Areas, pursuant to Section 19.98.040 of this chapter, shall include the following:

A. Name, telephone number and address of the applicant.

B. Name(s), telephone number(s) and address(es) of the property owner(s), mineral owner(s), oil and gas operator (if different than the applicant).

C. Assessor's parcel number(s) of all parcels located within the boundaries of the proposed operation, including accessory equipment, structures, and/or facilities. Latitude/Longitude coordinates for all wells.

D. Preliminary Title Report, not over ninety (90) days old. A Guarantee of Title may be submitted for parcels with a Preliminary Title Report on file, over (90) days old. For all Tier 2-5 Applications only.

E. Description of proposed oil and gas activity ~~and documentation of compliance with applicable Mitigation Measures (see incorporated Mitigation Monitoring and Reporting Program).~~ And written documentation in sufficient detail to allow the County to determine that all conditions required in Section 19.98.060 will be complied with, including all applicable mitigation measures as listed in the approved Mitigation Monitoring and Reporting Program for the Revisions to the Zoning Ordinance (C) – 2015.

F. Sufficient number of photographs to identify the extent of existing ground disturbance.

G. For Tier 2, 3 and 5 Areas only, documentation of a letter submitted to the Land/Surface Owner(s), if different from the Mineral Owner, informing the Land/Surface owner of the Minor Activity Review application and providing a complete copy of the application, shall be mailed and received a minimum of thirty (30) days prior to application being submitted to the County for review.

19.98.120 MINOR ACTIVITY REVIEW

A. An applicant for a Minor Activity Review ministerial permit for Tiers 1-3, and 5, pursuant to this chapter shall submit an application to the Planning Director in the format and number of copies specified ~~by the Planning Director~~. The application shall contain all the information specified for the application by the applicable section of this chapter. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.040 of this Title. For Tier 2, 3 and 5 Areas, a copy of the application shall be provided to the Land/Surface Owner per the requirements of Section 19.98.080.F above.

B. The Planning Director shall ~~make reasonable efforts~~ to inform the applicant in writing within seven (7) business days of receipt that the application is complete and shall issue the permit if he/she determines that the proposed use meets the development standards and conditions specified in the applicable provisions of this chapter or inform the applicant that additional information is needed to complete the application and therefore the application is deemed incomplete.

C. Within three (3) business days of reviewing the second submittal, if required, to correct any deficiencies, the Planning Director shall ~~make reasonable efforts to~~ issue the permit if he/she determines that the proposed use meets the development standards and conditions specified in the applicable provisions of this chapter or inform the applicant that additional information is needed to complete the application and therefore the application is deemed incomplete.

D. Within seven (7) business days of reviewing the third submittal, if required, to correct any deficiencies, the Planning Director shall make reasonable efforts to issue the permit if he/she determines that the proposed use meets the development standards and conditions specified in the applicable provisions of Title. If additional information is needed, a mandatory in-person meeting with the applicant, and any consultant processing the application will be required to resolve the issues preventing issuance of the permit. The in-person meeting cannot be waived.

E. Failure of the Planning Director to meet any deadline for application review or permit issuance as provided in this section shall not cause a permit to be deemed approved.

F. Any reviews beyond three (3), as provided above, shall require additional fees to be paid, as set forth pursuant to Section 19.06.040 of this Title, and shall be completed within thirty (30) days after the applicant is deemed complete.

~~F~~G. Prior to conducting any activity the operator must have received and have on file both approved applicable ~~DOGGR~~California Division of Oil, Gas and Geothermal Resources permit(s), if necessary, and an approved Minor Activity Review pursuant to the chapter.

~~G~~H. Upon issuance of this permit, the County shall send a notification to the applicable responsible agencies stating a permit has been issued by the County and that the agency has certain requirements under the California Environmental Quality Act as a responsible agency.

I. If the development for which a permit has been approved pursuant to this article has not commenced within one (1) year of the granting of the permit, or if the permit has been unused, abandoned, discontinued, or has ceased for a period of one (1) year, the permit shall become null and void and of no effect, unless an extension has been granted by the decision-making authority upon written request for an extension before the expiration of the one- (1-) year period. A copy of any expiration or extension shall be provided to the Land/Surface Owner.

19.98.130 SELF-CERTIFICATION

Upon issuance of Oil and Gas Conformity Review or Minor Activity, as specified in Sections 19.98.090 and 19.98.120 of this chapter, and any other necessary state or Federal permits, the applicant may begin construction of the facility. The provisions of this section do not apply to issuance of an Oil and Gas Conformity Review pursuant to 19.98.100 (Oil And Gas Conformity Review - Without Required Surface Owner Signature) of this chapter. The applicant must self-certify compliance with Chapter 19.98 during the construction and operation process. Once the project applicant has completed the construction of the oil and gas facilities, as indicated on the approved site plan, the project applicant will provide a self-certified statement, in writing, to the County, in a format specified by the Director.

During construction and continued operations of the activities specified by the approved site plan, the applicant will be responsible for complying with the issued Oil and Gas Conformity Review, and all applicable implementation standards as outlined in this chapter. Should a violation of a permit issued under this chapter occur on-site, a Certification and Finalization process for the Oil and Gas Conformity Review will be conducted by the County Oil and Gas Inspector, and self-certification for the permit will no longer be permitted for the applicant for the next issued permit, as a probationary period. Once the applicant has demonstrated compliance on the following permit, any subsequent permit may be self-certified.

19.98.140 INSPECTION COMPLIANCE

Upon receipt of an issued permit pursuant to Section 19.98.100 (Oil And Gas Conformity Review - Without Required Surface Owner Signature), the applicant must contact the Planning and Community Development Department and the Public Works Department to pay perusant to Section 19.06.040 of this title and provide a signed Cost Recovery Agreement, and schedule an inspector to be present during all activities related to the Oil and Gas Conformity Review. The County inspector or third-party building inspector and expert(s) retained by the County shall confirm compliance with all requirements of this Title and Mitigation Measures, and other federal and State laws. All compliance verification costs shall be During construction and continued operations of the activities specified by the approved site plan, a building inspector will be present on the site to monitor and enforce the applicant's compliance with ~~will be responsible for complying with~~ the issued Oil and Gas Conformity Review, and all applicable standards and conditions as outlined in the permit.

19.98.145 IDLE WELLS

A. An operator shall file a notification with the County, and with the Surface/Land Owner (if different from the Mineral Owner) of any Idle or Long Term Idle Well, within 30 days of changing the well status.

B. For purposes of this section, a "Idle Well" is defined as a well that has not produced oil or natural gas, or has not been used for injection for six consecutive months of continuous operation during the last five or more years. A "Long-Term Idle Well" means any well that has not produced oil or natural gas, or has not been used for injection for six consecutive months of continuous operations during the last 10 or more years. An "active observation well" means a well being used for the sole purpose of gathering reservoir data, such as pressure or temperature in a reservoir being currently produced or injected by the operator, and the data is gathered at least once every three years. An Idle well or Long-Term Idle Well does not include an active observation well.

C. Any member of the public may file a notice with the County asking for confirmation of the status that a well is either a Idle or Long Term Idle Well, and the County shall forward this notice to the California Division of Oil, Gas and Geothermal Resources to seek information about the status of this well and the owner/permittee for the well. The County shall cooperate with the California Division of Oil, Gas and Geothermal Resources in its enforcement of regulations applicable to these wells.

D. The County shall check whether an applicant for an Oil and Gas Conformity Review permit or Conditional Use Permit is the subject of an idle well complaint, and if so shall coordinate with the California Division of Oil, Gas and Geothermal Resources to assure that the applicant is in compliance with applicable idle well regulations. An applicant not in compliance with idle well regulations, as determined by official correspondence from the California Division of Oil, Gas and Geothermal Resources, shall not be eligible to receive additional Oil and Gas Conformity Review permits or conditional use permits under this Chapter until such time as the Division of Oil, Gas and Geothermal Resources has advised the County that the applicant is in compliance.

19.98.150 PLUGGED AND ABANDONED

Any permit issued pursuant to this chapter must plug and abandon all permitted wells per the following procedures:

A. The applicant shall plug and abandon all facilities in accordance with applicable laws and regulations as administered by the ~~DOGGR~~ California Division of Oil, Gas and Geothermal Resources.

B. Within thirty (30) days from completion of the plugged and abandoned procedures for any well constructed after the amendment of this Chapter 19.98, the applicant shall submit to the Planning and Community Development Department a letter stating which facilities have been abandoned, including the unique well identification number for each well. Compliance of this requirement shall include written confirmation from California Division of Oil, Gas and Geothermal Resources.

19.98.160 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this chapter may be revoked or modified pursuant to Section 19.102.020 of this Title.

OTHER SECTIONS OF THE ZONING ORDINANCE NEEDED REVISIONS (Revisions in Underline and ~~Strikethrough~~)

C H A P T E R 19.48

DRILLING ISLAND (DI) DISTRICT

19.48.080 HEIGHT LIMITS

Height limits in the DI District are as follows:

A. None on derricks and other equipment used during the exploration and drilling phase of development.

B. Pumping units shall not exceed ~~thirty-five (35)~~ eighty (80) feet in height.

19.48.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All drilling and other hydrocarbon development activity in the DI District shall be carried out in accordance with the standards and procedures set out in Section 19.98.~~050~~060 of this title. All activities subject to an Oil and Gas Conformity Review or Minor Activity Review shall comply with the provisions of Section 19.98.060 of the title.

B. Development in the DI District shall comply with the interpretations and provisions of Chapter 19.08 of this title.

CHAPTER 19.81

OUTDOOR LIGHTING

"DARK SKIES ORDINANCE"

19.81.050 EXEMPTIONS

The following are permanently exempt from the provisions of this chapter:

1. Outdoor lighting specifically approved in conjunction with a discretionary permit.

2. Federal and State Facilities: Outdoor light fixtures on, in, or in connection with facilities and land owned or operated by the government of the United States of America or the State of California; however, these agencies are encouraged to comply with the provisions of this ordinance.

3. Airports and Other Lighting Required by the Federal Aviation Administration: Outdoor lighting for public and private airports and any other uses that are regulated by the Federal Aviation Administration.

4. Correctional Institutions: Outdoor lighting for federal, State, and County-owned or operated correctional institutions; however, voluntary compliance with the intent and provisions of this chapter is encouraged.

5. Emergency Light: Temporary emergency lighting needed by the sheriff's department, police department, fire department, public utility, rescue operation or in conjunction with any other emergency service.

6. Temporary Construction: All temporary lighting used for the construction or repair of roadways, utilities, and other public infrastructure.

7. Internally Illuminated Signs: All internally illuminated signs, including those used for on-site and off-site advertising purposes. Such signs are regulated by the provisions of Chapter 19.84 (Signs) of the Kern County Zoning Ordinance.

8. Neon, Argon, or Krypton: All fixtures illuminated solely by neon, argon, or krypton.

9. United States Flag and State of California Flag: Lighting used to illuminate a properly displayed United States Flag and/or the State of California Flag.

10. Lighting Required by Building Codes or other Regulations: Communication towers, exit signs, lighting for stairs/ramps, lighting for points of ingress/egress to buildings, and all other illumination required by air navigation safety provisions, building codes, OSHA standards, and other permitting requirements from State or federal agencies.

11. Fossil Fuel Light: All outdoor light fixtures producing light directly by the combustion of fossil fuels (such as kerosene lanterns, gas lamps, etc.)

12. Street Lighting: Lighting equipment within a public or private right-of-way or easement for the principal purpose of illuminating streets, roadways, and/or other areas open to transport by vehicle or pedestrian traffic.

13. Seasonal Displays: Displays using multiple low wattage bulbs or lasers, provided that they do not constitute a fire hazard, create a nuisance, and are maintained in a safe condition. Such displays shall not be illuminated for more than forty-five (45) days per calendar year.

14. Water Features: Lighting in swimming pools and other water features governed by Article 680 of the National Electrical Code.

~~15. Oil and Gas Exploration and Production: Outdoor lighting in association with oil and gas exploration and production operations and related facilities shall be exempt from this chapter and are regulated by the provisions of Chapter 19.98 of the Kern County Zoning Ordinance.~~

~~16.~~ 15. Temporary Event Lighting: Temporary lighting for special events that does not conform to this chapter shall be reviewed as part of an application for a Temporary Event Permit (TEP), pursuant to Chapter 19.08.340 of the Kern County Zoning Ordinance. Any temporary lighting exemption approved via the

TEP process shall be utilized for a period of time that exceeds a combined total of twelve (12) combined days on any one (1) parcel during a calendar year. Exemptions are renewable for a period of not more than twelve (12) additional combined days. Requests for renewal of a temporary exemption shall be processed in the same manner as the original request. No outdoor light fixtures shall be exempted from this chapter for more than twenty-four (24) days combined during a calendar year.

~~17.~~ 16. Steeples: Lighting used to illumination the tall ornamental tower that forms the superstructure of a church, temple, office building, etc., shall be exempt from this chapter.

~~18.~~ 17. Temporary Agricultural Activities: Lighting used to illuminate temporary agricultural activities such as harvesting on property zoned A (Exclusive Agriculture) or A-1 (Limited Agriculture) and lasting no more than twelve (12) consecutive days and no more than twenty four (24) combined days on any one parcel during a calendar year.

C H A P T E R 19.50

FLOODPLAIN PRIMARY (FPP) DISTRICT

19.50.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development within the FPP District is subject to the requirements of the Flood Damage Prevention Ordinance, Chapter 17.48 of this code.

B. Development in the FPP District shall comply with the interpretations and provisions of Chapter 19.08 of this title.

C. Oil or gas exploration and production shall comply with Section 19.98.~~050~~060 and the following standards:

1. The following uses are permitted within the FPP District if they will not obstruct flows, will not cause peripheral flooding of other properties, will not cause any increase in flood levels during the occurrence of the base flood discharge, will be resistant to floatation and immune to extensive damage by flooding, and will not endanger life or property:

   (a) All oil or gas wells, including pumps and all other associated equipment.

   (b) Feasible remedial work, improvements, and flood-proofing of facilities.

2. No oil or gas well shall be drilled on the slope or within ten (10) feet of the top or toe of the bank of a river or stream located within the FPP District. The required setback on the top of bank shall be measured from an imaginary plane on a slope two (2) horizontal to one (1) vertical projected upward from the toe of the existing bank.

3. All oil or gas wells in the FPP District, including pumps and all other associated equipment, shall be designed such that they are resistant to damage by flooding.

4. All pipelines in the FPP District shall be flood-proofed by burial to sufficient depth to prevent rupture during flood conditions or by suspension at least two (2) feet above the surface of the base flood. Supports for elevated pipelines shall also carry a catwalk to facilitate removal of debris caught by supports during floods.

5. The location of all buried pipelines shall be recorded on appropriate maps by the company that owns said pipelines, and the maps shall be made available to any public agency that shall request a copy.

6. All drilling, redrilling, and producing, including remedial work, well pulling, work-overs, and deepening, shall conform to all applicable fire, safety, spacing, and environmental State law and regulations.

7. Proven technological improvements generally accepted and used in drilling and production methods shall be adopted as they may from time to time become available, if capable of reducing factors of nuisance and annoyance.

8. Prior to the commencement of any drilling, a copy of a Spill Prevention Control and Countermeasure Plan, as required by the United States Environmental Protection Agency, shall be filed with the Kern County ~~Engineering and Survey Services~~ Public Works Department.

9. All pumps expected to be inaccessible during times of flood shall be equipped with an accessible remote switch to shut off the pumps during emergencies.

10. The derrick, all boilers, and all other drilling equipment used pursuant to this chapter to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derrick, boilers, and drilling equipment are to be used within a reasonable time limit, determined by the Kern County ~~Engineering and Survey Services~~ Public Works Department, for the drilling of another well or wells on the premises.

11. After any well has been placed in production, no earthen sumps shall be used for the storage of petroleum or gas.

12. Within ninety (90) days after any well has been placed in production or after its abandonment, earthen sumps used in drilling or production or both shall be emptied by vacuum truck or other approved means, then filled, and the drilling site restored as nearly as practicable to a uniform grade, unless such sumps are to be used within a reasonable time limit, as determined by the Kern County ~~Engineering and Survey Services~~ Public Works Department.

13. Any derrick used for servicing operations shall be of the portable type; provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable-type derrick will not properly service such well, the Kern County ~~Engineering and Survey Services~~ Public Works Department may approve the use of a standard type of derrick.

14. Directional and warning signs, and those required for identification of the well, shall be constructed, erected, placed, or maintained on the premises, except those required by law to be displayed in connection with the drilling or maintenance of the well.

15. If a producing or service well is not secured twelve (12) months from the date of commencement of drilling operations or any extended period granted by the Kern County ~~Engineering and Survey Services~~ Public Works Department, the premises shall be restored to the original condition as nearly as practicable to do so. If at the expiration of the twelve- (12-) month period, the drilling program has not been completed, the Kern County ~~Engineering and Survey Services~~ Public Works Department may, upon a written request, grant an additional period of time as requested for the completion of such drilling program.

C H A P T E R 19.66

PETROLEUM EXTRACTION (PE) COMBINING DISTRICT

19.66.020 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are permitted in a PE District:

A. Wells for the exploration for and development and production of oil or gas or other hydrocarbon substances if the well or wells are located more than ~~three~~two hundred and ten (~~300~~210) feet away from any existing dwelling or existing building utilized for commercial purposes, excluding those premises utilized solely for storage of equipment, material, household goods, or similar material.

B. Deepening or redrilling, within the existing well bore, of any well used for the production or development of oil or gas or other hydrocarbon substances, or the replacement of any production facility which did not require a conditional use permit on the date drilling began or the date the facility was installed.

C. Drilling of a replacement well when the original well did not require a conditional use permit, and where the original well has been abandoned in accordance with California Division of Oil and Gas regulations and drilling of a replacement well commences within one (1) year of the conclusion of abandonment procedures, and the replacement well is located within twenty (20) feet of the original well or is farther from any existing dwelling or commercial building than the original well.

D. Uses permitted by the base district with which the PE District is combined.

19.66.030 USES PERMITTED BY A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are permitted in a PE District subject to securing a conditional use permit in accordance with the procedures set out in Chapter 19.104 of this title:

A. Wells for the exploration for and development and production of oil or gas or other hydrocarbon substances if the well or wells are located within ~~three~~two hundred and ten (~~300~~210) feet of any existing dwelling or existing building utilized for commercial purposes, excluding those premises utilized solely for storage of equipment, material, household goods, or similar material.

B. Conditional uses permitted by the base district with which the PE District is combined.

19.66.080 HEIGHT LIMITS

Height limit requirements in a PE District are as follows:

A. No height limit on derricks and other equipment used during the exploration and drilling phase of development.

B. Pumping units shall not exceed ~~thirty-five (35)~~ eighty (80) feet in height.

C. All other uses permitted by the base district shall conform to the height limits of the base district with which the PE District is combined.

19.66.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

All drilling and hydrocarbon development activities in a PE District shall be carried out in accordance with the standards and procedures set out in Section 19.98.~~050~~060 of this title. All activities subject to an Oil and Gas Conformity Review or Minor Activity Review shall comply with the provisions of Section 19.98.060 of the title.

C H A P T E R 19.102

PERMIT PROCEDURES
ARTICLE II. MINISTERIAL PERMITS ISSUED BY THE PLANNING DIRECTOR

19.102.040 GENERAL REQUIREMENTS — PERMIT TYPES

The ministerial permits specified in this title for review pursuant to this article shall be issued by the Planning Director upon submission of an application containing the information specified in applicable sections of this title and a determination by the Planning Director that the proposed use

or development meets the development standards and conditions specified in the applicable section or sections of this title. These permits include:

A. CRV recycling center permit (Section 19.08.480)

B. Temporary animal permit plot plan review (Sections 19.14.130 and 19.60.130 through 19.60.160)

C. Extensions for temporary mobilehomes and recreational vehicles (Sections 19.16.130 and 19.18.160)

D. Mobilehome park plot plan review (Sections 19.26.130 through 19.26.190)

E. Minor plan modifications (Section 19.52.130 through 19.52.180, 19.56.130 through 19.52.180, 19.56.130 through 19.56.200, 19.58.130 through 19.58.180, and 19.100.050

F. Commercial wind farm plot plan review (Section 19.64.130 through 19.64.150)

G. Geologic hazard plot plan review (Section 19.68.130 through 19.68.150)

H. Special development standards plot plan review (Sections 19.80.040 through 19.80.070)

I. Off-street parking plot plan review not in conjunction with a ministerial permit (Sections 19.82.100 through 19.82.130)

J. Landscaping plot plan review not in conjunction with a ministerial permit (Sections 19.86.070 through 19.86.100)

K. Density bonus permit (Sections 19.92.030 through 19.92.060)

L. Home occupation permit (Sections 19.94.050 through 19.94.080)

M. Production water injection wells for the purpose of disposing of production wastewater produced in the same oilfield in which the injection well is located (Section 19.98.030)

N. ~~Oil and gas plot plan review (Section 19.98.030)~~ Oil and Gas Conformity Review and Minor Activity Review (Section 19.98.070 through 19.98.120)

O. Large family day-care permit - no hearing (Sections 19.96.030 through 19.96.060)

P. Temporary batch plant (thirty (30) days or less) plot plan review (Section 19.08.290)

Q. Secondary residential unit plot plan review (Section 19.90.040 through 19.90.060)

R. Truck parking as accessory to residential use permit (Section 19.08.252)

C H A P T E R 19.108

NONCONFORMING USES, STRUCTURES, AND LOTS

19.108.040 NONCONFORMING USES OF LAND

A. A nonconforming use of land shall not be expanded, extended, or intensified in any way with respect to scope, duration, or frequency of the use, except as follows:

The Planning Commission may authorize the expansion or intensification of legal, nonconforming uses if, after consideration at a public hearing noticed pursuant to Section 19.102.150, both of the following findings can be made:

1. The proposed expansion will not create any significant adverse impacts to surrounding properties.

2. The only other remedy to bring the use into conformance would require an amendment to the applicable General Plan.

Public hearing notification shall consist of mailing notices to property owners having property within three hundred (300) feet from the exterior boundaries of the subject property. Published notice in a local newspaper shall not be required, unless the Planning Director determines that such additional notice is warranted. In consideration of a request to expand or intensify a legal, nonconforming use, the terms and conditions for any approval shall be as specified in Section 19.104.050.

B. A nonconforming use of land shall not be changed to or replaced by any other use except a use that complies with the regulations of the zoning district in which the subject property lies.

C. Any nonconforming use of land that has been discontinued or abandoned for a period of one (1) year or more shall not be reestablished. In instances where the assessed value of improvements on the property exceeds fifty thousand dollars ($50,000), as determined by the County Assessor, the nonconforming use shall not be reestablished if the use has been discontinued or abandoned for a period of two (2) years or more.

D. The exploration for or development or production of oil, gas, or other hydrocarbon substances ~~shall not be considered nonconforming uses of land~~ lawfully constructed prior to MONTH, DAY, YEAR shall be considered nonconforming uses of land. Any subsequent ~~alteration or expansion of these facilities is~~ maintenance, production, operations, well stimulation treatments, alterations or expansion, and other activities involving existing wells, including ancillary facilities, are allowed subject to Chapter 19.98 of this Title.

E. A legal nonconforming dwelling in any zone district may be replaced with the approval of the Planning Director, provided that all applicable requirements of this title, other than density or conditional use permit requirements, can be satisfied.

F. Any use of land continuously in existence for a period of twenty (20) years or more may qualify as a legal, nonconforming use pursuant to Section 19.108.080, irrespective of when zoning requirements became effective for that property, provided that the Planning Director determines that the use is not significantly incompatible with surrounding land uses and that there is no significant threat to the public health, safety, and welfare in allowing the use to continue.

19.108.060 NONCONFORMING SETBACKS

Any use permitted under the provisions of this title that currently exists with nonconforming setbacks may:

1. ~~b~~Be replaced in the same location if damaged or destroyed by fire, earthquake, explosion, or act of God regardless of the cost of such reconstruction; or
2. Be maintained in accordance with the provisions of this Title provided there is no greater degree of nonconformity with regard to setback.

C H A P T E R 19.08

INTERPRETATIONS AND GENERAL STANDARDS

SECTIONS:

19.08.010 PURPOSE
19.08.020 ZONING DISTRICT BOUNDARIES
19.08.030 DETERMINATION OF SIMILAR USE — GENERALLY
19.08.040 DETERMINATION OF SIMILAR USE — APPLICATION — CONTENTS
19.08.050 DETERMINATION OF SIMILAR USE — APPLICATION — TIME
19.08.060 DETERMINATION OF SIMILAR USE — PROCEDURE
19.08.070 DETERMINATION OF SIMILAR USE — APPEAL
19.08.080 DETERMINATION OF SIMILAR USE — CRITERIA
19.08.085 ALTERNATIVE TO DETERMINATION OF SIMILAR USE
19.08.090 PUBLIC UTILITY USES — COUNTY REVIEW
19.08.100 INTERPRETATION OF MINIMUM LOT SIZES
19.08.110 DETERMINATION OF ACCESSORY USES AND STRUCTURES
19.08.120 FRONT-YARD SETBACK EXCEPTION
19.08.130 LESS RESTRICTIVE USES PROHIBITED
19.08.140 LOCATION OF DWELLINGS
19.08.150 HEIGHT OF BUILDINGS
19.08.160 HEIGHT OF STRUCTURES
19.08.170 DWELLINGS ABOVE OTHER USES — YARD REQUIREMENTS
19.08.180 ACCESSORY BUILDINGS
19.08.190 THROUGH LOTS — SETBACK REQUIREMENTS
19.08.200 YARD ENCROACHMENTS
19.08.210 FENCES, WALLS, AND HEDGES
19.08.220 STORAGE IN YARDS
19.08.225 STRUCTURES AND STORAGE IN PUBLIC ROADS
~~**19.08.230 PRIVATE OIL PIPELINES AND RELATED FACILITIES —**~~

~~COUNTY REVIEW~~ **REGIONAL OR INTERSTATE TRANSMISSION PIPLINE FACILITIES — COUNTY REVIEW**
19.08.240 BUILDING ACROSS PROPERTY LINES
19.08.252 TRUCK PARKING AS A RESIDENTIAL ACCESSORY USE
~~**19.08.260 OIL AND GAS EXPLORATION BY SCIENTIFIC MEANS**~~
19.08.270 COUNTY REVIEW OF PROJECTS RELATED TO NATIONAL SECURITY
19.08.280 EMERGENCY OCCUPANCY OF MOBILEHOMES OR TRAVEL TRAILERS
19.08.290 TEMPORARY BATCH PLANTS
19.08.300 PUBLIC ACCESS EASEMENTS
19.08.320 FIREWORKS STANDS AND CHRISTMAS TREE SALES
19.08.340 TEMPORARY EVENTS
19.08.360 LARGE WATER SYSTEMS — ABOVEGROUND FACILITIES
19.08.370 POTBELLIED PIGS
19.08.375 PYGMY GOATS
19.08.380 TEMPORARY OCCUPANCY OF RECREATIONAL VEHICLES
19.08.390 WASTE STOCKPILE — FINANCIAL ASSURANCES
19.08.400 STREET IDENTIFICATION REQUIREMENTS
19.08.405 SETBACK REQUIREMENTS FROM SECTION AND MIDSECTION LINES
19.08.410 LAND DIVISIONS
19.08.415 SMALL WIND ENERGY SYSTEM
19.08.420 DOG KEEPING IN RESIDENTIAL DISTRICTS
19.08.430 ANIMAL SHELTERS GRACE PERIOD
19.08.440 COMMERCIAL AUTO RESTORATION
19.08.450 STREET VENDORS AND FOOD PEDDLERS
19.08.460 METEOROLOGICAL (MET) TOWERS
19.08.470 NON-COMMERCIAL LIQUIFIED PETROLEUM GAS (LPG), LIQUIFIED NATURAL GAS (LNG) AND COMPRESSED NATURAL GAS (CNG)
19.08.480 BEVERAGE CONTAINER RECYCLING (CRV) COLLECTION CENTER

~~**19.08.230 PRIVATE OIL PIPELINES AND RELATED FACILITIES — COUNTY REVIEW**~~

~~The provisions of this title shall not be construed to apply to the construction, installation, operation, and maintenance of pipelines for the transmission of crude oil or natural gas operated by private enterprises; provided, however, before any right-of-way for transmission lines is acquired for regional or interstate facilities, the proposed route shall be submitted for the Planning Director review and recommendation.~~

19.08.230 REGIONAL OR INTERSTATE TRANSMISSION PIPELINE FACILITIES — COUNTY REVIEW

Before any right-of-way for transmission lines is acquired for regional or interstate facilities, the proposed route shall be submitted for the Planning Director review and recommendation.

~~**19.08.260 OIL AND GAS EXPLORATION BY SCIENTIFIC MEANS**~~

~~The provisions of this title shall not be construed to apply to the exploration for oil and gas by scientific means.~~

TABLE OF CONTENTS

CHAPTERS **PAGE**

No table of contents entries found.19.118WATER EXPORT……
19.120 MEDICAL MARIJUANA DISPENSARIES……583

C H A P T E R 19.26

MOBILEHOME PARK (MP) DISTRICT

19.26.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses are permitted in the MP District with a conditional use permit:

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

— Recreational vehicle park, except as permitted by Subsection 19.26.020.B

B. MISCELLANEOUS USES

— Drainage sump
— Water system, large

— Water treatment plant

C. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Oil or gas exploration and production pursuant to Chapter 19.98 of this title

C H A P T E R 19.12

EXCLUSIVE AGRICULTURE (A) DISTRICT

19.12.020 PERMITTED USES

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— ~~Cogeneration facility or steam generators, primarily intended for steam production used for production of oil or gas, excluding coal fired~~

— Electrical power generating plant in conjunction with a biogas recovery system associated with a confined animal facility, subject to the criteria specified in Section 19.12.130.G

— Explosives storage, temporary

— Mineral exploration

— Oil or gas exploration and production pursuant to Chapter 19.98 of this title

— Solar energy electrical generators which are accessory to a permitted or conditionally permitted use and where the power generated does not exceed the total on-site power demand

— Small wind energy system, pursuant to Section 19.08.415, except when all criteria specified below for wind-driven electrical generators will be satisfied , in which case a small wind energy system permit pursuant to Section 19.08.415 shall not be required

— Wind-driven electrical generators when accessory to a permitted or conditionally permitted use where:

1. The system employed is designed to supplement other electricity sources, or as an accessory use to existing buildings or facilities, wherein the power generated is used primarily for on-site consumption.

2. The wind generators are located a minimum distance of one times (1x) the overall machine height from any property line.

3. The parcel on which the wind generators will be erected does not abut a residential zoning district.

4. The wind generator(s) will be located a minimum of one and one-half (1 1/2) times the overall height to any off-site dwelling.
5. The proposed height of the wind turbines does not exceed the maximum heights specified in Figure 19.08.160.

19.12.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Backfilling of surface mines with inert, nonorganic fill material, limited to construction and demolition wastes, where a Solid Waste Facility Permit is not required

— ~~Coal-fired~~ ~~c~~Cogeneration facility or steam generators, primarily intended for production of oil or gas

— Concrete or asphalt batch plant

— Dam, small hydro

— Dam, large hydro

— Electrical power generating plant

— Explosives storage, permanent

— Mining and mineral extraction pursuant to Chapter 19.100 of this title

— Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution

— Solar energy electrical generators when not accessory to a permitted or conditionally permitted use

— Wind-driven electrical generators when accessory to a permitted or conditionally permitted use which do not comply with the installation standards specified in Section 19.12.020.E.

C H A P T E R 19.14

LIMITED AGRICULTURE (A-1) DISTRICT

19.14.020 PERMITTED USES

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— ~~Cogeneration facility or steam generators, primarily intended for steam production, used for production of oil and gas, excluding coal fired~~

— Mineral exploration

— Oil or gas exploration and production pursuant to Chapter 19.98 of this title, including the temporary installation of commercial coaches as accessory to this activity, not to exceed a two- (2-) year period

— Solar energy electrical generator which are accessory to a permitted or conditionally permitted use and where the power generated does not exceed the total on-site power demand

— Small wind energy system, pursuant to Section 19.08.415

19.14.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— ~~Coal-fired~~ ~~c~~Cogeneration facility or steam generators, primarily intended for production of oil or gas

— Concrete or asphalt batch plant, temporary

— Electrical power generating plant, excluding nuclear or coal powered

— Mining and mineral extraction pursuant to Chapter 19.100 of this title

— Solar energy electrical generators when not accessory to a permitted or conditionally permitted use

— Wind-driven electrical generators, commercial

C H A P T E R 19.38

MEDIUM INDUSTRIAL (M-2) DISTRICT

19.38.020 PERMITTED USES

H. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Cogeneration facility or steam generators, not primarily intended for production oil or gas, excluding coal fired

— Electrical power generating plant, excluding nuclear or coal

— Mineral exploration

— Oil or gas exploration and production pursuant to Chapter 19.98 of this title

— Solar energy electrical generators which are accessory to a permitted or conditionally permitted use and where the power generated does not exceed the total on-site power demand

— Small wind energy system, pursuant to Section 19.08.415

19.38.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— ~~Coal-fired c~~Cogeneration facility or steam generators

— Mining and mineral extraction pursuant to Chapter 19.100 of this title

— Ore reduction

— Potash manufacture

— Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution

— Solar energy electrical generators when not accessory to a permitted or conditionally permitted use

— Wind generators, commercial

C H A P T E R 19.40

HEAVY INDUSTRIAL (M-3) DISTRICT

19.40.020 PERMITTED USES

H. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Cogeneration facility or steam generators, not primarily intended for production oil or gas, excluding coal fired

— Electrical distribution stations

— Electrical power generating plants, excluding nuclear and coal

— Mineral exploration

— Oil or gas exploration and production pursuant to Chapter 19.98 of this title

— Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution

— Solar energy electrical generators which are accessory to a permitted or conditionally permitted use and where the power generated does not exceed the total on-site power demand

— Small wind energy system, pursuant to Section 19.08.415

— Wind-driven electrical generators when accessory to a permitted or conditionally permitted use where:

1. The annual amount of power generated does not exceed the total on-site annual power demand.

2. The wind generators are located a minimum distance of one (1) times the overall machine height from any property line.

3. The parcel on which the wind generators will be erected does not abut a residential zoning district.

4. The wind generator(s) will be located a minimum of one (1) times the overall height to any off-site dwelling.

5. The proposed height of the wind turbines does not exceed the maximum heights specified in Figure 19.08.160.

19.40.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— ~~Coal-fired c~~Cogeneration facility or steam generators

— Electrical power generating plant, nuclear or coal powered

— Mining and mineral extraction pursuant to Chapter 19.100 of this title

— Solar energy electrical generators when not accessory to a permitted or conditionally permitted use

— Wind-driven electrical generators, commercial

— Wind-driven electrical generators when accessory to a permitted or conditionally permitted use which do not comply with the installation standards specified in Section 19.12.020.E.

C H A P T E R 19.46

NATURAL RESOURCE (NR) DISTRICT

19.46.020 PERMITTED USES

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Accessory structures and equipment storage for natural resource extraction or processing uses

— ~~Cogeneration facility or steam generators, primarily intended for steam production for another permitted use, excluding coal fired~~

— Explosives storage, temporary, subject to approval by the Kern County Fire Department

— Mineral exploration

— Oil or gas exploration and production pursuant to Chapter 19.98 of this title

— Solar energy electrical generators which are accessory to a permitted or conditionally permitted use and where the power generated does not exceed the total on-site power demand

— Small wind energy system, pursuant to Section 19.08.415

19.46.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— ~~Coal-fired~~ eCogeneration facility or steam generators

— Concrete or asphalt batch plant

— Electric power generating plant

— Explosives storage

— Mining and mineral extraction pursuant to Chapter 19.100 of this title

— Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution

— Solar energy electrical generators when not accessory to a permitted or conditionally permitted use

— Wind-driven electrical generators, commercial or domestic

C H A P T E R 19.44

OPEN SPACE (OS) DISTRICT

19.44.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are all permitted in the OS District subject to securing a conditional use permit in accordance with the standards and procedures set out in Chapter 19.104 of this title:

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

— Park

— Roads or trails for motor driven vehicles, excluding race courses

B. INSTITUTIONAL USES

— Public service uses

C. TRANSPORTATION FACILITIES

— Auto parking lot

D. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

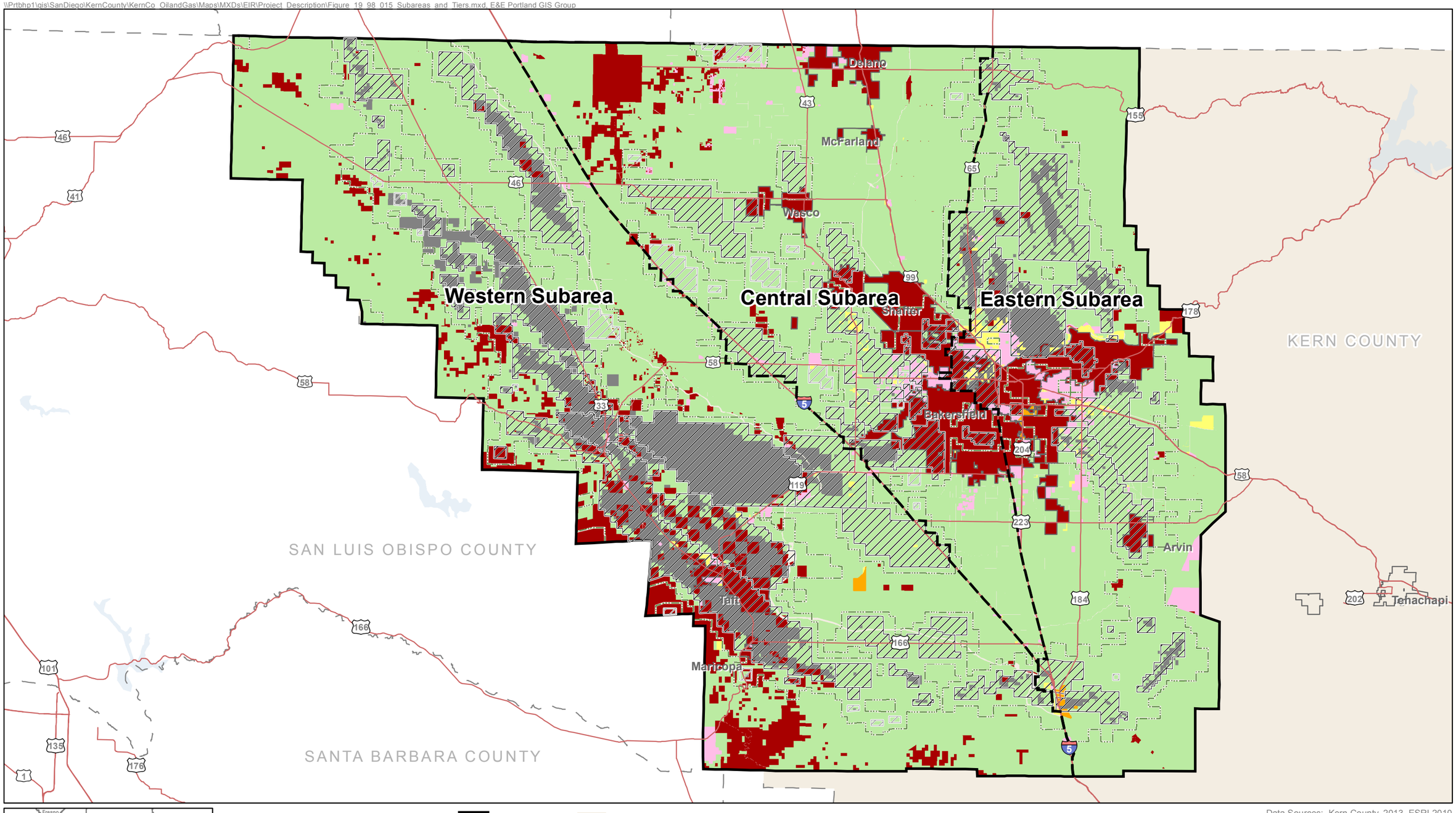
— Oil or gas exploration and production pursuant to Chapter 19.98 of this title

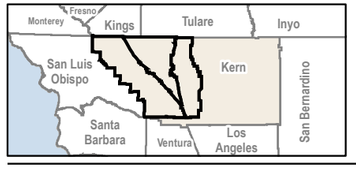
~~D~~E. MISCELLANEOUS USES

— Restrooms and shelters

— Scientific study sites for the systematic exploration and classification of archaeological, anthropological, or historic artifacts or remains

\\Prtbhp1\gis\SanDiego\KernCounty\KernCo_OilandGas\Maps\MXDs\EIR\Project_Description\Figure_19_98_015_Subareas_and_Tiers.mxd, E&E Portland GIS Group





0 10
Miles

Project Area
Subarea
Core Area
Kern County
City Limits
Highways
County Boundary
DOGGR Administrative Well Field Boundaries
DOGGR Administrative Well Field Boundaries (Abd)

Tier Levels
Tier 1
Tier 2
Tier 3
Tier 4
Tier 5
Non-jurisdictional

Data Sources: Kern County, 2013, ESRI 2010

Figure 19.98.015
Oil and Gas Activities Boundary Area

September, 2015

7.1.4 Revised Summary of Impacts, Mitigation Measures & Significance Conclusions

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Aesthetics				
Impact 4.1-1 Have a Substantial Adverse Effect on a Scenic Vista	Less than significant	No mitigation measures are proposed.	Less than significant	All Tiers
Impact 4.1-2 Substantially Damage Scenic Resources, Including, but Not limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway	Less than significant	No mitigation measures are proposed.	Less than significant	All Tiers
Impact 4.1-3 Substantially Degrade the Existing Visual Character or Quality of the Site and its Surroundings	Potentially Significant	**MM 4.1-1** The Applicant shall use existing roads ~~whenever possible. If use of~~to access oil production areas, or shall construct new roads (or extend existing roads~~ is not feasible, construction of new roads should be routed~~) to minimize the amount of disturbance without impeding existing surface use. **MM 4.1-2** All derricks, boilers, and other drilling equipment used to drill, repair, clean out, deepen or redrill any well with oil, gas, or other hydrocarbon shall be removed from the drill site within 90 days after completion of production tests or after abandonment of any well. Earthen sumps used in drilling shall be filled within 90 days after any well has been placed in production (unless such sumps are to be used within six months for the drilling of another well), and any sump used in productions shall be filled after its abandonment and restored to a uniform grade within ninety days. **MM 4.1-3** Sumps and ponds shall be permitted only to the extent authorized by the Central Valley Regional Water Quality Control Board (via waiver, Waste Discharge Requirements, or other form of authorized written documentation) and shall comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation or evaporation ponds for produced water. **MM 4.1-4** ~~Oil~~Except where located within agricultural land, new oil or gas tanks located within 200 feet of any sensitive receptor shall be partially screened from public view by shrubs, trees or solid screen fencing. Similarly, new pump sites (including multiple well pump sites) within 500 feet of any dwelling must be surrounded by a fence, at least 6 feet in height, constructed of dark-colored chain-link with wood or metal slates, dark green or brown fabric material, or other more visually restrictive fencing material. The height of all new pumping units shall not exceed 80 feet, and shall be painted in accordance with the Kern County Zoning Ordinance. **MM 4.1-5** Project signage is limited to directional, warning, safety, security and identification signs in connection with oil, gas, or other hydrocarbon drilling and development operations in accordance with Chapter 19.84.135 of the Kern County Zoning Ordinance. For any signage necessary for wayfinding, safety, or security, the Applicant shall use the minimum necessary to adequately communicate the required information.	Significant and unavoidable	All Tiers
Impact 4.1-4 Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	Potentially significant	**MM 4.1-6** Permanent nighttime lighting that will be installed for ~~facilities~~new facility operations will only be lighting required for safety or security. During operations when the lighting is in use, lighting for safety and security will be shielded and oriented downward, bare bulbs will be fully screened from view from sensitive viewing receptors such as residences, and on-demand lighting and/or timers will be used to minimize visual impacts of lighting. In doing so, the Applicant shall comply with the standards in the amended Chapter 19.81 – Outdoor Lighting "Dark Sky Ordinance."	Significant and unavoidable	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.1-5 Contribute to Cumulative Aesthetic Impacts	Cumulatively considerable	Implement MM 4.1.1 through 4.1.6, as described above. No additional feasible mitigation measures exist to avoid or reduce significant adverse cumulative impacts to aesthetics to a less than significant level.	Significant unavoidable	All Tiers
Agricultural Resources				
Impact 4.2-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to Non-Agricultural Use	Potentially significant	**MM 4.2-1** For ~~future~~new oil and gas exploration and extraction activities that are: 1) on land designated Prime, Farmland of Statewide Importance or Unique Farmland; and 2) that have been actively farmed 5 years or more out of the last 10 years, agricultural land mitigation is required at a ratio of 1:1. The 1:1 ratio is applied to actual ground disturbance area for oil and gas activities (inclusive of temporary construction and permanent operational impact areas), but excludes non-farmed existing areas such as roads, and tank and maintenance areas, and lands for which agricultural mitigation has previously been provided at a 1:1 ratio. Prior to ground disturbing activity, the Applicant shall submit to the County written evidence of completion of one or more of the following measures to achieve this 1:1 mitigation ratio: a. Funding and/or purchasing agricultural conservation easements or similar instrument acceptable to the County (to be managed and maintained by an appropriate entity). b. Purchasing of credits for conservation of agricultural lands from an established agricultural farmland mitigation bank or an equivalent agricultural farmland preservation program managed by the County. c. Restoring agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment. Participating in any agricultural land mitigation program adopted by Kern County that provides equal or more effective mitigation than the measures listed above. Mitigation lands shall meet the definition of Prime Farmland, Farmland of Statewide Importance, and/or Unique Farmland, and be of similar or higher agricultural quality as the lands, as established by the California Department of Conservation. Completion of the selected measure or, with the Kern County Planning and Community Development Director's approval, a combination of measures, are to occur on qualifying land in Kern County. If qualifying lands cannot be found in Kern County, upon written application to the County, the mitigation lands may be located within the San Joaquin Valley (San Joaquin, Stanislaus, Merced, Fresno, Madera, Kings, Tulare, or Kern County) or outside the San Joaquin Valley with written evidence that the same or equivalent crops can be produced on the mitigation land. Mitigation consisting of removal of legacy equipment within active agricultural fields shall not require recordation of an agricultural conservation easement or conservation easement. Available mitigation funding shall be prioritized for acquisition of large blocks of agricultural land for preservation, and removal of legacy equipment, to minimize and mitigate fragmentation and edge impacts.	Less than significant	All Tiers
Impact 4.2-2 Conflict with Existing Zoning For Agricultural Use or a Williamson Act Contract	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.2-3 Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land or Timberland	No impact	No mitigation measures are required.	No impact	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.2-4 Result in the Loss of Forest Land or Conversion of Forest Land to Non-Forest Use	No impact	No mitigation measures are required.	No impact	All Tiers
Impact 4.2-5 Involve Other Changes in the Existing Environment Which, Because of Their Location or Nature, Could Result in Conversion of Farmland to Non-agricultural Use or Conversion of Forest Land to Non-Forest Use	Potentially significant	**MM 4.2-2** To protect crops and structures adjacent to oil and gas activities on active agricultural lands, each Applicant/operator shall comply with the following mitigation measures set forth in other chapters of this Environmental Impact Report: a. Surface water runoff and drainage on the well pads shall be mitigated as described in mitigation measures for Hydrology and Water Quality. b. A Spill Prevention Countermeasure and Contingency Plan or Division of Oil Gas and Geothermal Resources Assembly Bill 1960 spill plan, as applicable, shall be prepared for the site and oil and chemical spills treated in accordance with the Division of Oil Gas and Geothermal Resources Senate Bill 4 Regulations for the site to protect adjacent farmland, as described in Mitigation Measure for Hazards. c. Speed limits for oil and gas trucks shall be posted on unpaved roads to reduce dust generation; in the absence of signage, speed limits shall be limited to 25 miles per hour (or an alternate, more stringent dust suppression standard as adopted by the San Joaquin Valley Air Pollution Control District), and Applicants shall attest that employees have been trained in the appropriate speed limits. d. Unpaved roads shall be watered or otherwise treated for dust suppression and control as described in Mitigation Measure for Air Quality, unless speeds are restricted to 15 mph. e. Vehicle tracking control shall be installed where unpaved roads intersect with public paved roads, to prevent tracking of mud, dust, and weed seeds off site, unless speeds are restricted to 15 mph. This shall consist of a 50-foot length of a 3 inch-thick layer of gravel one inch or larger in diameter (or an alternate, more stringent dust suppression technique as approved by the San Joaquin Valley Air Pollution Control District). f. Stormwater control shall be required at construction sites during well drilling, reworking, and/or decommissioning as described in mitigation measures for Hydrology. g. Hazardous materials shall be stored within secondary containment as described in mitigation measures for Hazards. h. Overhead electrical or communication lines shall be shown on the Site Plan, and shall be aligned to the greatest extent feasible with existing access roads and the minimum distance between the access road and the well installation or other oil and gas facility, parallel to tree or row crops, described further in mitigation measures for Public Utilities. If the use of existing roads is not feasible, lines shall be routed to minimize surface disturbance and minimize the impacts to surface activity i. Underground pipelines serving the Project shall be shown on the Site Plan with locations marked and recorded with USAA, and periodically inspected and maintained as described in mitigation measures for Hazards.	Less than significant	All Tiers
Impact 4.2-6 Result in the Cancellation of an Open Space Contract Made Pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for Any Parcel of 100 or More Acres	No impact	No mitigation measures are required.	No impact	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.2-7 Cumulative Impacts to Agricultural or Forest Resources	Potentially significant	Implement mitigation measure MM 4.2-1 and MM 4.2-2.	Significant and unavoidable	All Tiers
Air Quality				
Impact 4.3-1 Conflict With or Obstruct Implementation of the Applicable Air Quality Plan	Potentially significant	**MM 4.3-1** Consistent with the requirements of the San Joaquin Valley Air Pollution Control District Regulation II-Permits, the Applicant shall obtain an Authority to Construct permit and a Permit to Operate for any facility or equipment requiring a permit from the San Joaquin Valley Air Pollution Control District, such as stationary sources required to obtain permits pursuant to District Rule 2010. All emissions increases from permitted equipment shall comply with District Rule 2201. **MM 4.3-2** The Applicant shall develop and implement a Fugitive Dust Control Plan in compliance with San Joaquin Valley Air Pollution Control District fugitive dust suppression regulations to further reduce emissions, during construction, of particulate matter that is 10 microns or less and 2.5 microns or less in diameter. The Fugitive Dust Control Plan shall include: a. Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan. b. Description and location of operation(s). c. Listing of all fugitive dust emissions sources included in the operation. d. The following dust control measures shall be implemented: 1. All on-site unpaved roads shall be effectively stabilized using water or chemical soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation. 2. All material excavated or graded will be sufficiently watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles will be watered as needed to limit dust emissions to less than 20% opacity or covered with temporary coverings. 3. Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and those activities cause visible dust plumes. Construction activities may continue if dust suppression measures are used to minimize visible dust plumes. 4. Track-out debris onto public paved roads shall not extend 50 feet or more from an active operation and track-out shall be removed or isolated such as behind a locked gate at the conclusion of each workday, except on agricultural fields where speeds are limited to 15 mph. 5. All hauling materials should be moist while being loaded into dump trucks. 6. All haul trucks hauling soil, sand, and other loose materials on public roads shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). 7. Soil loads should be kept below 6 inches or the freeboard of the truck. 8. Drop heights should be minimized when loaders dump soil into trucks. 9. Gate seals should be tight on dump trucks.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		10. Traffic speeds on unpaved roads shall be limited to 25 miles per hour. 11. All grading activities shall be suspended when visible dust emissions exceed 20%. 12. Other fugitive dust control measures as necessary to comply with San Joaquin Valley Air Pollution Control District Rules and Regulations. 13. Disturbed areas should be minimized. 14. Disturbed areas should be re-vegetated as soon as possible after disturbance if area is no longer needed for oil and gas activities. **MM 4.3-3** All off-road construction diesel engines not registered under California Air Resources Board's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 3 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 3 engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxides and particulate matter emissions that are equivalent to Tier 3 engine. a. All equipment shall be turned off when not in use. Engine idling of all equipment shall be limited to five minutes, except under exemptions specified in California Code of Regulations Title 13 Section 2449(d)(2)(A). b. All equipment engines shall be maintained in good operating condition and in proper tune per manufacturers' specifications. **MM 4.3-4** To further reduce emissions of oxides of nitrogen from on-road heavy-duty diesel haul vehicles: a. 2007 engines or pre-2007 engines shall comply with California Air Resources Board retrofit requirements set forth in California Code of Regulations Title 13 Section 2025. b. All on-road construction vehicles, except those meeting the 2007/California Air Resources Board-certified Level 3 diesel emissions controls, shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to worker personal vehicles. c. All on-road construction vehicles shall be properly tuned and maintained in accordance with the manufacturers' specifications.		
Impact 4.3-2 Violate Any Air Quality Standard as Adopted in (c)i or (c)ii, or Established by United States Environmental Protection Agency or Air District or Contribute Substantially to an Existing or Projected Air Quality Violation	Potentially significant	Implement MM 4.3-1 through MM 4.3-4, as described above.	Less than significant	All Tiers
Impact 4.3-3 Expose Sensitive Receptors to Substantial Pollutant Concentrations	Potentially significant	**MM 4.3-5** <u>Construction:</u> The Site Plan Application shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 3,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). a. If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

<table>
<tr><th>Impact</th><th>Level of Significance before Mitigation</th><th>Mitigation Measure(s)</th><th>Level of Significance after Mitigation</th><th>Applicable Tier</th></tr>
<tr><td></td><td></td><td>b. If there are sensitive receptors within the potential impact area, then additional information must be provided showing the setback from the closest edge of the well pad to the property line of the nearest sensitive receptor. The minimum distances shall be as follows:
<table>
<tr><th>Well Depth (Feet)</th><th>Minimum Setback Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)</th></tr>
<tr><td colspan="2">Western Subarea</td></tr>
<tr><td>10,000</td><td>367</td></tr>
<tr><td>5,000</td><td>116</td></tr>
<tr><td>2,000</td><td>NA</td></tr>
<tr><td colspan="2">Central Subarea</td></tr>
<tr><td>10,000</td><td>367</td></tr>
<tr><td>5,000</td><td>116</td></tr>
<tr><td>2,000</td><td>NA</td></tr>
<tr><td colspan="2">Eastern Subarea</td></tr>
<tr><td>10,000</td><td>296</td></tr>
<tr><td>5,000</td><td>NA</td></tr>
<tr><td>2,000</td><td>NA</td></tr>
</table>
c. If the above setbacks cannot be met, ~~the Applicant shall implement~~and for existing wells, the Applicant shall provide a site-specific or</td><td></td><td></td></tr>
</table>

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		other risk assessment to the San Joaquin Valley Air Pollution Control District, which may include implementation of implement one or more of the following risk minimization measures, or other such measures that are demonstrated by the Applicant to the San Joaquin Valley Air Pollution Control District, to achieve a level of risk less than the threshold risk level, and shall provide confirmation from the San Joaquin Valley Air Pollution Control District that the activity that is the subject of the application will not exceed the risk threshold: 1. Placement of engines in the potential impact area away from the sensitive receptors. 2. Utilize directional drilling to locate rig away further from the sensitive receptor(s). 3. Use of late-model engines, low-emission diesel products, alternative cleaner fuels (e.g., natural gas or liquefied petroleum gas), engine retrofit technology, add-on devices such as diesel particulate filters or oxidation catalyst, and/or other options as such become available to reduce emissions from off-road and other equipment. 4. Utilize electricity line power if available. 5. Shutdown all equipment when not in use, and otherwise minimize engine idling by limiting idling to 15 minutes. 6. Use of automatic rigs. 7. Assist and pay to relocate residents to ~~an area hotel~~temporary lodging during well construction, drilling, and completion activities, if such residents voluntarily agree to such relocation. **MM 4.3-6** Applicants shall include in their Worker Environmental Awareness Program information on how to recognize the symptoms of Valley Fever and to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Workers exposed to fugitive dust shall be provided with the option of using a filter fitted over their nose and mouth, secured by a strap, including training for appropriate mask practices as part of the Worker Environmental Awareness Training Program.		
Impact 4.3-4 Create Objectionable Odors Affecting a Substantial Number of People	Potentially significant	**MM 4.3-7** Applicant shall submit an Odor Complaint Management Plan to the County prior to receiving its first Site Plan conformity review approval. The Plan shall include a designated contact for odor complaints, creation of a log for odor complaints, and protocol for handling odor complaints. The Odor log and report files shall be available for public review upon request.	Significant and unavoidable	All Tiers
Impact 4.3-5 Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the project Region is Nonattainment under an Applicable Federal or State Ambient Air Quality Standard (Including Releasing Emissions which Exceed Quantitative Thresholds for Ozone Precursors)	Potentially significant	Implement MM 4.3-1 through MM 4.3-4, as described above. **MM 4.3-8** For ~~Project facilities or equipment that are~~criteria emissions, not required to be offset ~~emissions~~ under a District rule as described in MM 4.3-1, and for Project vehicle and other mobile source emissions, the County will enter into an emission reduction agreement with the San Joaquin Valley Air Pollution Control District, pursuant to which the Applicant shall pay fees to fully offset Project emissions of oxides of nitrogen, reactive organic gases, and particulate matter of 10 microns or less in diameter (including as applicable mitigating for reactive organic gases by additive reductions of particulate matter of 10 microns or less in diameter) (collectively, "designated criteria emissions") to avoid any net increase in these pollutants. The air quality mitigation fee shall be paid to the County as part of the Site Plan review and approval process, and shall be used to reduce designated criteria emissions to fully offset Project emissions that are not otherwise required to be fully offset by District permit rules and regulations. As an alternative to paying the fee, an Applicant may reduce emissions for one or more designated criteria emissions through actual reductions in air emissions from other Applicant sources, as submitted to the County and validated by the District. This Project offset requirement alternative shall be enforced by the County and verified by San Joaquin Valley Air Pollution Control District, and must be approved in advance by the San Joaquin Valley Air Pollution Control District. If a voluntary emission reduction agreement is not executed	Significant and unavoidable	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		by the County and San Joaquin Valley Air Pollution Control District, then each Applicant must mitigate for the full amount of designated criteria pollutants as verified by the San Joaquin Valley Air Pollution Control District, with evidence of such District-verified offsets presented as part of the Site Plan Conformity Review application documentation. Examples of feasible air emission reduction activities that may be funded by air quality fees paid by Applicant or proposed and implemented by the Applicant under the emission reduction agreement include, but are not limited to, the following: a. Replacing or retrofitting diesel-powered stationary equipment such as motors on generators, pumps and wells with electric or other lower-emission engines that are not subject to Title V reductions. b. Replacing or retrofitting diesel-powered school, transit, municipal and other community mobile sources such as buses, car fleets, and maintenance equipment, with electric or other lower-emission engines. c. Reducing emissions from public infrastructure sources such as water and wastewater treatment and conveyance facilities, and reducing water-related emissions through water conservation and reclamation. d. Funding lower-emission equipment and processes for local businesses, schools, non-profit and religious institutions, hospitals, city and county facilities.		
Biological Resources				
Impact 4.4-1 Have a Substantial Adverse Effect, either Directly or through Habitat Modifications, on any Species Identified as a Candidate, Sensitive, or Special Status Species in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service	Potentially significant	~~**MM 4.4-1** With the exception of focused surveys that are seasonally restricted, special status wildlife surveys must be completed by a qualified biologist within a 30-day period prior to commencement of new ground-disturbance construction activities. The purpose of the pre-disturbance~~ **MM 4.4-1** A qualified biologist shall conduct a biological reconnaissance survey in potential special-status species habitat to advise the project proponent of potential project impacts, potential surveying needs, and advise on the need for focused special status surveys. Early consultation with United States Fish and Wildlife Service and California Department of Fish and Wildlife would confirm the biologist's advice and/or inform project proponents of additional recommendations. Based on the information gathered from the biological reconnaissance survey and any informal consultation with United States Fish and Wildlife Service and California Department of Fish and Wildlife, focused/protocol surveys shall be conducted by a qualified or permitted biologist (whichever is applicable) well in advance of ground disturbing activities to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential project impacts to those species. The survey shall be conducted in accordance with the most current standard protocol of United States Fish and Wildlife Service and California Department of Fish and Wildlife. The purpose of focused/protocol surveys is to confirm the presence or absence of any species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the California Endangered Species Act, rare or endangered in the California Native Plant Protection Act, or designated as fully-protected in the California Fish and Game Code (collectively, "Protected Species"), and to confirm the presence or absence of any other species considered "sensitive" under California Environmental Quality Act ("Sensitive Species"), and to identify and implement feasible avoidance and minimization measures for such species. The surveys shall be conducted in accordance with all currently-applicable presence and absence survey and/or species protocols established by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife ("Species Protocols"). In the absence of any approved protocols, the survey shall extend for a minimum of 250 feet from all areas where any ground disturbance activities would occur, provided that permission to access has been obtained. As an alternative to individual pre-disturbance surveys for each application, and after consultation with and concurrence by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service, multiple parcels or areas of oil and gas production lands (including lands which may have multiple surface or mineral ownership) may be consolidated for the purpose of more efficiently managing pre-disturbance surveys and determinations regarding the absence of protected species in areas of proposed new ground disturbance	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier

activities. A biological monitor shall be present during ground-disturbing activities in project locations that have special-status species habitat or are adjacent to potential special-status species habitat. Within 30 days before any ground disturbing activities in special-status species habitat, a qualified biologist shall conduct a pre-disturbance survey to record existing conditions of the site, determine if conditions have changed since the reconnaissance or focused/protocol surveys were conducted, and to determine where sensitive species avoidance buffers will be established.

MM 4.4-2 No incidental take of any species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the California Endangered Species Act, rare or endangered in the California Native Plant Protection Act, or designated as fully-protected in the California Fish and Game Code (Protected Species) may occur unless the incidental take is authorized by applicable state and federal wildlife agencies in the form of a permit or other written authorization, an approved state or federal conservation plan, or in accordance with an approved regional plan such as the Draft Valley Floor Habitat Conservation Plan and/or Natural Community Conservation Plan.

MM 4.4-3 ~~Exclusion barriers or~~ Protective buffers ~~may~~ shall be used, where effective and feasible in the opinion and guidance of the qualified biologist, to avoid any unauthorized incidental take of Protected Species, and to minimize any incidental take of Sensitive Species, by separating the planned disturbance area from any locations where ~~pre-disturbance~~ biological reconnaissance surveys ~~or~~ previously conducted focused/protocol surveys, or pre-disturbance surveys have detected the presence of Protected Species or Sensitive Species. Protective buffers shall be delineated using brightly colored stakes and/or flagging or similar materials and remain until construction activities are complete, at which time of completion the buffers must be removed. ~~All buffers must extend for a minimum of 50 feet from the nearest point of disturbance unless a smaller avoidance buffer has been established by either the United States Fish and Wildlife Service or the California Department of Fish and Wildlife as the minimum to avoid unauthorized take of protected species~~If special-status plant or animal species are found adjacent to the project during biological surveys, protective buffers shall be established around active dens and/or burrows of special-status animal species, or populations of special-status plant species to avoid unauthorized take of protected species as listed in the table below~~, and the barriers must prevent the potential migration of wildlife into the construction area and unlawful incidental take of any Protected Species during ground disturbance activities~~. The ~~minimum~~ protective buffer distance shall be increased if required to avoid unauthorized incidental take of any Protected Species as determined by a qualified biologist. ~~Exclusion barriers,~~ Protective buffer distances~~,~~ and other avoidance measures that may be implemented to avoid impacts to Protected Species or Sensitive Species must be consistent with the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife, and shall be implemented and overseen by ~~the~~ a qualified biologist.

Table: Disturbance Buffers for Sensitive Resources

Sensitive Resource	Buffer Zone from Disturbance (feet)
Potential San Joaquin kit fox den	50
Known San Joaquin kit fox den	100

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier

Natal San Joaquin kit fox den	Contact California Department of Fish & Wildlife, United States Fish & Wildlife Service
Atypical San Joaquin kit fox den	50
Rodent burrows	50
Listed bird species active nests	0.5 mile
Burrowing owl burrow (breeding and non-breeding season)	Pursuant to California Department of Fish & Wildlife guidelines (see Table 4.4-85)
San Joaquin coachwhip, silvery legless lizard, coast horned lizard	30
American badger:	
Non-maternity dens	50
Maternity dens	200
Special-status plants	50

MM 4.4-4 Occupied burrowing owl burrows shall not be disturbed during the species nesting season (February 1 through August 31). The following distances shall be maintained between all disturbance areas and burrowing owl nesting sites (Table 4.4-84).

Table 4.4-84: Setback Distances for Burrowing Owl Nesting Sites by Level of Proposed Project Impacts

Location		
Nesting sites	Nesting sites	Nesting sites
Time of Year		
April 1–Aug 15	Aug 16–Oct 15	Oct 16–Mar 31
Project Impact Level		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier

Low		
656 feet (200 meters)	656 feet (200 meters)	164 feet (50 meters)
Medium		
1,640 feet (500 meters)	656 feet (200 meters)	328 feet (100 meters)
High		
1,640 feet (500 meters)	1,640 feet (500 meters)	1,640 feet (500 meters)

Burrowing owls present in proposed disturbance areas or within 500 feet or as specified under an approved Habitat Conservation Plan (as identified during pre-disturbance surveys) outside of the breeding season (between September 1 and January 31) may be moved away from the disturbance area using passive relocation techniques approved by the California Department of Fish and Wildlife. Passive relocation techniques in the California Department of Fish and Wildlife *Staff Report on Burrowing Owl Mitigation Guidelines* (California Department of Fish and Game 2012) include installing one-way doors in burrow entrances for 48 hours, to ensure the owl(s) have left the burrow, daily monitoring during the passive relocation period, and collapsing existing burrows to prevent reoccupation. A minimum of one or more weeks will be required to relocate the owl(s) and allow for acclimatization to alternate off-site burrows. Prior to burrow exclusion or eviction, a burrowing owl management plan shall be prepared and approved by the California Department of Fish and Wildlife. Destruction of burrows shall occur only pursuant to a management plan for the species approved by the California Department of Fish and Wildlife; burrow excavation shall be conducted by hand whenever possible.

As an alternative to passive relocation, occupied burrows identified off-site within 500 feet of construction activities may be buffered with hay bales, fencing (e.g. sheltering in place), or as directed by the qualified biologist and the California Department of Fish and Wildlife, to avoid disturbance of burrows.

MM 4.4-5 The pre-disturbance surveys shall determine whether active bat maternity roosts are located in or within 250 feet of any disturbance area. All active bat maternity roosts shall be avoided during breeding periods, including postponing disturbance activities if required, and to the maximum extent feasible at other times. If an active bat maternity roost location cannot feasibly be avoided by disturbance, the United States Fish and Wildlife Service and California Department of Fish and Wildlife must be contacted to identify appropriate impact minimization measures prior to initiating any disturbance that would affect the roost.

MM 4.4-6 Any potential San Joaquin kit fox dens (as defined in United States Fish and Wildlife Service 2011) detected during ~~pre-disturbance~~reconnaissance or focused/protocol surveys shall be reevaluated for species activity no more than ~~14~~30 days prior to the commencement of ground disturbance. Potential kit fox dens shall be marked and a 50-foot avoidance buffer shall be delineated using brightly colored stakes and flagging or similar materials to prevent inadvertent damage to the potential den. If a potential den cannot feasibly be avoided, the den may be hand excavated in accordance with the United States Fish and Wildlife Service *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (United States Fish and Wildlife Service 2011). If species activity is detected, the location shall be identified as a "known" kit fox den in accordance with the U.S. Fish and Wildlife Service species guidelines (United States Fish and Wildlife Service 2011). A minimum 100-foot buffer from any disturbance area shall be maintained for known dens and a minimum 500-foot buffer from any disturbance area shall be maintained for natal dens. No excavation of a known or natal den shall occur without prior authorization from the United States Fish and Wildlife Service and the California Department of Fish and Wildlife. For activities occurring on land covered under an approved ~~Habitat Conservation~~

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		~~Plan~~federal and/or State incidental take authorization, the requirements set forth in those documents shall be implemented. Other standard measures to protect San Joaquin kit fox, including capping pipes, covering trenches, adding exit ramps to excavated areas, shall be implemented in accordance with MM 4.4-~~19~~15. **MM 4.4-7** Occupied American badger dens detected during pre-disturbance surveys shall be flagged and ground-disturbing activities avoided within 50 feet of the den. Maternity dens shall be avoided and a minimum 200-foot buffer from disturbance shall be maintained during pup-rearing season (February 15 through July 1). Maternity dens must be avoided to the maximum extent feasible. If a maternity den cannot feasibly be avoided, the California Department of Fish and Wildlife must be contacted to identify appropriate impact minimization measures prior to initiating any disturbance that would affect the den, including potential passive relocation by excavation before or after the rearing season. **MM 4.4-8** Pre-disturbance surveys for all sites located above 2,000 feet in elevation, or within 200 feet down gradient from the 2,000-foot elevation contour line, shall specifically survey for any golden eagle nests located within 2 miles of the site. If golden eagle nests are detected by the surveys, the qualified biologist shall conduct a nest-specific viewshed analysis. No disturbance may occur within 0.25 mile, or within 0.5 mile of the viewshed of an active golden eagle nest~~.~~ unless otherwise authorized by State and federal wildlife agencies. The United States Fish and Wildlife Service and California Department of Fish and Wildlife must be notified prior to the commencement of any disturbance activities within 1 mile of an active golden eagle nest to avoid golden eagle take. **MM 4.4-9** All sites located above 2,000 feet in elevation, or within 200 feet down gradient from the 2,000-foot elevation contour line, shall implement the following measures to avoid and minimize potential adverse impacts to the California condor: a. The site shall, at all times, be maintained to avoid any trash, debris, food sources and microtrash, such as bottle caps, that could be ingested by or attract California condor. Trash shall be disposed in animal-proof containers as required in BIO 4.4-19. b. The Worker Environmental Awareness Program described in BIO MM 4.4-18 shall include information about microtrash and potential effects to California condor, and shall prohibit the disposal of trash (and microtrash) on the site of oil and gas activities. c. If a condor is observed in a proposed construction site, all disturbance activities must immediately cease within 500 feet of the condor until the animal has moved from the site. If condor occurrence persists, the United States Fish and Wildlife Service and the California Department of Fish and Wildlife must be contacted to identify appropriate avoidance measures prior to initiating or resuming any disturbance activity. d. All condor observations shall be reported within 24 hours to the United States Fish and Wildlife Service and the California Department of Fish and Wildlife. e. All tanks, liquid storage facilities, and any open area containing water or other liquid materials, including drilling sumps, must be covered or otherwise shielded in a manner that prevents condor intrusion and potential entrapment. f. No overhead transmission lines greater than 85kV may be used at the site without the prior approval of the United States Fish and Wildlife Service and the California Department of Fish and Wildlife. **MM 4.4-10** Pre-disturbance surveys for active bird nests must be conducted no more than 10 days prior to the commencement of disturbance. Surveys shall follow United States Fish and Wildlife and California Department of Fish and Wildlife guidance and/or protocols, as applicable. If no active nests or nesting birds are identified, then Project construction activities may proceed and no further mitigation measures for nesting birds are required. If active nest(s) are identified, the active nest(s) should be continuously surveyed for the first 24 hours after detection, to establish a behavioral baseline prior to any construction-related activities. Once construction commences, all nests shall be continuously monitored to detect any behavioral changes as a result of the Project (i.e., nest avoidance or abandonment). If behavioral changes are observed, the work causing that change should cease and the California Department of Fish and Wildlife and the United States Fish and Wildlife should be consulted for additional avoidance and minimization measures. If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, a minimum no-disturbance buffer of 250 feet will be established around active nests and a 500-		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		foot no-disturbance buffer around the nests of raptors until the breeding season has ended, or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, and any adult birds are no longer occupying the nest. Variance from these no-disturbance buffers may be implemented a qualified biologist concludes that work within the buffer area would not cause nest avoidance or abandonment (e.g., when the disturbance area would be concealed from a nest site by topography). The California Department of Fish and Wildlife and the United States Fish and Wildlife must be notified in advance of implementing of a variance in the no-disturbance buffer. MM 4.4-11 The following measures will be implemented to avoid take of blunt-nosed leopard lizard and to ensure protection of these animals during Project activities: a. Project activities will avoid all potential burrows that may be occupied by blunt-nosed leopard lizards. Suitable burrows within and adjacent to potential habitat for the species should be avoided by a minimum distance of 50-feet in all areas where ground-disturbing Project activities will occur. b. No more than one year prior to ground disturbing activities, focused surveys following current California Department of Fish and Wildlife and United States Fish and Wildlife protocols for detection of this species or other methods approved by both agencies shall be conducted in all potential blunt-nosed leopard lizard habitat within the work site and a 250-foot buffer area. If no individual blunt-nosed leopard lizards are observed during focused surveys, and surveys are current (e.g., completed in the same calendar year), then Project activities may proceed. c. If blunt-nosed leopard lizards are detected during focused surveys, a blunt-nosed leopard lizard avoidance plan shall be prepared for the Project that will result in avoidance of incidental take of this species unless take is separately authorized under a Natural Communities Conservation Plan and appropriate federal authorization is obtained. At a minimum, the blunt-nosed leopard lizard avoidance plan shall be provided to the California Department of Fish and Wildlife and the County, and shall contain the following elements: 1. A Worker Environmental Awareness Program shall be implemented for all construction personnel before construction begins (see MM 4.4-18). 2. During periods that are optimal for blunt-nosed leopard lizard activity (early spring through late fall), a qualified biologist will be present during all ground disturbing activities. The qualified biologist will check the Project site(s) and access route(s) daily during the blunt-nosed leopard lizard active season to determine presence or absence of lizards in or near the work areas. Monitoring by a qualified biologist is not required during periods of inactivity (the winter season). 3. All open trenches or excavations shall be covered at the end of each workday or protected with the use of exclusion fencing to prevent wildlife entrapment. If an excavation is too large to cover, escape ramps shall be installed at an incline ratio of no greater than 2:1. All trenches and pipes shall be inspected for the presence of wildlife each day prior to the commencement of work. If blunt-nosed leopard lizards are observed at the work site during construction, construction shall cease within a 250-foot radius and the United States Fish and Wildlife Service and the California Department of Fish and Wildlife shall be consulted to determine what additional measures would be necessary to prevent take of this species. 4. Offsite locations where blunt-nosed leopard lizards have been observed or are likely to occur shall be clearly marked to prevent workers from driving off the road and to prevent inadvertent destruction of burrows. Barriers, such as exclusionary fencing may be installed. All construction equipment and construction personnel vehicles will be checked prior to moving to ensure no blunt-nosed leopard lizard are under equipment/vehicles.		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		5. A speed limit of 10 miles per hour shall be posted and observed within 0.25 miles of any reported blunt-nosed leopard lizard observation. 6. Construction activities shall avoid burrows that may be used by blunt-nosed leopard lizards. Any location of proposed construction activity with potential to collapse or block burrows (i.e., stockpile storage, parking areas, staging areas, trenches) will be identified prior to construction in the blunt-nosed leopard lizard avoidance plan and approved by the qualified biologist. The qualified biologist may allow certain activities in burrow areas if the combination of soil hardness and activity impact is not expected to collapse burrows and no blunt-nosed leopard lizards have been found during pre-Project surveys in the impact area. 7. All individual blunt-nosed leopard lizards observed above-ground will be avoided. Any individual blunt-nosed leopard lizard that may enter the Project site(s) would be allowed to leave unobstructed, and on its own accord. If a blunt-nosed leopard lizard is detected during biological monitoring or observed at any other point, the California Department of Fish and Wildlife and the United States Fish and Wildlife Service shall be notified to determine what additional measures would be necessary to prevent take of the species. **MM 4.4-12** The Applicant shall comply with the following: a. Plant surveys for Protected Species and Sensitive Species must be completed by a qualified biologist during the appropriate blooming periods for species identification and detection. Plant surveys shall be conducted in accordance with all applicable protocols established by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife for particular plant species ("Plant Survey Protocol"), and shall extend 50 feet from areas where any new disturbance would occur unless a greater survey distance is specified in the Plant Survey Protocol. All detected plant populations of Protected Species and Sensitive Species shall be identified in the field during the surveys with temporary flags or other appropriate materials to avoid and minimize impacts to the plant populations from any disturbance activities. b. No incidental take or relocation of any plant listed under the ~~California~~federal Endangered Species Act, the California Endangered Species Act, or the California Native Plant Protection Act may occur unless the incidental take is authorized by the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife in a permit or other authorization, or in an approved Habitat Conservation Plan or Natural Communities Conservation Plan. If ~~pre-construction~~focused plan surveys detect the presence of ~~any California Endangered Species Act Plant~~any listed plant, the plant populations shall be buffered from disturbance activities by implementing applicable impact avoidance protocols established by the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife unless incidental take authority is obtained. Projects covered under incidental take authority shall conduct activities in accordance with the take authorization. The California Department of Fish and Wildlife may be contacted to determine the appropriate buffer required to prevent incidental take of a ~~California Endangered Species Act Plant~~listed plant if avoidance protocols have not been established for the species. The qualified biologist shall confirm that all applicable ~~California Endangered Species Act Plant~~listed plant buffers have been implemented prior to the commencement of any disturbance activity. c. If any non-listed sensitive plant species are identified that may be impacted by new ground disturbing activities, populations must be avoided by a 50-foot buffer. ~~**MM 4.4-13** No incidental take or relocation of any plant listed under the California Endangered Species Act may occur unless the incidental take is authorized by the California Department of Fish and Wildlife in a permit or other authorization, or in an approved Natural Communities Conservation Plan. If pre-construction surveys detect the presence of any California Endangered Species Act Plant, the plant populations shall be buffered from disturbance activities by implementing applicable impact avoidance protocols established by the California Department of Fish and Wildlife, unless incidental take authority is obtained. Projects covered under incidental take authority shall minimize disturbance in accordance with the take authorization. The California Department of Fish and Wildlife shall be contacted to~~			

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		~~determine the appropriate buffer required to prevent incidental take of a California Endangered Species Act Plant if avoidance protocols have not been established for the species. The qualified biologist shall confirm that all applicable California Endangered Species Act Plant buffers have been implemented prior to the commencement of any disturbance activity. If any non listed sensitive plant species are identified that may be impacted by new ground disturbing activities, populations must be avoided by a 50-foot buffer.~~ **MM 4.4-14** A Worker Environmental Awareness Program shall be developed and implemented for all personnel that could access the site prior to commencing any disturbance activities. The program shall consist of an on-site or center presentation that will describe the locations and types of sensitive plant, wildlife, and sensitive natural communities (collectively, "Biological Resources") on and near the site, an overview of the laws and regulations governing the protection of Biological Resources, the reasons for protecting the Biological Resources, the specific protection and avoidance measures that are applicable to the site, and the identity of designated points of contact should questions or issues arise, including the qualified biologist. The program shall provide training to recognize, avoid and report to applicable qualified biologists any Biological Resources on the site. a. The Worker Environmental Awareness Program shall emphasize the need to avoid contact with onsite wildlife, and avoid entry into areas where Biological Resources have been identified based on pre-disturbance field surveys and to implement the buffer avoidance or other protection measures established by the United States Fish and Wildlife Service shall be identified California Department of Fish and Wildlife or required by the Biological Resource mitigation measures. The training shall emphasize the importance of not feeding or domesticating wildlife and the need to avoid any trash, microtrash, or potential food disposal onsite except in animal-proof containers emptied daily to avoid attracting, or causing adverse impacts to special status wildlife. b. All onsite personnel must sign a statement verifying that they have completed the Worker Environmental Awareness Program, and that they understand and agree to implement the biological requirements for the worksite. If signed employee statements are not available, documentation may be provided by Worker Environmental Awareness Program training records, which shall be kept by the Applicant for a minimum of 5 years. Each Applicant shall maintain a list of all persons who have completed the training program, and shall provide the list to the County or to state and federal wildlife agency representatives upon request. **MM 4.4-15** The following additional measures shall be implemented to avoid and minimize potential significant adverse impacts to Protected and Sensitive Species: a. All vehicles shall observe a 20-mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted. Off-road traffic outside of designated access routes is prohibited. Speed limit signs shall be posted in visible locations at the point of site entry and at regular intervals on all unpaved access roads. b. All disturbance activities, except emergency situations or drilling that may require continuous operations, shall only occur during daylight hours. Night time disturbance activity for drilling purposes shall use directed lighting, shielding methods, or reduced lumen intensity to avoid unnecessary visual disturbance to wildlife and to comply with applicable lighting mitigation measures. c. All food-related trash items and all forms of microtrash, such as wrappers, cans, bottles, bottle tops, and food scraps shall be disposed of in closed, animal proof containers and removed daily from the site. d. Excavations, spoils piles, access roadways, and parking and staging areas shall subject to dust control as set forth in the dust control mitigation measures. e. The use of herbicides for vegetation control shall be restricted to those approved by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife. No rodenticides shall be used on any site unless approved by the United States Fish and Wildlife Service, and the California Department of Fish and Wildlife, and shall observe label and other restrictions mandated by the United States Environmental Protection Agency, California Department of Food and Agriculture, and state and federal laws and regulations. For split estates, no herbicides for vegetation control may occur in Tier 2 areas without surface owner approval.		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		f. No plants or wildlife shall be collected, taken, or removed from the site or any adjacent locations except as necessary for Project-related vegetation removal or wildlife relocation by a qualified biologist and subject to all applicable permits and authorizations. g. All open trenches or excavations shall be covered at the end of each workday to prevent wildlife entrapment. If an excavation is too large to cover, escape ramps shall be installed at an incline ratio of no greater than 2:1 ~~to~~. All trenches and pipes shall be inspected for the presence of wildlife each day prior to the commencement of work. h. To enable San Joaquin kit foxes and other wildlife to pass through the Project site, any perimeter fencing shall include a 4- to 8-inch opening between the fence mesh and the ground or the fence shall be raised 4 inches above the ground except blunt-nosed leopard lizard exclusion fencing. The bottom of the fence fabric shall be knuckled (wrapped back to form a smooth edge) to protect wildlife. i. <u>All vertical tubes used in Project construction and chain link fencing poles, shall be temporarily or permanently capped to avoid the entrapment and death of special-status wildlife and birds. All pipes 1.5 inches or greater in diameter stored overnight on a project location must have end caps or other physical barriers that prevent wildlife from entering the pipe.</u> j. All dead or injured special status wildlife shall be left in place and reported to the United States Fish and Wildlife Service and the California Department of Fish and Wildlife within 48 hours of discovery for rescue or salvage. Discovery of state or federal listed species that are injured or dead shall also be <u>managed consistent with regulatory requirements including being</u> reported immediately via telephone and within 24 hours in writing, and with a copy to Kern County Planning and Community Development. k. All drilling installations and operations will comply at all times with the applicable federal, State, county, and local law ordinances and regulations. l. All activity shall use previously disturbed areas to the maximum extent feasible to minimize the amount of new disturbance. m. Vehicle, equipment, and material storage must be limited to previously disturbed areas. No construction or operational materials may be placed or stored outside of the planned disturbance area or stockpiled for future disposal. All concrete and asphalt debris should be removed from the site for recycling or proper disposal. n. No vehicles or construction equipment shall be parked within a wetland or waterbody/dry wash. o. Tracked vehicles and other construction equipment must be washed or maintained to be weed-free prior to entering and working within areas of new disturbance. p. All washing of trucks, paint, equipment, or similar activities should occur in areas where runoff is fully contained for collection and offsite disposal. Wash water may not be discharged from the site and shall be located at least 100 feet from any water body, or sensitive Biological Resources. q. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries or waterbody, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. r. All areas that must be avoided as result of the pre-disturbance surveys, and areas where new disturbance will occur, shall be clearly delineated by fencing or staking and flagging and/or rope or cord. s. No firearms shall be allowed on any site. t. No pets shall be allowed on any site. u. No smoking may occur except in designated areas. v. If ground disturbance is intended to be temporary <u>and does not occur on cultivated and crop lands</u>, perform topsoil segregation during construction activities to preserve the seed bank for restoration efforts. Store the segregated topsoil separate from the subsoil and		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		restore segregated topsoil to its original location. **MM 4.4-16** Ground disturbance shall be mitigated at a 1.0 to 1.0 ratio (one-acre of new disturbance shall require one-acre of mitigation) except in Tier 1 areas that contain existing disturbance of 70% or greater which shall be mitigated at a 1.0 to 0.5 ratio (one-acre of new disturbance shall require one-half acre of mitigation~~).~~), for the land included in the Site Plan. This compensatory mitigation requirement does not apply to construction on ground for which compensatory mitigation has already been provided, or on ground that has been previously disturbed (e.g., cleared of vegetation for other oil and gas extraction uses, existing unpaved roads, and existing unvegetated well pads). Ground disturbance activities that are authorized by permits or other written authorizations approved by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, which include avoidance and compensatory mitigation acreage requirements, may be used to satisfy this County compensatory mitigation ratio. Compensatory mitigation shall be required for the actual acreage of ground disturbance documented during the site plan review and completion process. New disturbance mitigation may be satisfied by one or a combination of the following measures: a. The recordation of a conservation easement or similar permanent, long-term conservation management agreement in a form acceptable to the County for land within the Project Area on land that has mitigation value. The easement lands may be owned by an Applicant or a third party under contract with an Applicant. Larger land areas may be placed under a conservation easement or similar agreement, and an Applicant may "draw down" the conserved land as needed to satisfy the acreage mitigation requirements for multiple site plan review conformity permits or other authorizations from the County for oil and gas activities. b. Acquisition of land preservation credits from a mitigation bank located within the Project Area which is owned by the County, on other lands approved by the County, or on lands approved for mitigation or conservation purposes by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife. c. Removal of legacy oil and gas equipment, inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), restoration of the surface grade to be consistent with surrounding lands, complete a reseeding effort using native species, and notification of the site owner (if not the Applicant) of the completion of the removal and grading restoration work. d. Enhancement or restoration of existing habitat on lands already subject to a conservation easement or similar agreement, or which become subject to a conservation easement or similar agreement subsequent to the certification of this Environmental Impact Report, provided that such activities are covered in a permit or authorization, conservation plan, Habitat Conservation Plan, or Natural Community Conservation Plan, approved by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife. e. Payment of a biological resources mitigation fee for the acquisition and management of mitigation lands, legacy equipment removal, and/or land enhancement already subject to conservation easements or a similar agreements under the terms of any biological resource mitigation program that is adopted by Kern County and approved by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife. The County shall coordinate with the United States Fish and Wildlife Service or the California Department of Fish and Wildlife to identify priority conservation areas and potential conservation partners and funding sources to increase the efficiency and effectiveness of mitigation fee expenditures.		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.4-2 Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, Regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service	Potentially significant	Implement MM 4.4-1 through 4.4.18, described above, and dust control, spill and hazardous material avoidance and containment, and surface and subsurface water quality and hydrology mitigation measures. **MM 4.4-17** Pre-disturbance surveys shall be conducted by a qualified biologist during the appropriate periods for detecting Sensitive Natural Communities that could occur within the Project Area. The surveys shall be completed consistent with applicable protocols approved by the United States Fish and Wildlife Service and/or the California Department of Fish and Game, including the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (California Department of Fish and Wildlife 2009). The qualified person shall map and identify all sensitive natural communities, including riparian communities that occur in or within 100 feet of any new disturbance area. The site plan for the proposed activity shall identify waters, wetlands and other riparian habitats that occur in and within 100 feet of the disturbance area. **MM 4.4-18** No land disturbance activity in any Sensitive Natural Community that requires a state or federal permit, including state or federally regulated wetlands and waters, shall occur unless the activity is specifically authorized by the issuance of permits or approvals as required by state and federal law. This provision is not intended to restrict survey activities or restrict permit approvals for such disturbance activities However, no new wells, tanks, sumps or ponds shall be constructed within 50 feet of federal or state waters or wetlands.	Less than significant	All Tiers
Impact 4.4-3 Have a Substantial Adverse Effect on Federally Protected Wetlands as Defined by Section 404 of the Clean Water Act (Including, but Not Limited to, Marsh, Vernal Pool, Coastal, etc.) through Direct Removal, Filling, Hydrological Interruption, or Other Means	Potentially significant	Implementation of the Biological Resources mitigation measures would ensure that oil and gas activities would not disturb state or federally regulated wetlands and waters unless the activity is specifically authorized by the issuance of permits or approvals as required by state and federal laws and that activities in the vicinity of wetlands and water bodies would not adversely disturb them. Other mitigation measures identified in this Environmental Impact Report would further reduce potential state or federally jurisdictional wetland and waters, including dust control, spill and hazardous material avoidance and containment, surface and subsurface water quality and hydrology, mitigation measures.	Less than significant	All Tiers
Impact 4.4-4 Interfere Substantially with the Movement of any Native Resident or Migratory Fish or Wildlife Species, or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites	Potentially significant	Implementation of the Biological Resources mitigation measures would reduce wildlife movement impacts. Other mitigation measures identified in this Environmental Impact Report to further reduce wildlife movement impacts, include dust control, nighttime lighting, noise controls, spill and hazardous material avoidance and containment,, and surface and subsurface water quality and hydrology (including but not limited to Kern River and Poso Creek channels), measures.	Less than significant	All Tiers
Impact 4.4-5 Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance	Potentially significant	**MM 4.4-19** In the event that new disturbance would occur at a site within an oak woodland area as defined in Section 1.10.10 of the Kern County General Plan Land Use, Open Space and Conservation Element (10% or greater oak tree cover), the Applicant shall comply with the minimum 30% canopy retention standard in Section 1.10.10 KK (a). Impacts to oak trees in other locations, and in locations that meet the criteria for an oak woodland area, shall be avoided to the maximum extent practicable, including modification of the disturbance area, if feasible, to avoid existing oak trees within a site.	Less than significant	All Tiers
Impact 4.4-6 Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan	Potentially significant	**MM 4.4-20** Applicants shall fund through the Site Conformity Review administrative fee, preparation by Kern County of, an annual report describing the Project's ground disturbance acreage, and the acreage of compensatory mitigation lands, in each sub-area.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.4-7 Cumulative Impact to Biological Resources	Potentially significant	Implement MM 4.4-1 through MM 4.4-20, as described above.	Significant and unavoidable	All Tiers
Cultural Resources				
Impact 4.5-1 Cause a Substantial Adverse Change in the Significance of a Historical Resource as Defined in Section 15064.5	Potentially significant	**MM 4.5-1** Prior to initiating ground disturbance activities for an activity for which a conformity review is required, the Applicant shall: a. ~~Have~~Provide an archival records search completed by a qualified archaeologist. This shall include an examination of the California Historical Resources Information Files at the Southern San Joaquin Valley Information Center, California State University, Bakersfield, and a search of the Native American Heritage Commission Sacred Lands Files, Sacramento. The Applicant may rely on a previously performed records search for subsequent ground disturbing activities. b. If an application location has been previously surveyed and no cultural resources have been recorded on it, no further cultural resources studies shall be required. c. Implement either: 1. If ~~an applicationa~~ site plan ~~is within a section~~ includes land that has experienced 100% of previous ground-surface disturbance, ~~as indicated by~~or is within a section with 300 or more existing oil wells or other agricultural, industrial or urban uses, and the records searches indicate that the parcel has been previously surveyed and no cultural or Native American resources are known on it, no further cultural resources studies shall be required. All other application locations shall be subject to intensive (100%) pedestrian ground-surface survey (Phase I survey/Class III inventory) by qualified archaeologists. The Applicant may rely on a previously performed ground surface survey for subsequent ground disturbing activities; or 2. If an application location has not been previously surveyed based on the records search information, an intensive (100%) pedestrian ground-surface survey (Phase I survey/Class III inventory) by qualified archaeologists shall be required. d. All prehistoric/Native American archaeological sites, whether identified during the records searches or during the intensive survey, shall be demarcated by a qualified archaeologist, fenced by the Applicant, and preserved in place. e. Historical (Euro-American) archaeological sites that are potentially eligible for listing in the National Register of Historic Places shall be evaluated by a qualified archaeologist and must meet the requirements of the National Historic Preservation Act of 1966 in order to qualify. Qualifying sites, structures and equipment that are identified during the records search or field survey shall be fenced and preserved in open-space, removed and curated, or treated using appropriate data recovery procedures. f. Historical (Euro-American) archaeological site types relating to oil and gas activities that have been determined Not Significant/Unique shall require no archaeological study or treatment. g. All oil and gas industry employees conducting work in the area identified on the Conformity Site Plan shall complete Worker Environmental Awareness Program training including training dedicated to cultural resources protection.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.5-2 Cause a Substantial Adverse Change in the Significance of an Archaeological Resource as Defined in Section 15064.5	Potentially significant	Implement MM 4.5-1, as described above.	Less than significant	All Tiers
Impact 4.5-3 Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	Potentially significant	**MM 4.5-2** As part of any Worker Environmental Awareness Program training, all construction personnel shall be trained regarding the recognition of possible buried paleontological resources and protection of paleontological resources during construction, prior to the initiation of construction or ground-disturbing activities. Training shall inform construction personnel of the procedures to be followed upon the discovery of paleontological materials. All personnel shall be instructed that unauthorized collection or disturbance of fossils is unlawful. **MM 4.5-3** All ~~well~~ permits for new wells that use Enhanced Oil Recovery or Well Stimulation methods shall pay a mitigation fee of $50 per well shall be paid to the Buena Vista Museum to fund the continued education and curation of paleontological resources and provide educational support regarding the paleontological history of the region.	Less than significant	All Tiers
Impact 4.5-4 Disturb any Human Remains, Including Those Interred Outside of Formal Cemeteries	Potentially significant	**MM 4.5-4** In the event archaeological materials are encountered during the course of ground disturbance or construction, the Project operator/contractor shall cease any ground disturbing activities within 50 feet of the find. The qualified archaeologist shall evaluate the significance of the resources and recommend appropriate treatment measures. Per California Environmental Quality Act Guidelines Section 15126.4(b)(3), Project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with California Environmental Quality Act Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures in consultation with the County, which may include data recovery or other appropriate measures. The Planning and Community Development Department shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. If after consultation it is deemed appropriate, archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Community Development Department and to the Southern San Joaquin Valley Information Center. In the event archaeological materials are encountered, in Tier 2 the surface owner shall be notified immediately. **MM 4.5-5** If human remains are uncovered during Project construction, the Applicant shall immediately halt all work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the California Environmental Quality Act Guidelines. The Kern County Planning and Community Development Department shall be notified concurrently. If the County Coroner determines that the remains are Native American, the Project proponent shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the applicant, in coordination with the landowner, shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the ~~landowner has discussed~~discussion and ~~conferred~~conference with the ~~most likely descendant regarding their recommendations~~Most Likely Descendant has occurred, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply. In the event human remains are uncovered, in Tier 2 the surface owner shall be notified immediately.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.5-5 Cumulative Impacts to Historical, Archaeological, or Paleontological Resources and Human Remains	Potentially significant	Implement MM 4.5-1 through MM 4.5-5, as described above.	Significant and unavoidable	
Geology and Soils				
Impact 4.6-1 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving the Rupture of a Known Earthquake Fault	Potentially significant	**MM 4.6-1** Prior to beginning a ground disturbance activity, the Applicant shall comply with the following regulations (as applicable) and confirm compliance in its Site Plan Conformity Review application documentation: h. Alquist-Priolo Earthquake Fault Zoning Act. i. California Building Code. j. Division of Oil Gas and Geothermal Resources regulations, as identified in the California Code of Regulations, Title 14, Division 2, Chapter 4, including regulations implementing Senate Bill 4 as applicable. If hydraulic fracturing is conducted for any well associated with the Site Plan Conformity Review, the Applicant shall comply with requirements to monitor the California Integrated Seismic Network for indication of an earthquake of magnitude 2.7 or greater for the period of 10 days following the end of hydraulic fracturing. The earthquake search radius shall be consistent with Division of Oil Gas and Geothermal Resources Senate Bill 4 regulations. The data will be submitted to Division of Oil Gas and Geothermal Resources for an evaluation of the risks and actions consistent with the Division of Oil Gas and Geothermal Resources Senate Bill 4 regulations. <u>In approving a well stimulation treatment permit that would authorize, within an urban area (i.e., an area with a population over 50,000, as defined by the U.S. Census Bureau), the emplacement of well stimulation fluids into an oil or gas formation that has not been previously been subject to well stimulation activity, and/or into an oil or gas formation for which Division of Oil Gas and Geothermal Resources does not yet possess adequate information about formation fracture geometries, Division of Oil Gas and Geothermal Resources shall impose a permit condition requiring that the applicant conduct ground monitoring to characterize as-built fracture geometries prior to, during, and post-hydraulic fracturing. Monitoring shall also be conducted during fracturing treatments by use of applicable microseismic fracture mapping, tilt measurements, tracers, or proppant tagging. Copies of ground monitoring records shall be provided to the County and Division of Oil Gas and Geothermal Resources for review and approval within 30 days of well stimulation treatment.</u> k. Additionally, the Applicant shall: 1. Avoid placement of structures intended for human occupancy on or within 50 feet of any active faults designated and mapped pursuant to the Alquist-Priolo Earthquake Fault Zoning Act where the fault breaks the surface. 2. Have a professional geologist prepare a fault rupture hazard evaluation according to guidelines in California Geological Survey Special Publication 42, 2007 for new developments with structures that are intended for human occupancy. 3. All Class II injection wells shall be authorized, and shall comply with all applicable legal requirements, Underground Injection Control Program Approval permit conditions, and be operated according to the California Code of Regulations Title 14 requirements, as described in the mitigation measures for Hydrology and Water Quality. 4. Ensure that active fault trace placement restrictions are in place for all permanent tanks and storage reservoirs used to store, treat, or transport hazardous materials or materials that are considered pollutants to surface water and groundwater, located in an Earthquake Fault Zone. Ensure that all <u>newly installed</u> pipelines ~~designated for the transportation~~<u>subject to 49 Code</u> of ~~hazardous materials~~<u>Federal Regulations</u>	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		(CFR) Parts 192 and 195, are engineered and constructed in compliance with the requirements of the pipeline safety regulations, ~~49 Code of Federal Regulations Parts 192 and 195.f)~~as set forth by the Pipeline Hazardous Materials Safety Administration (PHMSA). All other newly installed pipelines that transport gas or hazardous liquids are designed to be constructed, tested operated and maintained in accordance with good oilfield practice and applicable standards set forth and approved by the State Oil and Gas Supervisor. Ensure that all new pipelines designated for or water used for fire suppression are engineered and constructed in compliance with the requirements of California Building Code Chapter 9, Fire Protection Systems, and the California Fire Code to address potential fault rupture displacements. **MM 4.6-2** All structures designed for human occupancy shall be designed to withstand substantial ground shaking in accordance with applicable California Building Code seismic design standards and Kern County Building Code.		
Impact 4.6-2 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Strong Seismic Ground Shaking	Potentially significant	Implement MM 4.6-1 and MM 4.6-2, as described above.	Less than significant	All Tiers
Impact 4.6-3 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismic-Related Ground Failure, Including Liquefaction	Potentially significant	Implement MM 4.6-1 and MM 4.6-2, as described above.	Less than significant	All Tiers
Impact 4.6-4 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides	Potentially significant	**MM 4.6-3** Operators shall avoid siting ~~structures~~wells or accessory equipment and facilities on slopes greater than 30% unless the Applicant determines that mineral recovery is infeasible from a different location, and site-specific Professional Engineering certification is submitted concluding that the new equipment will not cause landslides.	Less than significant	All Tiers
Impact 4.6-5 Result in Substantial Soil Erosion or the Loss of Topsoil	Potentially significant	Implement stormwater mitigation measures, as described in Section 4.9, Hydrology and Water Quality.	Less than significant	All Tiers
Impact 4.6-6 Be Located on a Geological Unit or Soil That is Unstable, or That Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	Potentially significant	Implement MM 4.6-3and MM 4.6-4, as described above, and the following: **MM 4.6-4** The Applicant shall confirm compliance with, and shall implement, a Division of Oil Gas and Geothermal Resources approved re-pressuring plan as required by Division 3, Chapter 1, Article 5.5 of the Public Resources Code, commencing with Section 3315. In developed areas where subsidence is confirmed or suspected, subsidence monitoring shall be required using Synthetic Aperture Radar studies and/or other methods as approved by the Division of Oil Gas and Geothermal Resources to quantify and evaluate the potential effect on the area.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.6-7 Be Located on Expansive Soil, as Defined in Table 18-1-B of the Uniform Building Code (1994), Creating Substantial Risks to Life or Property	Potentially significant	**MM 4.6-5** The Applicant shall avoid building infrastructure on expansive soils unless the Applicant determines that mineral recovery is infeasible from a different location, and site-specific Professional Engineering certification is submitted concluding that the new equipment will not cause substantial risks to life or property.	Less than significant	All Tiers
Impact 4.6-8 Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems Where Sewers Are Not Available for the Disposal of Wastewater	Less than significant	Implement MM 4.6-1, as described above.	Less than significant	All Tiers
Impact 4.6-9 Cumulative Impacts to Geologic and Soil Resources	Potentially significant	Implement MM 4.6-1 through MM 4.6-5, as described above.	Less than significant	All Tiers
Green House Gas Emissions				
Impact 4.7-1 Generate Greenhouse Gas Emissions, Either Directly Or Indirectly, that may have a Significant Impact on the Environment	Potentially significant	**MM 4.7-1** An Applicant with permitted stationary sources shall comply with the Cap-and-Trade regulation (e.g., by reducing greenhouse gas emissions within their facilities or by surrendering greenhouse gas allowances, offset credits, or other compliance instruments to offset the greenhouse gas increases), and implement Best Performance Standards applicable to greenhouse gas reduction for Components at Light Crude Oil and Natural Gas Production, Natural Gas Processing Facilities, Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants (San Joaquin Valley Air Pollution Control District 2010), Thermally Enhanced Oil Recovery Wells (San Joaquin Valley Air Pollution Control District 2010a), Steam Generators (San Joaquin Valley Air Pollution Control District 2010b), and Front-line Organic Liquid Storage Tanks (San Joaquin Valley Air Pollution Control District 2011). **MM 4.7-2** Each Applicant shall comply with applicable Cap and Trade regulations, and other applicable greenhouse gas emission control and reduction regulations as these may be adopted or amended over time, to reduce, avoid, mitigate and/or sequester greenhouse gas emissions from Project-related air emissions. **MM 4.7-3** Each Applicant shall implement methods to recover for reuse or destroy methane existing in associated gas and casinghead gas, as follows: a. Recover all associated gas produced from the reservoir via new wells, regardless of the well type, except for gas produced from wildcat and delineation wells or as a result of start-up, shutdown and maintenance activities (whether planned or unplanned), system failures, and emergencies in accordance with San Joaquin Valley Air Pollution Control District regulations (Rule 4401 and 4409), as this may be amended over time. b. Compliance with the expected California Air Resources Board methane regulation. **MM 4.7-4** Each Applicant shall offset all greenhouse gas emissions not covered by the Cap-and-Trade program or other mandatory greenhouse gas emission reduction measures through Applicant reductions of greenhouse gas emissions as verified by ~~the San Joaquin Valley Air Pollution Control District~~Kern County, through acquisition of offset credits from the California Air Pollution Control Officers Association Exchange Register or other third party greenhouse gas reductions ~~as~~, with consultation as to the validity of methodology for calculating reductions verified by the San Joaquin Valley Air Pollution Control District and accepted by Kern County, or through inclusion in an Emission	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		Reduction Agreement, to offset Project-related greenhouse gas emissions that are not included in the Cap and Trade program to assure that no net increase in greenhouse gas emissions from the Project.		
Impact 4.7-2 Conflict with any Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases	Potentially significant	Implement MM 4.7-3, as described above.	Significant and unavoidable	All Tiers
Impact 4.7-3 Cumulative Greenhouse Gas Emissions Impacts	Potentially significant	Implement MM 4.7-4, as described above.	Significant and unavoidable	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Hazards and Hazardous Materials				
Impact 4.8-1 Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Potentially significant	**MM 4.8-1** The Applicant shall provide a comprehensive Worker Environmental Awareness Program to the County with its first Site Plan Conformity Review permit application in each calendar year. The program shall include all training requirements identified in Applicant Best Management Practices and mitigation measures, and include training for all field personnel (including Applicant employees, agents and contractors). The Worker Environmental Awareness Program shall include protocols and training for responding to and handling of hazardous materials and hazardous waste management, and emergency preparedness, release reporting, and response requirements. In Tier 2, the Worker Environmental Awareness Program shall be provided to the surface owner at the time of the application pathway process so the surface owner may educate employees as well. **MM 4.8-2** The Applicant shall arrange for transportation, storage and disposal of all hazardous materials in compliance with the Hazardous Materials Transportation Act. Drivers transporting hazardous materials or wastes should follow the measures recommended by the Federal Motor Carrier Safety Administration for avoiding roll-over accidents. To avoid roll-over accidents involving cargo tank trucks: a. Avoid sudden movements that may lead to roll-overs. b. Control your load in turns and on straight roadways. c. Identify high risk areas on roads. d. Remain alert and attentive behind the wheel. e. Control speed and maintain proper “speed cushions.” **MM 4.8-3** The Applicant shall implement the following practices: a. Construction activities shall be conducted to allow for easy clean-up of spills. Construction crews shall have sufficient tools, supplies, and absorbent and barrier materials to contain and recover spilled materials. b. Fuels and lubricants shall be stored only at designated staging areas. Fuel and lubricant tanks shall have appropriate secondary spill containment (e.g., curbs). Compliance with laws and regulations is required, including compliance with hazardous materials and hazardous waste storage laws, as applicable. c. Storage of fuel and lubricants in the staging area shall be at least 100 feet away from the edge of water bodies. Refueling and lubrication of equipment shall be restricted to upland areas at least 100 feet away from stream channels and wetlands. d. Any fuel truck shall carry an oil spill response kit and spill response equipment at all times. e. ~~Applicants shall be required to perform all routine equipment maintenance at the well pad,~~ or other suitable locations (i.e., maintenance yards), and promptly collect and lawfully dispose of wastes ~~at an authorized recycling, treatment or disposal facility~~in compliance with existing regulatory requirements. f. Berms and/or dikes (secondary containment) shall be constructed around the permanent above-ground bulk tanks and the foundations shall be installed with a passive leak detection system, so that potential spill materials shall be contained and collected in specified areas isolated from any water bodies. Tanks shall not be placed in areas subject to periodic flooding or washout. Compliance with laws and regulations is required, including compliance with hazardous materials and hazardous waste storage laws as applicable, including for secondary containment, such as Division of Oil Gas and Geothermal Resource regulation (Title 14, C,C.R. § 1773.1), which requires secondary containment in "an engineered impoundment such as a catch basin, which can include natural topographic features, that is designed to capture fluid released from a production facility."	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		g. A sufficient supply of sorbent and barrier materials shall be maintained on construction sites~~,~~ consistent with the type and ~~sorbent~~level of construction activities. Sorbent and barrier materials shall also be utilized to contain runoff from contaminated areas where appropriate. 1. ~~Shovels and drums shall be stored at each well pad or~~ be readily available. If small quantities of soil become contaminated, hand tools such as shovels or other appropriate tools, shall be used to collect the soil and the material shall be stored in ~~55 gallon~~storage drums. Large quantities of contaminated soil may be bio-remediated on-site or at a designated remediation facility, subject to government approval, or collected utilizing heavy equipment, and stored in drums or other suitable containers prior to disposal. Should contamination occur adjacent to staging areas as a result of runoff, shovels and/or heavy equipment shall be utilized to collect the contaminated material. Contaminated soil shall be disposed of in accordance with state and federal regulations. 2. Above-ground tanks, valves and other equipment shall be visually inspected monthly and when the tank is refilled. Inspection records shall be maintained. Applicants shall periodically check tanks for leaks or spills. 3. Drain valves on ~~temporary~~all tanks shall be locked to prevent accidental or unauthorized discharges from the tank. 4. Equipment maintenance shall be conducted in staging areas or other suitable locations (i.e., maintenance shops or yards) to the extent practical. 5. The Applicant shall maintain equipment in operating condition to reduce the likelihood of fuel or oil line breaks and leakage. Any vehicles with chronic or continuous leaks shall be removed from the ~~construction~~ site and repaired before being returned to operation. 6. Applicants are encouraged, but not required, to use an alternate to silica sand as a proppant, after Division of Oil Gas and Geothermal Resources has determined that such an alternative does not introduce new hazards.		
		MM 4.8-4 The Applicant shall implement the following measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations. a. The Applicant shall identify gas, oil and produced water pipelines to be used for each new or reworked well site in its Site ~~Review~~ Plan, and shall show the location of any sensitive receptor located within ~~200~~300 feet of any such pipeline. For any pipeline located within ~~200~~300 feet of a sensitive receptor, the Applicant shall present evidence that each such pipeline has been integrity tested using pressure testing or other accepted test methods by a qualified professional within a two-year period prior to submittal of the Site ~~Review~~ Plan, and shall provide a copy of the test result to the County. For all waste gas lines less than or equal to 4 inches in diameter, a Pipeline Management Plan shall be developed and implemented in accordance with Division of Oil Gas and Geothermal Resources regulations Title 14, Division 2, Chapter 4, Section 1774.2. The Pipeline Management Plan shall include: 1. A listing of information on each pipeline including, but not limited to: i. Pipeline type. ii. Grade. iii. Installation date of pipeline. iv. Design and operational pressure. v. Any leak, repair, inspection and testing history. 2. A description of the testing method and schedule for all pipelines. b. The Applicant shall notify the Kern County Environmental Health Division, Certified Union Program Agency (CUPA), surface		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		landowner, and sensitive receptors located within 300 feet, of ~~reportable quantities of fuel, gas, petroleum or~~any hazardous materials ~~leaks~~/waste release to the County ~~within 48 hours of~~immediately upon discovery, and to other applicable agencies as required by other laws. The Applicant shall immediately contain the leak (e.g., by isolating or shutting down the leaking equipment), clean up contaminated media (e.g., soils), and repair the leak prior to recommencing operations. The Applicant shall report the status and progress of the leak repair and remediation work to the County and the CUPA on monthly intervals or predetermined intervals until the repair has been completed~~, and any contaminated~~. Contaminated media ~~has been remediated.~~ shall be analyzed according to 22 C.C.R. §§ 66261.21-66261.24 for determination of appropriate hazardous waste disposal. Hazardous Waste Determination procedures are provided in 22 C.C.R. § 66262.11. c. As part of the Site Plan, the Applicant shall identify the location and right of way for all pipelines to be used for the transport of oil, gas, and produced water, including pipelines that intersect the main transport line, based on existing data and using commercially available technology, and, based on the results of this analysis, shall identify any sensitive receptors within 300 feet of the pipeline for purposes of complying with Mitigation Measure 4.8-4. Mechanical integrity testing of all such pipeline lengths within 300 feet of a sensitive receptor shall be required pursuant to Mitigation Measure 4.8.4-1. d. If a release, identified pursuant to subsection (b), cannot be repaired or remediated within 48 hours, and has potential impact to sensitive receptors, the Applicant shall incur costs to sample and analyze the potentially affected area, which may include soil, groundwater, outdoor or indoor air of sensitive receptors within 300 feet of the leak. Applicant shall pay all temporary relocation costs (e.g., housing, food, and transportation) for any exposed sensitive receptor until such time as the leak has been repaired and post-indoor air testing has been completed, as confirmed by identified agency having oversight of the remediation. **MM 4.8-5** If, during grading or excavation work, the Applicant observes visual or olfactory evidence of contamination or if soil contamination is otherwise suspected, work near the excavation site shall be terminated, the work area cordoned off and appropriate health and safety procedures implemented for the location by the contractor's Health and Safety Officer. Samples shall be collected by a trained and qualified individual. Analytical data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer. If the sample testing determines that contamination is not present, work may proceed at the site; however, if contamination is detected above regulatory limits, the Kern County Public Health Services Department shall be notified. All actions related to encountering unanticipated hazardous materials at the site shall be documented and submitted to the Kern County Public Health Services Department. MM 4.8-6 The Applicant shall implement ~~the most up-to-date best management practices as part of their normal operations. Specifically, operators and/or their contractors shall implement~~ measures to prevent the release or accidental spillage of solid waste, garbage, construction debris, sanitary waste, industrial waste, naturally occurring radioactive materials, oil and other petroleum products, and other wastes into water bodies or water sources~~. The best management~~, including all applicable practices included in the most up-to-date versions of the following documents shall be followed: *Exemption of Oil and Gas Exploration and Production Wastes From Federal Hazardous Waste Regulations (EPA 2002)*. Equivalent industry standards such as Environmental Protection for Onshore Oil and Gas Productions and Leases (American Petroleum Institute 2009) and related standards may also be utilized, provided that a professional engineer, certified industrial hygienist or certified safety professional certifies to the County that such alternative standards are as or more protective of human health and the environment, as compared to the standards in the referenced Environmental Protection Agency manual. The determination of when and the extent to which a measure is "practical" is to be made by the Applicant; however, all of the below activities must comply with all applicable legal requirements, including federal and state laws and regulations, County ordinances, and the mitigation measures included in this Final EIR. a. Classify the various oil and gas exploration and production wastes for proper disposal as described in United States Environmental Protection Agency 2002~~.~~, and in accordance with applicable California laws and regulations.. b. Size reserve pits properly to avoid overflows.		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		c. Use closed loop mud systems when practical, particularly with oil-based muds. d. Review safety data sheets of materials used, and select less toxic alternatives when possible. e. Minimize waste generation, such as by designing systems with the smallest volumes possible (e.g., drilling mud systems). f. Reduce the amount of excess fluids entering reserve and production pits. g. Keep non-exempt wastes out of reserve or production pits. h. Design the drilling pad to contain stormwater and rigwash. i. Recycle and reuse oil-based muds and high density brines, when practical~~.~~, and when such recycling and reuse complies with hazardous waste laws and recycling laws j. Perform routine equipment inspections and maintenance to prevent leaks or emissions. k. Reclaim oily debris and tank bottoms when practical, and when such reclamation complies with hazardous waste laws and recycling laws. l. Minimize the volume of materials stored at facilities. m. Construct adequate berms around materials and waste storage areas to contain spills. n. Perform routine inspections of materials and waste storage areas to locate damaged or leaking containers. o. Train personnel to use sensible waste management practices.		
		MM 4.8-7 Conduct exploration and development activities as described in *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development The Gold Book* (Bureau of Land Management 2007~~).~~) or equivalent industry standard such as Environmental Protection for Onshore Oil and Gas Production Operations and Leases (American Petroleum Institute 2009) and related standards. The following specific measures should be undertaken at a minimum: a. ~~Sufficiently~~Sufficient impervious secondary containment, such as containment dikes, containment walls, and drip pans, should be constructed and maintained around all qualifying petroleum facilities, including tank batteries and separation and treating areas consistent with the Environmental Protection Agency's Spill Prevention, Control, and Countermeasures regulation (40 Code of Federal Regulations 112). The containment structure must have sufficient volume to contain, at a minimum, the content of the largest storage tank containing liquid hydrocarbons within the facility/battery and sufficient freeboard to contain precipitation, unless more stringent protective requirements are deemed necessary by the authorized officer. Drip pans should be routinely checked and cleaned of petroleum or chemical discharges and designed to prevent access by wildlife and livestock. b. ~~Chemical~~Chemical containers should not be stored on bare ground, exposed to the sun and moisture. Containers and labels are subject to degradation and punctured drums could leak contents on the ground. Chemicals~~s~~ containers should be maintained in good condition and placed within secondary containment in case of a spill or high velocity puncture. c. Containment dikes are not to be constructed with topsoil or coarse, insufficiently impervious spoil material. Containment is strongly suggested for produced water tanks. Chemicals should be placed within secondary containment and stored so that the containers are not in contact with soil or standing water and product and hazard labels are not exposed to weathering. d. Maintain a clean well location. Remove trash, junk, and other materials not in current use e. In approving a well stimulation treatment permit, the applicant shall include in the spill contingency plan required by Section 1722.9 of Title 14 of the California Code of Regulations a protocol for measuring and reporting earthquake and earth consequences that occur during the well stimulation process, for however many well stimulation treatments are proposed to occur simultaneously at any given		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		time. The Spill Contingency Plan shall include requirements for adequate personnel and equipment that may be necessary to conduct post-earthquake inspection and repair plans to evaluate any damage that has occurred. The Spill Contingency Plan shall include spill prevention, control and countermeasure plans to address the hazardous substances associated with well stimulation activities. The post-earthquake inspection procedures shall ensure the integrity of the mechanical systems and well integrity of wells used for stimulation or wastewater injection and idle wells that might have become conduits for escaping fluids or gases. The plan shall include procedures describing the necessary steps to be taken after service is disrupted in order to make the facilities secure, operational and safe as soon as possible. **MM 4.8-8** Applicants shall use the appropriate American Petroleum Institute Standards, or other recognized sources imposing the same or equivalent standards, for their facility, such as the following: a. Use cements and well materials in well completions as described in Specifications for Cements and Materials for Well Cementing (American Petroleum Institute 2011). b. Prior to start-up of all new facilities, verify and prove the construction, installation, integration, testing, and preparation of systems have been completed as designed following the practices described in Facilities Systems Completion Planning and Execution (American Petroleum Institute 2013a). c. When the use of centralizers and stop-collars are required during well completion activities, follow the installation and testing requirements described in Recommended Practice for Centralizer Placement and Stop-collar Testing (American Petroleum Institute 2010a). d. Limit the environmental footprint of oil and gas exploration and production and reduce the incidence of releases of hazardous substances following the practices described in Environmental Protection for Onshore Oil and Gas Production Operations and Leases (American Petroleum Institute 2009). e. Minimize improper disposal by following the practices described in American Petroleum Institute Order No. G00004, Guidelines for Commercial Exploration and Production Waste Management Facilities (American Petroleum Institute 2001) or other recognized methods. These guidelines discuss the relevant regulations and permitting requirements; siting, construction, and technical consideration for various waste disposal options; as well as mitigation options. f. Minimize the environmental footprint of exploration and production activities following the practices described in Land Drilling Practices for Protection of the Environment (American Petroleum Institute 2010b) or other recognized sources. g. ~~Prior~~When pressure testing is required by State or federal law, prior to pressurizing or re-pressurizing petroleum product pipelines, ensure the integrity of pipelines following the practices described in Recommended Practice for the Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids, or Carbon Dioxide (American Petroleum Institute 2013b) or other recognized sources. h. To minimize releases of hazardous substances during oilfield construction, pit and sump operations shall be conducted in accordance with State Water Resources Control Board General Orders or appropriate Regional Water Quality Control Board waste discharge requirements or general orders. **MM 4.8-9** For all operations subject to the Oil and Gas Conformity Review, the Applicant shall comply with the pipeline management plan, including inspection and maintenance requirements, as administered by the Division of Oil Gas and Geothermal Resources pursuant to 14 California Code of Regulations 1774. **MM 4.8-16** The applicant shall not use any well stimulation fluid unless the applicant presents one of the following:		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		1. Safety Data Sheet that accurately describes the physical and chemical properties of the well stimulation fluid; or 2. Safety Data Sheets that accurately describe the physical and chemical properties of all chemical compounds in the well stimulation fluid; or 3. Toxicological report prepared by a qualified laboratory and/or the fluid vendor confirming the environmental profile of the well stimulation fluid is known; or 4. Results of an aquatic bioassay by a qualified laboratory confirming the environmental profile of the well stimulation fluid is known. For purposes of this mitigation measure, the term "environmental profile" means the physical and chemical properties of a compound that determine its risk to human health and the environment. This mitigation measure shall be superseded by any list of approved well stimulation treatment fluids, chemicals or additives published by the State of California or by any applicable State of California regulation pertaining to chemical use in well stimulation treatment.		
Impact 4.8-2 Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	Potentially significant	Implement MM 4.8-1 through MM 4.8-9, as described above, and **MM 4.8-10** The Applicant shall incorporate annual maintenance checks for leaks and corrosion that cause releases into current operations, maintenance, and inspection schedules as provided by the Division of Oil Gas and Geothermal Resources pursuant to 14 California Code of Regulations Sections 1774.1 and 1774.2, the Applicant shall visually inspect all above-ground pipelines for leaks and corrosion at least once per year, comply with the pipeline testing requirements included therein, shall maintain records of such inspections and testing; and shall make inspection and testing records available to the County for review upon request. **MM 4.8-11** As part of the Hazardous Materials Business Plan and the spill prevention, control, And countermeasures Plan, the Applicant shall require annual worker training requirements to: increase awareness of the most common types of failures and methods to avoid mistakes, shall maintain records of employee training, and shall make such records available to the County for review upon request. **MM 4.8-12** An Applicant who plans to perform cyclic steam injection activities above reservoir fracture ~~levels~~pressures shall conduct such activities in accordance with the requirements set forth in the Division of Oil Gas and Geothermal Resources site-specific Project Approval Letter for the injection project. The following requirements from a Project Approval Letter for an injection project are examples of the types of conditions that would be triggered if a surface expression were to occur, though such conditions may be modified by the Division of Oil Gas and Geothermal Resources to reflect site-specific conditions and changing regulatory requirements. a. Cease cyclic steaming operations in accordance with the site-specific Project Approval Letter. Streaming can resume following the Division of Oil Gas and Geothermal Resources specifications outlined in the Project Approval Letter. b. All new or reactivated surface expressions that discharge oil in a reportable quantity shall be reported as an oil spill to the California Emergency Management Agency at (800) 852-7550. c. Any measures to address surface expressions from the well and associated Project shall be reviewed by the Division of Oil Gas and Geothermal Resources prior to initiating. d. Immediately control any water, steam, or oil flowing from a surface expression and contained. All discharged material shall be removed and disposed of in a manner approved by all state and local agencies. e. Cordon off and clearly mark all surface expressions to prevent inadvertent access. f. Conduct air sampling of any emissions associated to a recent surface expression in accordance to the local air board requirements to ensure a health hazard condition does not exist. g. Report immediately to the Division of Oil Gas and Geothermal Resources all surface expressions within 300 feet of the Project site. If the surface expression continues to flow after five days, all wells within a 300-foot radius shall cease steaming until the surface expression ceases to flow. If the surface expression continues to flow, the damage will be evaluated at the Supervisor's discretion, as	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		assigned by Section 3106 of the Public Resources Code and existing laws and regulations. **MM 4.8-13** The Applicant shall comply with the Division of Oil Gas and Geothermal Resources requirements for assuring safe drilling and drill casing practices, well design, construction and well management requirements, blowout requirements, and all other provisions of 14 California Code of Regulations 1744 and other applicable Division of Oil Gas and Geothermal Resources regulations. The Applicant shall also reduce the incidence of well control loss by following the practices described in Recommended Practice for Well Control Operations (American Petroleum Institute 2012). **MM 4.8-14** The Applicant shall report contamination caused by oil and gas activities, including previously unknown injection wells, of a reportable quantity of hazardous substances, as specified in the Code of Federal Regulations Title 40 and/or the California Code of Regulations Titles 22 and 23, which is discovered during Project construction activities and operations. Notification must be made to Kern County Environmental Health Division and the appropriate implementing regulatory agency that has responsibility or oversight of the specific contamination conditions. The Applicant shall remediate such contamination outside Tier 1 areas as required by the Kern County Environmental Health Division and the appropriate implementing regulatory agency.		
Impact 4.8-3 Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School	Potentially significant	Implement toxic air contaminant setback mitigation measures, as described in Section 4.3, Air Quality, and **MM 4.8-15** The Applicant who intends to use acutely hazardous chemicals, including chemicals at or above the specified threshold quantities or a process which involves a Category 1 flammable gas or a flammable liquid with a flashpoint below 100 degrees Fahrenheit (37.8 degrees Celsius) on site in one location, in a quantity of 10,000 pounds (4535.9 kilograms) or more according to 8 California Code of Regulations Section 5189, Appendix A, within 0.25 mile from a school must: a. Evaluate whether other alternative chemicals that are less hazardous could be used. b. Ensure that the smallest quantity of necessary acutely hazardous materials are stored on site. c. Notify the occupants of the buildings when and where acutely hazardous materials would be used. d. Notify Kern County Fire Department about the details of the use of acutely hazardous materials (e.g., when, where, how much). e. Ensure that all employees who would contact the acutely hazardous materials are trained on the handling, transport, storage, and disposal of the materials. f. Ensure that all employees who would contact the acutely hazardous materials are trained and are provided the proper personal protective equipment. g. Ensure that all employees who would contact the acutely hazardous materials are trained and have exercised on the Spill Prevention, Control, and Countermeasures P Plan that addresses these chemicals.	Less than significant	All Tiers
Impact 4.8-4 Create a Hazard to the Public or the Environment as a Result of Being a Site that is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5	Potentially significant	Implement MM 4.8-14, as described above, and MM 4.8-17 and MM 4.8-18, as described under Impact 4.8-5.	Less than significant	All Tiers
Impact 4.8-5	Potentially significant	**MM 4.8-17** The Applicant shall determine whether any proposed construction or alteration meets requirements for notification of the Federal Aviation Administration. If a proposed construction or alteration is found to require notification, the Applicant shall notify the Federal Aviation	Less than	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
For a Project Located within the Adopted Airport Land Use Compatibility Plan, Result in a Safety Hazard for People Residing or Working in the Area		Administration and request that the Federal Aviation Administration issue a Determination of No Hazard to Air Navigation. If the Federal Aviation Administration determines that the construction or alteration would result in a potential hazard to air navigation, the Applicant would be required to work with the Federal Aviation Administration to resolve any adverse effects or airport operations. The Applicant shall notify the Federal Aviation Administration and the nearest Airport, by completing and submitting Federal Aviation Administration Form 7460-1 if oil and gas related exploration, production, or associated development activities are planned that meet one or more of the following criteria: a. Any construction or alteration exceeding 200 feet above ground level. b. Any construction or alteration within 20,000 feet of all public use airports except Poso-kern Airport which exceeds a 100:1 surface from any point on the runway. c. Any construction or alteration within 10,000 feet of the Poso-Kern Airport which exceeds a 50:1 surface from any point on the runway. d. Any construction or alteration within 5,000 feet of a public use heliport which exceeds a 25:1 surface. e. When requested by the Federal Aviation Administration. f. Any construction or alteration located on a public use airport or heliport regardless of height or location. **MM 4.8-18** The Applicant shall determine the distance from the proposed operation to the nearest boundary of the Joint Service Restricted R-2508 Complex, using a map of this Complex provided by the County. The Applicant shall notify the Joint Service Restricted R2508 Complex representative identified by the County if oil and gas related exploration, production, or associated development activities are planned that meet one or more of the following criteria: a. Any structure within 75 miles of the R-2508 Complex that is greater than 50 feet tall. b. Any project within 50 miles of the R-2508 Complex that emit radio and communication frequencies. c. Any project that would create environmental impacts such as visibility or elevated obstructions within 25 miles of the R-2508 Complex. **MM 4.8-19** All oil and gas related development activities shall review the Kern County Airport Land Use Compatibility Plan for compliance with all applicable policies.	significant	
Impact 4.8-6 Result in Safety Hazard for People Residing or Working in Project Area within Vicinity of a Private Airstrip	Less than significant	None required.	Less than significant	All Tiers
Impact 4.8-7 Impair Implementation of, or Physically Interfere with, an Adopted Emergency Response Plan or Emergency Evacuation Plan	Less than significant	None required.	Less than significant	All Tiers
Impact 4.8-8 Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland	Less than significant	**MM 4.8-20** The Applicant is required to implement the following measures: a. Comply with Kern County Fire Codes.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Fires, Including Where Wildlands are Adjacent to Urbanized Areas or Where Residences are Intermixed with Wildlands		b. Maintain firefighting apparatus and supplies required by the Kern County Fire Department. c. Maintain of a list of all relevant fire-fighting authorities for each work site. d. Have available equipment to extinguish incipient fires and or construction of a fire break, such as: chemical fire extinguishers, shovels, axes, chain saws, etc. e. Carry water or fire extinguishers and shovels in non-passenger vehicles in the field. f. Have and maintain an adequate supply of fire extinguishers for welding, grinding, and brushing crews. g. ~~Protect~~Use available resources to protect individual safety and to contain any fire that occurs and notify local emergency response personnel. h. Remove any flammable wastes generated during oil and gas activities regularly. i. Store all flammable materials used in oil and gas activities away from ignition sources and in approved containers. j. Allow smoking only in designated smoking areas. k. Prohibit smoking where flammable products are present and when the fire hazard is high. Train personnel regarding potential fire hazards and their prevention. l. All internal combustion engines, stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order. m. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. Said vehicle types shall maintain their factory-installed (type) muffler in good condition. n. Fire rules shall be posted on the Project bulletin board at the contractor's field office and areas visible to employees. o. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. p. Personnel shall be trained in the practices of the Fire Safety Plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. **MM 4.8-21** The Applicant should restrict the use of chainsaws, chippers, vegetation masticators, grinders, tractors, torches, and explosives at its locations, and ensure the sites where this equipment is used are equipped with portable or fixed fire extinguishers and/or a water tank, with hoses, fire rakes, and other tools to extinguish and or control incipient stage fires. The Worker Environmental Awareness Program shall include fire prevention and response training for workers using these tools.		
Impact 4.8-9 Generate Vectors or Have a Component that Includes Agricultural Waste Exceeding Adopted Qualitative Thresholds	Less than significant	Implement dust control and Valley Fever education and mask measures as described in Section 4.3, Air Quality, and **MM 4.8-22** Applicants shall ensure that trash is stored in closed containers and removed from the site at regular intervals. Open containers shall be inverted and construction ditches shall not be allowed to accumulate water. Construction and maintenance operations shall not generate standing water. Naturally occurring depressions, drainages, or pools at the site shall not be drained or filled without consulting with the appropriate resource agency (Kern County, United States Army Corps of Engineers, United States Fish and Wildlife Service, California Department of Fish and Wildlife) as applicable, and obtaining the appropriate permits.	Less than significant	All Tiers
Impacts 4.8-10 Contribute to Cumulative Hazards and Hazardous	Potentially significant	Implement MM 4.8-1 through MM 4.8-22, as described above, and dust control and toxic air contaminant setback mitigation measure, as described in Section 4.3, Air Quality, risk reduction measures, as described in Section 4.6, Geology and Soils, and mitigation measures to maintain water quality, as described in	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Materials Impacts		Section 4.9, Hydrology and Water Quality.		
Hydrology and Water Quality				
Impact 4.9-1 Violate any Water Quality Standards or Waste Discharge Requirements	Potentially significant	**MM 4.9-1** The Applicant shall comply with all applicable federal, state, regional and local agency water quality protection laws and regulations, and commonly utilized industry standards, including (where applicable) obtaining coverage under the stormwater construction general permit and industrial general permit issued by the State Water Resources Control Board and complying with industry stormwater management standards for construction and operational activities. The applicant shall obtain all required permits from Division of Oil Gas and Geothermal Resources, and such permits shall include measures that will safeguard protected groundwater with appropriate casing, seal and related down-hole technical specifications. **MM 4.9-2** A. Oil and Gas activities in Tier I shall comply with the following. 1. In areas subject to National Pollutant Discharge Elimination System stormwater permitting requirements, project applicants shall file a Notice of Intent to the State Water Resources Control Board to comply with the statewide General Permit for Discharges of Stormwater Associated with Construction Activities (Construction General Permit State Water Resources Quality Control Board Order No 2009-009-DWO) prior to undertaking all ground-disturbing activities greater than one acre and shall prepare and implement a Stormwater Pollution Prevention Plan for construction activities on the Project site in accordance with the Construction General Permit. For facilities requiring coverage under the Construction General Permit, the site specific Stormwater Pollution Prevention Plan shall include measures to achieve the following objectives: (1) all pollutants and their sources, including sources of sediment associated with construction activity are controlled; (2) all non-stormwater discharges are identified and either eliminated, controlled and treated, (3) site Best Management Practices are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity and (4) stabilization Best Management Practices to reduce or eliminate pollutants after construction are completed. The Stormwater Pollution Prevention Plan shall be prepared by a qualified preparer and shall include the minimum Best Management Practices required for the identified risk level. The Stormwater Pollution Prevention Plan shall include a construction site monitoring program that identified requirements for dry weather visual observations of pollutants at all discharge locations and , as appropriate, depending on the project risk level, sampling of site effluent and receiving waters. A qualified Stormwater Pollution Prevention Plan practitioner shall be responsible for implementing and all monitoring for the Best Management Practices as well as all inspection, maintenance and repair activities at the project site. If applicable, each project shall also implement and fully comply with the Industrial Storm Water Permit (Order No 97-03-DWO) and Kern County Municipal Stormwater Permit (Order No 5-01-120). All plans under these requirements shall be submitted to Kern County Public Works for review and approval. Any operator of a facility that meets the following requirements is not required to be covered by the Construction General Permit (State Water Regional Control Board Memorandum dated 5-18-2010): a. discharges of stormwater runoff from oil and gas exploration, production, processing or treatment operations or transmission facilities, including field activities or operations that may be considered construction activity; 1. are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products;	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		2. are only contaminated by or only come into contact with sediment; and 3. pursuant to 40.C.F.R. § 122.26(c)(1) (iii) that do not contribute to a violation of a water quality standard. Any change to this State Water Regional Control Board determination will require full compliance with National Pollutant Discharge Elimination System requirements. **2.** Any operator not subject to National Pollutant Discharge Elimination System stormwater permitting requirements shall implement Best Management Practices during construction and operation. All selected practices shall be shown on a drainage implementation plan and self-certified as complete and feasible by a licensed professional qualified in drainage and flood control issues. The plan shall be submitted to the Kern County Planning and Community Development department. The following Best Management Practices shall be implemented and shown on the drainage implementation plan : a. Utilizing established facilities design, construction or similar standards as appropriate (e.g.American Society for the Testing and Materials (ASTM) American Petroleum Institute (API) b. Implementation good housekeeping and maintenance practices: i. Preventing trash, waste materials and equipment from construction storm water. ii. Maintaining wellheads, compressors, tanks and pipelines in good condition without leaks or spills. iii. Designing and maintaining graded pads to not actively erode and discharge sediment iv. Maintaining vehicles in good working order v. Providing secondary containment for all –above –ground storage tanks and maintaining such containment features in good operating condition c. Implementing spill prevention and response measures i. Utilizing preventative operating practices such as tank level monitoring, safe chemical handling and conducting regular inspections. ii. Developing and maintaining a spill response plan iii. Conducting spill response training for employees and have a process to ensure contractors have the necessary training		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		iv. Maintaining spill response equipment on site. d. Implementing material storage and management practices: i. Preventing unauthorized access ii. Utilizing "run-on" and "run-off" control berms and swales iii. Stabilizing exposed slopes through vegetation and other appropriate methods (e.g., hay bales or rolls). B. Oil and gas activities in Tier 1 shall comply with all applicable state and federal stormwater management laws. For any oil and gas activity outside Tier I that is not subject to state or federal stormwater management laws, regulations or general permits, the Applicant shall prepare a drainage plan that is designed to minimize runoff and minimize the potential for impeding or redirecting 100-year flood flows. The drainage plan shall be prepared in accordance with the Kern County Grading Code, the Green Code and approved by the Kern County Engineering, Surveying and Permit Services Department, Floodplain Management Section. The plan shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving offsite and into receiving waters. The requirements of the Plan shall be incorporated into design specifications. Recommended best management practices for the construction phase must be shown on a drainage plan, and shall include the following: a. Erosion Control - 1. Scheduling of construction activities to avoid rain events. 2. Limiting vegetation removal to the ~~maximum extent practicable~~minimum required. b. Sediment Control - 1. Secure stockpiling of soil. 2. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas. c. Non-stormwater Control - 1. Proper fueling and maintenance of equipment and vehicles. 2. Proper concrete handling techniques. d. Waste and Material Management - 1. Properly managing construction materials, designating construction staging areas in or around the Project site.		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		2. Stockpiling and disposing of demolition debris, concrete, and soil properly. 3. ~~Aggressive control~~Prompt removal and proper disposal of litter. 4. Proper disposal of demolition debris, concrete and soil. 5. Proper protections for fueling and maintenance of equipment and vehicles. 6. Provide and maintain adequate secondary containment to minmize or eliminate pollutants from moving offsite and into receiving waters. e. Post-Construction Stabilization - 1. Ensuring the stabilization of all disturbed soils per revegetation or application of a soil binder. C. If construction activities will alter federal jurisdictional waters, project applicants shall comply with the federal Clean Water Act Section 404 and Section 401 permitting and certification requirements. If construction activities will alter state waters, project applicants shall comply with California Department of Fish and Wildlife Streambed Alteration requirements. **MM 4.9-3** All drilling operations must either use a closed loop system to avoid discharges of drilling muds and fluids, or obtain coverage under the State Water Resources Control Board low threat discharge General Order (Waste Discharge Requirements General Order 2003-0003-DEW), obtain individual Waste Discharge Requirements issued by the Central Valley Regional Water Quality Control Board for the unit, or obtain coverage under a general order issued by the Central Valley Regional Water Quality Control Board applicable to drilling ponds. Any surface ponds or sumps must be cleared of fluids and muds in accordance with the State Water Resources Control Board general order, applicable Water Discharge Requirements and Division of Oil Gas and Geothermal Resources regulations. Compliance with the State Water Resources Control Board or Central Valley Regional Water Quality Control Board low-threat discharge orders or Water Discharge Requirements, if closed-loop systems are not used, and applicable laws, regulations and standards will reduce potential surface water quality impacts from contact with drilling muds or fluids during drilling and construction to less than significant levels. ~~**MW**~~After consultation with and approval by the Regional Water Board with jurisdiction over injection and groundwater, applicant shall provide for a tracer or some other reasonable method to allow well stimulation fluids to be distinguished from other fluids or chemicals for well stimulation permits. This could consist of an added tracer using an inert constituent that could be used to identify the presence of well stimulation fluids. Alternatively, it could be an intrinsic tracer, or some naturally occurring component that makes the well stimulation fluids chemically unique. Potential geochemical changes in the subsurface during injection or migration shall be considered. Use of a tracer shall be required to be disclosed to the public under Section 1788 of the SB 4 regulations. The regulations specifically require that the applicant require the composition and disposition of all well stimulation treatment fluids other than water, including "any radiological components or tracers injected into the well as part of the well stimulation treatment, a description of the recovery method, if any, for those components or tracers, the recovery rate, and specific disposal information for the recovered components or tracers a radiological component or tracer injected" (Section 1788 (15)). For any well stimulation treatment activity, the applicant shall not conduct well stimulation treatment activity until the State Water Resources Control Board, in consultation with the Central Valley Regional Water Quality Control Board, has approved either a		

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		groundwater monitoring plan or exclusion from groundwater monitoring for a given well, consistent with the State Water Resources Control Board Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation. **MM 4.9-4** For any activity for which Chapter 19.98 applies, the Applicant shall not conduct any Class II injection activity regulated by the Underground Injection Control program, including enhanced oil recovery activities that discharge into any underground source of current or future beneficial use groundwater, including drinking water, unless the aquifer has been exempted by the United States Environmental Protection Agency or injection has otherwise been authorized by the U.S. Environmental Protection Agency or by the Division of Oil Gas and Geothermal Resources ~~under delegated authority under the Safe Drinking~~, in consultation and agreement by the State Water ~~Act~~Resources Control Board, consistent with Public Resources Code 3131. **~~MW~~MM 4.9-5** For any activity for which Chapter 19.98 applies, the Applicant shall not discharge produced water into any surface disposal facility unless the facility has received the Waste Discharge Requirements from the Central Valley Regional Water Quality Control Board, or the need for Water Discharge Requirements has been waived by the Central Valley Regional Water Quality Control Board. As required by the SB 4 regulations, well stimulation treatment fluids and produced fluids from wells that have been stimulated cannot be stored, discharged, or disposed into surface ponds or pits. **MM 4.9-6** For any oil and gas activity within a ~~mapped 100-year floodplain~~Special Flood Hazard Area, the Applicant shall ensure that all constructed facilities are ~~protected from the maximum potential elevation of flooding during a 100-year flood by elevating structures~~elevated or ~~by implementing containment berms or other protective measures~~floodproofed in compliance with the requirements and standards found in the Kern County Floodplain Management ~~Code~~Ordinance and Chapters 19.50 and 19.70 of the Kern County Zoning Code.		
Impact 4.9-2 Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge such that There Would be a Net Deficit In Aquifer Volume or a Lowering of the Local Groundwater Table Level (e.g., the Production Rate of Pre-Existing Nearby Wells Would Drop to a Level That Would Not Support Existing Land Uses or Planned Uses for Which Permits Have Been Granted)	Potentially significant	Implement MM 4.9-1 through MM 4.9-6, as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Significant and unavoidable	All Tiers
Impact 4.9-3 Substantially Alter the Existing Drainage Pattern of the Site or Area, Including Through the Alteration of the Course of a Stream or River, in a Manner That Would Result in Substantial Erosion or Siltation On-site or Off-site	Less than significant	Implement MM 4.9-1 through MM 4.9-6, as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.9-4 Substantially Alter the Existing Drainage Pattern	Less than significant	Implement MM 4.9-1 through MM 4.9-6, as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
of the Site or Area, Including Through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner That Would Result in Flooding On-site or Off-site				
Impact 4.9-5 Create or Contribute Runoff Water That Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff	Less than significant	Implement MM 4.9-1 through MM 4.9-6, as described above.	Less than significant	All Tiers
Impact 4.9-6 Otherwise Substantially Degrade Water Quality	Less than significant	Implement MM 4.9-1 through MM 4.9-6, as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.9-7 Place Housing within a 100-year Flood Hazard Area as Mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or Other Flood Hazard Delineation Map	No impact	No mitigation measures are required since the Project does not include housing development.	No impact	All Tiers
Impact 4.9-8 Place Within a 100-Year Flood Hazard Area Structures That Would Impede or Redirect Flood Flows	Potentially significant	Implement MM 4.9-1 through MM 4.9-6, as described above.	Less than significant	All Tiers
Impact 4.9-9 Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Flooding, Including Flooding as a Result of the Failure of a Levee or Dam	Potentially significant	Implement MM 4.9-1 through MM 4.9-6, as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.9-10 Contribute to Inundation by Seiche, Tsunami, or Mudflow	No impact	No mitigation measures are required.	No impact	All Tiers
Impact 4.9-11 Contribute to Cumulative Hydrology and Water Quality Impacts	Potentially significant	Implement MM 4.9-1 through MM 4.9-6, as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems. The County lacks jurisdiction and control over land conversions, and actions or approvals by other agencies that may cause cumulatively significant impacts to hydrology or water quality in the region; accordingly this impact remains significant and unavoidable.	Significant and unavoidable	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Land Use and Planning				
Impact 4.10-1 Physically Divide an Established Community	Less than significant	Implement specified mitigation measures, including those that are applicable from Section 4.1, Aesthetics and Visual Resources, Section 4.3, Air Quality, Section 4.4 Biological Resources, Section 4.12, Noise, Section 4.15, Recreation, and Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.10-2 Conflict with Any Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction Over the Project	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.10-3 Conflict with Any Applicable Habitat Conservation Plan or Natural Community Conservation Plan	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.10-4 Contribute to Cumulative Land Use Impacts	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Minerals				
Impact 4.11-1 Result in the Loss of Availability of a Known Mineral Resource that Would be of Value to the Region and the Residents of the State	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.11-2 Result in the Loss of Availability of a Locally Important Mineral Resource Recovery Site Delineated on a Local General Plan, Specific Plan, or Other Land Use Plan	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.11-3 Contribute to Cumulative Mineral Resources Impacts	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Noise				
Impact 4.12-1 Exposure of Persons to, or Generate, Noise	Potentially significant	**MM 4.12-1** Construction: The Site Plan Application shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within ~~3,000 feet~~the distances	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

<table>
<tr><th>Impact</th><th>Level of Significance before Mitigation</th><th>Mitigation Measure(s)</th><th>Level of Significance after Mitigation</th><th>Applicable Tier</th></tr>
<tr><td>Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies</td><td></td><td>
listed in the construction noise setbacks table, as shown below, of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). This Figure need not be prepared for Tier 1 areas unless a sensitive receptor is located within 3,~~000~~270 feet of a construction site inside the Tier 1 area.
a. If there are no sensitive noise receptors within this potential impact area, then no construction mitigation measures shall be required.
b. If there are sensitive human noise receptors within the potential impact area, then additional information must be provided showing the type of equipment being used and the noise contours with levels not exceeding 65 ~~dBA~~dB DNL at the nearest exterior wall of the sensitive receptor or more than 1 ~~dBA~~dB DNL higher than the ambient noise levels, if in excess of 65~~ dBA~~dB DNL. If noise levels are shown to exceed 65 ~~dBA~~dB DNL or more than 1 ~~dBA~~dB DNL higher than the ambient noise levels in excess of 65 ~~dBA~~dB DNL, then one or more of the following mitigation measures shall be taken:
1. Placement of a temporary sound attenuation wall(s) shall be placed at the optimal distance to the sensitive receptor, as determined by an acoustical expert.
2. Construction of a temporary berm shall be placed at the optimal distance to the sensitive receptor, as determined by an acoustical expert.
3. Modification of equipment to reduce noise impacts.
4. Implementation of a quiet mode drilling plan or other sound reduction technology or practices as documented in a report submitted to the County.
5. Arranging for the voluntary, temporary relocation of the occupants of the sensitive receptor during the construction period.
6. Use the following setback distances for the activities specified:
Construction Noise Setbacks
<table>
<tr><th>Activity</th><th>Setback Distance (feet)</th></tr>
<tr><td>~~Well Pad Preparation~~</td><td>~~800~~</td></tr>
<tr><td>Drilling (Well Advancement)</td><td>~~1,420~~1,550</td></tr>
<tr><td>Drilling (Pull Out Of Well/Borehole)</td><td>~~750~~820</td></tr>
<tr><td>Large-Scale Exploratory Drilling[1]</td><td>3,~~000~~270</td></tr>
<tr><td>Well Workover</td><td>~~850~~930</td></tr>
<tr><td>Hydraulic Fracturing</td><td>1,090</td></tr>
</table>
~~Source: Brown Buntin 2015~~Note:
[1]Kenai Drill Rig #7

Information submitted with the Site Plan Application must detail the combination and methods used to determine the level of reduction and shall not exceed 65~~ dBA~~dB DNL or any ambient levels in excess of 65~~ dBA~~dB DNL or more than 1 ~~dBA~~dB DNL higher than the ambient noise levels, if in excess of 65 dBAdB DNL.

MM 4.12-2 Operation:</td><td></td><td></td></tr>
</table>

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		New oil and gas wells shall be a minimum ~~190~~210 feet from the closest sensitive receptor. Geophysical testing methods using vibroseis vehicles to generate sound waves shall be a minimum 150 feet from the closest occupied building, water well, sewer system, and septic tank. Geophysical testing methods using shotholes that employ explosives shall be a minimum 300 feet from the closest occupied building, water well, sewer system, and septic tank, and shall be in full compliance with all laws governing explosives.		
Impact 4.12-2 Exposure of Persons to, or Generate, Excessive Groundborne Vibration or Groundborne Noise Levels	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.12-3 A Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Project	Potentially significant	Implement MM 4.12-2, as described above.	Less than significant	All Tiers
Impact 4.12-4 A Substantial Temporary or Periodic Increase in Ambient Noise Levels in the project Vicinity Above Levels Existing Without the Project	Potentially significant	Implement MM 4.12-1, as described above.	Less than significant	All Tiers
Impact 4.12-5 For a Project Located Within the Kern County Airport Land Use Compatibility Plan, Would the Project Expose People Residing or Working in the Project Area to Excessive Noise Levels	Potentially significant	Implement MM 4.12-1 and MM 4.12-2, as described above.	Less than significant	All Tiers
Impact 4.12-6 For a Project Located Within the Vicinity of a Private Airstrip, Would the Project Expose People Residing or Working in the Project Area to Excessive Noise Levels	Potentially significant	Implement MM 4.12-1 and MM 4.12-2, as described above.	Less than significant	All Tiers
Impact 4.12-7 Cumulative Impact on Noise Receptors	Potentially significant	Implement MM 4.12-1 and MM 4.12-2, as described above.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Population and Housing				
Impact 4.13-1 Induce Substantial Population Growth in an Area, Either Directly or Indirectly	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.13-2 Displace Substantial Numbers of Existing Housing, Necessitating the Construction of Replacement Housing Elsewhere	No Impact	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.13-3 Displace Substantial Numbers of People, Necessitating the Construction of Replacement Housing Elsewhere	No impact	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.13-4 Cumulative Impact on Population and Housing	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Public Services				
Impact 4.14-1 Result in Substantial Adverse Physical Impacts Associated with the Provision of New or Physically Altered Governmental Facilities, Need for New or Physically Altered Governmental Facilities, the Construction of which could Cause Significant Environmental Impacts, in Order to Maintain Acceptable Service Ratios, Response Times, or Other Performance Objectives for Any of the Public Services, which Include: Fire Protection, Police Protection, Schools, Parks, and Other Public Facilities	Potentially significant	**MM 4.14-1** Applicant shall contribute to funding the acquisition of a Combination Walk-in/Non-Walk-in Industrial Firefighting vehicle capable of responding with a minimum of five firefighters with the tools and equipment necessary for industrial firefighting and rescue. Each Applicant shall pay $150 per well on each Oil and Gas Conformity Review permit until the total cost of the vehicle purchase is reached, not to exceed $850,000, to be paid through mitigation fees on Oil and Gas Conformity Review permits. Subsequent Applicants shall not be subject to this mitigation measure. **MM 4.14-2** Applicant shall provide funding in the amount of $425 per Oil and Gas Conformity Review permit issued for the Sheriff's Rural Crime Unit. Funding shall be used for one Sergeant, two Senior Deputies (investigators), three Deputies, One Support Technician (clerical), and helicopter usage, based on the amount of funding provided by this permit mitigation fee. The Sheriff's department shall annually report on the expenditure of funds for the Rural Crimes Unit, including incident reports and response times. If other sources of funding for the Rural Crimes Unit are secured, then the mitigation fee amount shall be adjusted to pay only the gap between actual costs and funding provided from other sources.	Less than significant	All Tiers
Impact 4.14-2 Contribute to Cumulative Public Service Impacts	Potentially significant	Implement MM 4.14-1 and MM 4.14-2, as described above.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Recreation				
Impact 4.15-1 Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration Would Occur or Be Accelerated	Less than significant	No mitigation measures required.	Less than significant	All Tiers
Impact 4.15-2 Include Recreational Facilities or Require Construction or Expansion of Recreational Facilities That Might Have an Adverse Physical Effect on the Environment	Less than significant	No mitigation measures required.	Less than significant	All Tiers
Impact 4.15-3 Cumulative Impact on Recreational Facilities	Less than significant	No mitigation measures required.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Transportation and Traffic				
Impact 4.16-1 Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Including, but Not Limited to, Intersections, Streets, Highways and Freeways, Pedestrian and Bicycle Paths, and Mass Transit	Potentially significant	**MM 4.16-1** The Applicant shall pay a road maintenance mitigation fee of $1,500 per permit for new wells to pay for roadway maintenance and related improvements to address wear and tear on roads caused by oil and gas industry traffic. The Roads department shall annually report on the expenditure of funds from the Oil and Gas Roadway Maintenance Fee. Expenditures from the fund shall be as determined by the Roads Commissioner, using as a reference the list of roadways identified in the Environmental Impact Report as being used for traffic by the oil and gas industry. If Kern County secures funding from a sales tax dedicated to transportation funding, then the amount of the traffic mitigation fee shall be re-evaluated at the time the County becomes a self-help county. **MM 4.16-2** Applicants who are using an arterial or collector, or Caltrans route, for access to a construction site, shall consult with the Kern County Public Works Department – Roads Division to determine if a Construction Traffic Control Plan is required based on the timing and volume of larger vehicle rigs and the volume of traffic to address public safety and congestion management. If a Plan is required, the Applicant shall prepare and submit a Construction Traffic Control Plan to the Kern County Roads Department and to the California Department of Transportation (District 9 office) for approval. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and shall include, but not be limited to, the following issues: a. Timing of deliveries of heavy equipment and building materials. b. Placing temporary signing, lighting, and traffic control devices as necessary to indicate the presence of heavy vehicles and construction traffic. c. Determining the need for construction work hours and arrival/departure times outside peak traffic periods. d. Ensuring access for emergency vehicles to the Project site. e. Any temporary closure of travel lanes or disruptions to street segments and intersections during well development. f. Maintaining access to adjacent property.	Less than significant after mitigation	All Tiers
Impact 4.16-2 Conflict with an Applicable Congestion Management Program, Including, but Not Limited to Level of Service Standards And Travel Demand Measures, or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways -Metropolitan Bakersfield General Plan Level of Service "C" -Kern County General Plan Level of Service "D" -Caltrans Endeavors to Maintain a Target Level of Service at the Transition between Level of Service "C" and Level of Service "D"	Less than significant	Implement MM 4.16-2, as described above.	Less than significant after mitigation	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.16-3 Result in a Change in Air Traffic Patterns, including Either an Increase in Traffic Levels or a Change in Location that Results in Substantial Safety Risks	Potentially significant	Implement airport-related mitigation measures, as described in Section 4.8, Hazards and Hazardous Materials.	Less than significant after mitigation	All Tiers
Impact 4.16-4 Substantially Increase Hazards due to a Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses	Potentially significant	Implement MM 4.16-2, as described above.	Less than significant after mitigation	All Tiers
Impact 4.16-5 Result in Inadequate Emergency Access	Potentially significant	Implement MM 4.16-2, as described above.	Less than significant after mitigation	All Tiers
Impact 4.16-6 Conflict with Adopted Policies, Plans, or Programs regarding Public Transit, Bicycle, or Pedestrian Facilities, or Otherwise Decrease the Performance or Safety of Such Facilities	Potentially significant	Implement MM 4.16-2, as described above.	Less than significant after mitigation	All Tiers
4.16-7 Cumulative Impacts on Transportation and Traffic	Potentially significant	Implementation of MM 4.16-1 and MM 4.16-2, as described above.	Less than significant after mitigation	All Tiers
Utilities and Service Systems				
Impact 4.17-1 Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board	Less than significant	Implement stormwater mitigation measures, as described in Section 4.9, Hydrology and Water Quality.	Less than significant	All Tiers
Impact 4.17-2 Require or Result in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities, the Construction of which could cause Significant Environmental Effects	Potentially significant	**MM 4.17-1** Prior to the issuance of building permits for an operations and maintenance building, the method of sewage disposal shall be as required and approved by the Kern County Public Health Services Department. Compliance with this requirement will necessitate that the Project proponent obtain the necessary approvals for the design of the septic system from the Kern County Engineering, Surveying and Permit Services Department. The septic system disposal field shall be located a minimum of 100 feet from a classified stream or 25 feet from a non-classified stream and shall not be located where it would impact State wetlands or special-status plant species.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.17-3 Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of which could cause Significant Environmental Effects	Less than significant	Implement stormwater mitigation measures, as described in Section 4.9, Hydrology and Water Quality.	Less than significant	All Tiers
Impact 4.17-4 Not Have Sufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or New or Expanded Entitlements Would Be Needed	Potentially significant	**MM 4.17-2** Applicant shall increase the re-use of produced water, and reduce its use of municipal and industrial-quality ground or surface water use to the extent feasible. By the end of 2016, the Applicants shall work with the County to review water use data submitted to Division of Oil Gas and Geothermal Resources under Senate Bill 1281 and identify the five biggest oil industry users of municipal and industrial water by volume. The five biggest oil industry users of municipal and industrial water shall work together to develop and implement a plan identifying new measures to reduce municipal and industrial water use by 2020. The plan shall address the following activities, as appropriate: steam generation; drilling and completions (including hydraulic fracturing); dust control; compaction activities related to construction; and landscaping. Through the KernFLOWS initiative or other efforts (e.g., Groundwater Sustainability Agency), the five biggest oil industry users of municipal-and-industrial water shall also work with local agricultural producers and water districts to identify new opportunities to increase the use of produced water for agricultural irrigation and other activities, as appropriate. Any produced water treated and used for agricultural irrigation or other activities shall be tested and monitored to assure compliance with applicable standards for such agricultural irrigation or other uses. **MM 4.17-3** In the County's required participation for the formulation of a Groundwater Sustainability Agency, the Applicant shall work with the County to integrate into the Groundwater Sustainability Plan for the Tulare Lake-Kern Basin, best practices from the oil and gas industry to encourage the re-use of produced water from oil and gas activities, and (with appropriate treatment) to produce new water supplies for other uses such as agricultural irrigation and groundwater recharge. The produced water re-use goal is 30,000 acre-feet per year, which would offset more than the current use of imported water and groundwater from non-oil bearing zones by the oil and gas industry. **MM 4.17-4** The Applicant shall work with the County on the Groundwater Sustainability Plan to increase Applicant use of reclaimed water and reduce the Applicant's use of municipal-and-industrial quality imported surface water or groundwater. The Applicant will provide copies of water use reports produced under AB 1281 to the Groundwater Management Agency, which will then integrate this information into the Groundwater Sustainability Plan required under the Sustainable Groundwater Management Act.	Significant and unavoidable	All Tiers
Impact 4.17-5 Result in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that it has Adequate Capacity to Serve the Project's Projected Demand in Addition to the Provider's Existing Commitments	Less than significant	Implement MM 4.17-1, as described above.	Less than significant	All Tiers
Impact 4.17-6 Be Served by a Landfill with Insufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs	Potentially significant	Implement MM 4.17-2 and MM 4.17-3, as described above, and the following: **MM 4.17-5** During construction activities for Project facilities, the Applicant shall not store construction waste onsite for longer than the duration of the construction activity, or transport any waste to any unpermitted facilities. The Applicant shall also reduce construction waste transported to landfills by recycling solid waste construction materials, such as taking materials to recycling and reuse locations listed in the brochure on recycling construction and demolition materials available on the Kern County Waste Management Department website.	Less than significant	All Tiers

Table 7-2: Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.17-7 Fail to Comply with Federal, State, and Local Solid Waste Statutes and Regulations	Potentially significant	Implement MM 4.17-5, as described above.	Less than significant	All Tiers
Impact 4.17-8 Cumulative Impacts on Utilities and Service Systems	Potentially significant	Implement MM 4.17-1 through MM 4.17-5, as described above.	Significant and unavoidable	All Tiers

7.2 Responses to Comments

7.2.1 Global Responses

1: Ministerial Permit Process

Several commenters questioned the proposed ministerial permit process. The County is authorized to amend its zoning ordinance to provide for the ministerial approval of future oil and gas activities in the County, even though such future projects will not be subject to individual CEQA review. "Land use regulations are a manifestation of local police powers conferred by the California Constitution." (Barclay, et al., *Curtin's Cal. Land Use and Planning Law* (34th ed. 2014) p. 2.; see Cal. Const., art. XI, § 7 ["A county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws."].) The police power grants cities and counties the authority to adopt ordinances to "control and organize development within their boundaries as a means of serving the general welfare." (*Wal-Mart Stores, Inc. v. City of Turlock* (2006) 138 Cal.App.4th 273, 303.) Commenters may prefer a different approach that would require discretionary review for all future activities, but the County is within its constitutionally-granted land use authority to structure the Revised Amended Zoning Ordinance to allow ministerial approvals of certain activities, and such an approach does not run afoul of CEQA.

The Project considered in this EIR is similar to the project upheld by the *Court of Appeal in San Diego Citizenry Group vs. County of San Diego* (2013) 219 Cal.App.4th 1 (*San Diego*). In that case, the County of San Diego wanted to encourage the growth of the local wine industry by adopting zoning amendments to streamline the winery approval process. Under the proposed regulations, boutique wineries would be allowed to be developed in San Diego County "by-right," without the need to obtain any discretionary approvals or to conduct any CEQA review. As part of its zoning amendment process, San Diego County certified an environmental impact report that analyzed environmental impacts of unregulated "by-right" winery development. The *San Diego* EIR determined that, by approving an unlimited number of future wineries as a matter of right, the proposed zoning amendment would cause 22 different significant and unavoidable environmental impacts in seven different resource categories.

Upon review, the Court of Appeal acknowledged that the San Diego County's zoning ordinance amendment would "allow the by-right operation of certain wineries" and "that by-right uses are not subject to discretionary zoning approvals and are thus not subject to environmental review, unless some other discretionary approval is required." Nevertheless, the Court of Appeal upheld the *San Diego* EIR after finding that it properly disclosed that the county's streamlined zoning process would cause significant environmental effects that might be otherwise avoided if each winery project was instead subject to a discretionary approval process that included individual CEQA review. According to the Court of Appeal, the *San Diego* EIR "served its purpose as a disclosure document, by informing the public of the potential environmental impacts of approving the project. … CEQA does not mandate that every environmental impact be mitigated. Rather, so long as it has

made an informed decision in adopting a statement of overriding considerations, an agency need not require mitigation."

As in *San Diego*, here the County is proposing a zoning amendment that would encourage industry growth through a streamlined regulatory process with the application of environmental protections that, in many cases, will authorize new development without additional environmental review. Kern County currently contains approximately 75 active oil and gas fields, and approximately 2,500 wells are drilled in the County every year. It is not practical for individual environmental review to be conducted on every single well or groups of wells. The County lacks the resources to process potentially thousands of oil and gas Negative Declarations or EIRs each year. The economic consequences for operators would be severe, delaying drilling for many months during the preparation of costly individualized CEQA documents. Moreover, such individualized review would be highly repetitive, as the thousands of Negative Declarations and EIRs would re-analyze the same impacts and prescribe the same mitigation for each new well or group of wells throughout the County.

Accordingly, an important purpose of the Revised Amended Zoning Ordinance is to eliminate time-consuming and costly reviews of individual well and field development activities, by establishing a ministerial site plan review process which incorporates mitigation identified in this EIR. As such, future County actions processing individual site plans will not trigger further CEQA review by the County. In addition, this process will avoid the need for responsible agencies to prepare additional CEQA documents for individual well or field development proposals when they are considering the discretionary decisions within their respective jurisdictions. Only if the criteria for supplemental CEQA review under CEQA Section 21166 are met would additional review be necessary. (CEQA Guidelines, §§ 15096(e)(3), 15162.) Such streamlined permitting is a permissible objective reflecting land use policy decisions within the authority of a county board of supervisors. (*San Diego*, *supra*, 219 Cal.App.4th 1).

While this streamlining may avoid individualized-CEQA review for many projects, it is not analogous to a "shortcut" around environmental review. To the contrary, the Amended Zoning Ordinance significantly increases the County's oversight over oil and gas extra that are currently allowed "by right," without any ministerial or discretionary review, under the County's Zoning Code. The Amended Zoning Ordinance includes over 100 new procedural and substantive requirements applicable to Project activities, all of which have been subject to disclosure and review in the EIR.

CEQA is satisfied so long as this EIR properly informs the public of the Project's potential environmental effects on the basis of substantial evidence. CEQA review is only required when a public agency proposes to undertake a discretionary "project," which CEQA defines to mean "the *whole of an action*, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect change in the environment." (CEQA Guideline § 15378(a)(1)(emphasis added).) Here, the discretionary action that requires CEQA review is the County's proposed adoption of the Amended Zoning Ordinance. CEQA thus requires this EIR to analyze the environmental effects of the "whole of the action," which includes the future oil and gas activities that might be authorized under the Amended Zoning Ordinance. The degree of specificity

in this EIR thus corresponds to the degree of specificity in the proposed Project and serves as a "project-level" EIR not only with respect to the County's proposed adoption of the Amended Zoning Ordinance, but also with respect to future oil and gas activities that may be authorized by the County in accordance with the Amended Zoning Ordinance, just as in the *San Diego* case.

To ensure that this EIR presents a conservative analysis of likely impacts that might occur if the Project is approved, this EIR makes a number of conservative assumptions in order to present a "worst case" impact scenario and to design feasible measures to mitigate such "worst case" impacts. The conservative assumptions carried forward in this EIR include but are not limited to the following:

- All new well activities in the County are assumed to occur on Project Area lands that are under the County's jurisdictional control and non-jurisdictional areas are addressed as part of the cumulative impact analysis;
- The EIR analysis assumes that ongoing environmental effects that are part of the baseline environmental conditions are instead new impacts caused by the Project that require mitigation;
- Project-related land disturbance is conservatively estimated based on existing land use disturbance associated with oil and gas activities, then further increased by 1.2 to 3 acres per well site (depending on Subarea) to provide a conservative assessment of potential impacts;
- Project-related land disturbance assumptions are also based on the conservative assumption that new well construction and operations will not utilize existing access roads and other oil and gas infrastructure to their full potential, especially in the more heavily developed Tier 1 areas, and will thus require additional disturbances;
- Future replacement or expansion of existing oil and gas facilities are conservatively assumed to result in new land disturbances, even though not all facility replacement and expansion activities will cause new land disturbances;
- The EIR conservatively assumes that, under Project conditions, 264 more well stimulation treatments will annually occur than actually occurred under baseline conditions, even though the number of future stimulation treatments is expected to be similar to baseline conditions;
- For the purpose of analyzing and mitigating agricultural impacts, the EIR conservatively assumes that all land disturbed by oil and gas activities within the Tier 2 area will be to unique and important farmlands, even though not all land within Tier 2 falls into those categories;
- For purposes of analyzing and mitigating air quality impacts, the EIR conservatively assumes that the number of wells to be built in the Project Area will exceed the number of wells projected to be authorized under the Project;
- For the purposes of analyzing and mitigating impacts to wetland features, the EIR conservatively assumes that the Project's wetland disturbance area includes waters that

are not regulated as wetlands, such as artificial ponds and drains used for agricultural, oil and gas operations, mining, and other industrial activities;

- Potential impacts to modeled special status species were conservatively characterized in terms of annual impacts to all identified habitat categories for each species analyzed within the Project Area, which includes urbanized, agricultural, or high-density oil and gas production areas where predicted habitat values have been reduced or eliminated;
- Potential impacts to non-modeled special status species were conservatively analyzed to assume that impacts will occur even in areas where there is an extremely low likelihood of species impact;
- The EIR conservatively assumes that all Project Area land located above 2,000 feet in elevation is high quality golden eagle and condor habitat, and that disturbance in these areas could result in significant impacts to the species without mitigation;
- The EIR conservatively mitigates the Project's direct greenhouse gas emissions to net zero levels, an emission level below applicable thresholds of significance;
- To provide a conservative assessment of Project-related impacts to water supplies, the EIR assumes that all oil and gas municipal and industrial (M&I) water use will be provided by groundwater, not surface water supplies, and will be of sufficient quality to potentially be utilized for agricultural, urban or other M&I activities;
- To provide a conservative estimate of Project-related impacts to water supplies, the EIR further assumes that State Water Project surface supplies that are sometimes available in wet years will never be available during the life of the Project;
- To provide a conservative estimate of Project-related impacts to water supplies, the EIR further assumes that future Central Valley Project (CVP) water supply delivery levels in the Project Area will only be sourced from Class 1 (firm) contract supplies under future conditions, even though other CVP water supplies may be available in wet years;
- To provide a conservative estimate of Project-related impacts to water supplies, the EIR further assumes that recycled water projects currently being considered by Project Area water suppliers will not produce recycled water to serve the Project, even though such supplies may in fact become available in the future;
- The EIR's assessment of potential flooding impacts conservatively assumes that a catastrophic failure of dam facilities would occur, if at all, under full capacity conditions, even though full capacity typically occurs only in wet years;
- The EIR conservatively assumes that all Project-related well construction will disturb land throughout the life of the well, even though the permanent footprint of most wells will be less than what is projected by the EIR; and
- The EIR's assessment of Project noise impacts conservatively assumes that Project Area topography is flat, that there are no structures that will shield Project-related sounds sources, and that noise impacts will be generated by the largest operating drill rigs in

operation in the United States even though such rigs are not commonly utilized in the Project Area.

Since the EIR's analysis of Project impacts is often based on conservative assumptions, the EIR's predicted level of Project-related impacts is more severe than will likely occur under Project conditions. Nevertheless, future oil and gas activities will be required to mitigate for such "worst case" impacts scenarios, even if they won't individually cause every impact identified in the EIR. While the mitigation imposed is roughly proportional to the impacts anticipated under a "worst case" scenario, the Amended Zoning Ordinance is expected to result in fewer impacts under actual Project conditions than assumed by the EIR.

As discussed in DEIR Chapter 3, Project Description, the Amended Zoning Ordinance would establish updated development, implementation standards and conditions to address environmental impacts of pre-drilling exploration, well drilling, and the operation of wells and other oil and gas production-related equipment and facilities, including exploration, production, completion, stimulation, reworking, injection, monitoring, and plugging and abandonment (the "Implementation Standards and Conditions"). In addition to establishing minimum setback requirements, and requiring compliance with all applicable federal, state and county rules and regulations, the Amended Zoning Ordinance's Implementation Standards and Conditions would also require compliance with all applicable mitigation measures and additional regulatory requirements set forth in this EIR.

In addition, the Amended Zoning Ordinance would establish "Oil and Gas Conformity Review" and "Minor Activity Review" ministerial permit procedures to govern the County's approval of future well drilling and operations and to ensure compliance with the Implementation Standards and Conditions. The Oil and Gas Conformity Review and Minor Activity Review processes will ensure comprehensive review of all drilling activities and other minor oil and gas activities while requiring consistent, comprehensive mitigation based on defined Tiers of surrounding land uses, as specified in the Amended Zoning Ordinance. An oil and gas permit applicant that can clearly demonstrate that its project complies with the Implementation Standards and Conditions will be eligible for streamlined ministerial approval that would not require additional CEQA review. Such projects would, however, be required to implement every applicable mitigation measure described in this EIR, whether or not the applicant's project would actually cause every impact such mitigation measures are designed to address. Moreover, under the Oil and Gas Conformity Review and Minor Activity Review process, the County will have no discretion to waive any mitigation requirements for any particular oil and gas projects. All mitigation requirements will be mandatory for every project.

Since individual oil and gas projects seeking ministerial approval would be required to comply with every applicable mitigation requirement established by this EIR, in exchange for streamlined approval, most projects will be required to mitigate for some impacts that they don't actually cause. In contrast, oil and gas projects subject to a discretionary approval process can only be required to mitigate for environmental impacts when there is evidence such impacts are likely to occur. In this sense, the Amended Zoning Ordinance's ministerial approval process is environmentally superior to

the typical discretionary approval process because its comprehensive mitigation program applies even when on-the-ground impacts may not occur.

Finally, it should be noted that not all future oil and gas projects will be eligible for streamlined permitting under the Amended Zoning Ordinance. For example, projects proposed in residential and commercial zoning districts (i.e., the Project proposed within Tier 4) will be required to obtain a conditional use permit, which is a discretionary approval subject to additional CEQA compliance obligations. Similarly, projects that cannot demonstrate compliance with the Implementation Standards and Conditions will not be allowed to proceed unless they first obtain a conditional use permit following an additional round of CEQA compliance.

A question has been raised as to whether the streamlined permitting process is truly ministerial. CEQA Guidelines § 15369 define "ministerial" to mean "a governmental decision involving little or no personal judgment by the official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented but uses no special discretion or judgment in reaching a decision. A ministerial decision involves only the use of fixed standards or objective measurements, and the public official cannot use personal, subjective judgment in deciding whether or how the project should be carried out." As described by the courts, a ministerial permit is one which can be "legally compelled without substantial modification or change." *Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal. App. 3d 259, 269. By contrast, a "discretionary project" is defined as a project which requires the exercise of judgment or deliberation . . . as distinguished from situations where the public agency or body merely has to determine whether there has been conformity with applicable statues, ordinances, or regulations." CEQA Guidelines § 15357. While not determinative, a municipality's classification of a certain approval process as ministerial is entitled to great weight. *Friends of Davis v. City of Davis* (2000) 83 Cal. App. 4th 1004, 1015.

The process outlined in the EIR creates a ministerial permitting program in which mitigation measures and mandatory performance standards apply to all oil and gas developments within the scope of the Project. The County reviews permit activities only to determine conformity with applicable mitigation measures and standards; it does not engage in an exercise of judgment or deliberation. Since the Project's Conformity Review process involves only the use of fixed standards and objective measurements, it has been determined by the County that such Conformity Review permits are ministerial in nature. This determination is entitled to great weight. *Id.*

It has been suggested that the permitting system is not properly characterized as ministerial. It has been argued by some commenters that isolated phrases in the mitigation measures have created a discretionary approval process. Multiple cases have been cited on this point, but the facts of these cases are distinguishable:

***Natural Resources Defense Council v. Arcata National Corporation* (1976) 59 Cal. App. 3d 959, 970.**

Arcata National has been cited for the proposition that a discretionary element, specifically assessing whether a logging plan had "adequate" drainage and utilized the general contours of

the land "to the full extent practicable," rendered approval discretionary. This is a mischaracterization of the case. While the court did list non-quantitative standards in determining the nature of the permit, the court found it "even more important[]" that the agency official was granted authority "'to state reasonable conditions' which in his 'professional judgment' are necessary to bring a conforming plan into compliance with the rules.'" *Id*. at 272. The mitigation measures proposed by the EIR are substantially more specific than those at issue in *Arcata National*. Further, the mitigation measures do not require nor do they authorize officials to formulate their own conditions in an exercise of professional judgment. As such, the principles in *Arcata National* are not in play here.

***Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal. App. 3d 259, 270.**

Friends of Westwood has been cited as holding that the power to determine what building components are "adequate" renders approval discretionary. However, this is a mischaracterization. It was not that the municipality had the power to determine "adequacy" which rendered the permit discretionary. As in *Arcata National*, the permitting process in question expressly allowed for the exercise of an agency official's discretion. *Id*. at 274. Further, the granting of the permit in *Friends of Westwood* also involved "several departures from standards the city council had enacted," including an exercise of discretion to exempt the project from consistency with the general plan, allowing the development to intrude into a low-density specific plan area. No such departures have been authorized by the mitigation measures or by the County. Further, those mitigation measures allowing multiple pathways require that the chosen pathway meet or exceed objective standards. This is distinct from the standard in *Friends of Westwood* allowing variation when the modification "conforms to the 'spirit and purpose' of the ordinance." *Id*. In contrast to the permitting regime in *Friends of Westwood*, the Project does not authorize or require the exercise of personal judgment in its conformity review.

The scope of CEQA extends to hybrid projects of a mixed ministerial-discretionary character and that doubts whether the project is ministerial or discretionary should be resolved in favor of the latter characterization. *Miller v. City of Hermosa Beach* (1993) 13 Cal. App. 4th 1118, 1139. However, the permitting process created under the Project is not of this mixed character. When an activity falls within the scope of the project, there is no exercise of personal judgment or deliberation; the agency merely determines conformity with the applicable standards.

2: Project vs. Program EIR

Several commenters assert that environmental review for an ordinance must be conducted on a program level rather than a project level. Other comments assert that this EIR lacks sufficient detail to be considered a project-level review.

This EIR contains a comprehensive analysis of the impacts of the proposed Project, including adoption of the Amended Zoning Ordinance as well as oil and gas development expected to be undertaken pursuant to the amended ordinance in coming years. Section 2.6.3 of the DEIR explains how the Project Objectives influenced the analytical approach to this EIR. Specifically, the County desires to strengthen environmental protections while maintaining a largely ministerial site plan

approval process in the future. By conducting a project-level review of the Amended Zoning Ordinance and future development pursuant to the ordinance at this time, the EIR informs the policy decisions reflected in the Ordinance, and allows the County to identify performance standards and mitigation measures that most effectively and efficiently address both the large scale and localized effects of oil and gas development. The impact analysis has been performed on a landscape or regional scale, and the EIR also contains extensive analysis and mitigation measures at the micro scale. As such, the EIR meets CEQA's requirements for a project-level review both for the Amended Zoning Ordinance and the development undertaken in the future under the Ordinance. The EIR undertakes a detailed analysis of site-specific impacts and mitigation measures by using the Kern County Data Basin, a publicly accessible science-based mapping and analysis platform that supports learning, research, and sustainable environmental stewardship, and provides map-based data in support of county planning efforts.

A lead agency may, but is not required to, use a program-level CEQA review to consider related actions in the early stage of the particular program's planning process.[1] Ultimately, however, the degree of specificity required in an EIR corresponds to the degree of specificity in the project being described in the EIR.[2] Accordingly, the question is not whether a program EIR should have been prepared for this Project, but whether the EIR addressed the environmental impacts of this Project to a "degree of specificity" consistent with the underlying activity being approved through the EIR.[3] Here, the environmental impacts covered in each resource section are analyzed at several different levels, from regional impacts and policy issues to highly localized effects and tailored mitigation. Each level of analysis informs the development of the mitigation measures, which are ultimately imposed at the well or parcel level using the Data Basin GIS tool.

Beginning on a regional or landscape level, the EIR analyzes the entire Project Area using geographic boundaries, concentrated oil and gas exploration and production areas, and historic and current land uses and zoning. Geographic boundaries divide the three project subareas into Eastern, Western and Central Subareas. Areas which have historically had concentrated oil and gas production activities (and which include the California Department of Conservation Division of Oil, Gas, and Geothermal Resources' (DOGGR's) "Administrative Boundary" areas) are Core Areas.[4] The EIR also analyzes and characterizes the Project Area by categorizing lands into Tiers based on existing and zoned land uses.[5] The EIR then analyzes potential impacts of the Project, analyzing differences within and between the Subareas and Tiers.

By applying these categories to the analysis, the EIR is able to home in on Project impacts that are unique to, for example, a subdivision in the Eastern Subarea. For example, within the Biological Resources section of the DEIR, Table 4.4-1 shows how many acres of vegetation cover exist in each

[1] 14 Cal. Code Regs. §15168(b)(1)-(4).
[2] 14 Cal. Code Regs. §15146.
[3] *Citizens for a Sustainable Treasure Island v. City and County of San Francisco*, 227 Cal. App. 4th 1036, 1052 (2014) (citing CEQA Guidelines, § 15146 and § 15168, subd. (c)(5)).
[4] Core Areas are described in detail in Section 3.4.3 of the EIR, beginning at page 3-23.
[5] Tier Areas are described in detail in Section 3.4.4 of the EIR, beginning at page 3-24.

Subarea—and for each Tier within that Subarea. The table presents a clear picture of the type of vegetation that could be impacted in any given Tier within any of the three Subareas. It shows, for example, that while Fresh Emergent Wetlands are present within Tier 2 lands of all the Subareas, they also exist in Tier 4 lands of the Central Subarea. Later tables similarly show the estimated disturbance acreage within Subarea and Tier.[6] Impacts to species were then analyzed based on the disturbance acreage and either a modeling approach or, where available, species-specific occurrence information.[7] Using this analysis, the EIR identifies mitigation measures for the potential impacts identified. The mitigation measures identified in the EIR will be populated in the Data Basin and linked to Subarea, Tier, and Core or Non-Core area as applicable. The Conformity Review process outlined in the ordinance, combined with the Data Basin GIS website, is the implementing mechanism for the applicable measures.[8]

Section 19.98.070 of the Amended Zoning Ordinance sets forth a lengthy checklist of activities that will trigger a Conformity Review or Minor Activity Review. The Amended Zoning Ordinance also sets forth the required contents of an application for Conformity. Information requested may differ depending on the Tier in which the proposed activities take place. The applicant must provide the assessor parcel number(s) (APNs) related to the activities. The Data Basin mapping tool will provide for a streamlined review of oil activities on a well or parcel-specific basis. By entering the APNs into the Data Basin, the mitigation measures and site specific characteristics of each parcel can be displayed for ease of review and public information. The ordinance further specifies that the applicant must demonstrate compliance with applicable mitigation measures.[9]

This approach is consistent with many other ordinances and permitting processes. For example, in 2008 the Los Angeles County Board of Supervisors adopted the Baldwin Hills Community Standards District (CSD) to regulate oil and gas production activities in the unincorporated portion of the Inglewood Oil Field.[10] The CSD establishes a detailed checklist of performance standards that operations are required to meet, and provides for the County Planning Director to issue ministerial approvals for projects that comply with those standards and with other requirements of the County's Planning Code.[11] Los Angeles provided CEQA coverage for this approach by preparing a detailed EIR that studied the impacts of all oil and gas development that would occur pursuant to the ordinance, and proposed mitigation measures that Los Angeles County incorporated into the requirements of the ordinance.[12]

Similarly, in 2014, Los Angeles County approved the East Los Angeles Third Street Plan, one of several plans for transit-oriented development in the Los Angeles metropolitan area. The plan, and the ordinance that implements it, provide detailed development standards and allow for the county to

[6] See, e.g., Table 4.4-71.
[7] DEIR at pp. 4.4-175 to 4.4.-180.
[8] The Conformity Review is described in detail in Section 3.4.5, beginning at page 3-27.
[9] Proposed Zoning Ordinance 19.98.060(D).
[10] Los Angeles County Board of Supervisors Ordinance No. 2008-0057
[11] Los Angeles County Code, § 22.44.142(E), (H).
[12] Baldwin Hills CSD Final Environmental Impact Report, at 4-1, 6-1.

issue ministerial approval of certain projects after determining that the projects conformed to the plan.[13] Again, the EIR for the ordinance "covered" adoption of the ordinance by studying the impacts of all developments predicted to occur under the ordinance, and proposing mitigation measures to be adopted into the ordinance itself.[14]

The county's approach to this project EIR was recently validated in *Citizens for a Sustainable Treasure Island v. City and County of San Francisco*, 227 Cal. App. 4th 1036, 1052 (2014). There, the court held that San Francisco's preparation of a project-level EIR—instead of a program EIR—for a 20-year redevelopment project did not make the EIR inadequate even though future development was envisioned as part of the project description. Opponents of the project argued that the proposed project was an "overarching, conceptual plan or program" and that the project-level details could not become known until they were revealed in later project proposals.[15] The court reiterated that it is the substance of the EIR—not its label—which informs the decision makers of the level of specificity.[16]

The *Treasure Island* court also acknowledged that the "'degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR. [¶] … An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan … .'"[17] Ultimately, the question before any court is whether the EIR has presented the decision makers with sufficient analysis to adequately consider the potential environmental consequences of the project.

The redevelopment project at issue in *Treasure Island* proposed to combine a special use district with zoning districts associated with detailed and binding development standards within each district. Opponents of the project argued that because the final layout of particular buildings was left for future agency review, the information about the project was not sufficiently finite or accurate to allow for a project-level review. Using the opponent's future building construction example, the court stated that the special use districts, combined with the voluminous detailed development standards, provided sufficiently concrete information about where future buildings would be located, along with separation, bulk and mass. In fact, the court stated, the EIR "made an extensive effort to provide meaningful information about the project, while providing for flexibility needed to respond to changing conditions and unforeseen events that could possibly impact the Project's final design."[18]

---

[13] *See generally* East Los Angeles 3rd Street Plan (Adopted November 12, 2014); Los Angeles County Code § 22.46.3004, 22.46.3007-3013.
[14] East Los Angeles 3rd Street Plan and Form-Based Code Specific Plan Final Environmental Impact Report, at 11-1.
[15] *Citizens for a Sustainable Treasure Island v. City and County of San Francisco*, supra, 227 Cal. App. 4th at 1047.
[16] *Id.* at 1048.
[17] *Id.* at 1051, citing 14 Cal. Code Regs. § 15146.
[18] *Id.* at 1053.

Like the *Treasure Island* project, this EIR provides an accurate and stable project description critical for conducting an analysis, even while maintaining flexibility necessary to account for the precise locations and nature of the future oil and gas production and development activities. The EIR describes in detail the types of equipment that will be used, the types of activities that will be conducted, and the associated potential impacts, and quantifies the potential impacts within both Subareas and Tiers. And like the *Treasure Island* EIR, this EIR provides a comprehensive analysis of the potential environmental consequences of the Amended Zoning Ordinance and future oil and gas development pursuant to that ordinance, and incorporates mitigation measures via the development standards incorporated in the ordinance which are, in turn, made a part of the mandatory Oil and Gas Conformity Review process. The EIR need not pinpoint the precise location of the future activities it has considered to provide a meaningful analysis of the impacts; the EIR "cannot be faulted for not providing detail that, due to the nature of the Project, simply does not now exist."[19] Viewed as an informational document, the EIR's Project Description provided sufficient information about the Project to allow the public and reviewing agencies to evaluate and review its environmental impacts, and also provided the required major characteristics of the Project.

Finally, like the *Treasure Island* project, the use of this EIR as a project-level EIR does not attempt to prospectively evade the possibility of future CEQA review. The EIR acknowledges the duty to perform supplemental CEQA review under Public Resources Code under section 21166 if a proposed action falls outside the project scope, or other changes necessitating subsequent CEQA review are met.[20]

This approach is also validated by the Court of Appeal's 2013 decision in *San Diego Citizenry Group v. County of San Diego*,[21] as discussed in more detail in Global Response #1 (Ministerial Review). In that case, the County of San Diego amended its zoning code to allow small boutique wineries to operate with no discretionary approvals or additional CEQA review. The Court of Appeal upheld the EIR for this zoning code amendment against multiple challenges, since the EIR fully disclosed, and proposed mitigation for, the full impact of all wineries that were predicted to be developed as a result of the ordinance.

During the public review period for this EIR, the Court of Appeal upheld a project-level EIR in *Backcountry Against Dumps v. San Diego County Board of Supervisors* (2015) 2015 WL 5451508 ("*BAD*") for a zoning update project that is substantially similar to the Project considered in this EIR. The *BAD* EIR was prepared for a county zoning ordinance amendment to establish administrative procedures to govern the approval of wind energy turbine projects. Similar to the Amended Zoning Ordinance in this case, the *BAD* zoning amended provided that small wind

[19] *Id.* at 1054.
[20] See EIR Section 3.5, discussing the potential future oil and gas scenario; see also EIR at p. 2-3. See also *Citizens for a Sustainable Treasure Island v. City and County of San Francisco*, 227 Cal. App. 4th 1036, 1051 (2014) (explaining that if even a *program* EIR is sufficiently comprehensive in its analysis, a lead agency need not conduct further environmental review for future activities sufficiently analyzed in the EIR; the sufficiency of the EIR is based on its content, not its label).
[21] 219 Cal.App.4th 1 ("*San Diego*")

turbines (i.e., turbines with a rated capacity of not more than 50 kilowatts) and meteorological testing facilities were subject only to ministerial approval without additional CEQA review following a required conformity review process conducted by County staff to verify compliance with new development standards adopted by the *BAD* zoning amendment.[22] Similar this Project's Amended Zoning Ordinance at issue, the *BAD* zoning amendment also provided some structures (i.e., very large wind turbines) would not be eligible for ministerial approval and would instead require a discretionary conditional use permit subject to further CEQA review. On appeal, the Court upheld the *BAD* EIR after determining that it adequately disclosed and mitigated the project's environmental impacts without regard to the fact that the *BAD* zoning amendment would authorize significant energy development on a ministerial basis.

The above examples of similar regulatory programs demonstrate that there is nothing novel about the Project's proposed regulatory framework. Local agencies commonly include provisions in their respective zoning regulations that authorize a variety of land uses subject only to ministerial approval, including oil and gas well permits. The County's current zoning regulations allow Project activities to occur in many zoning districts within the County without ministerial or discretionary review, based on prior determinations regarding the general land use compatibility of continued oil and gas extraction activities and the sufficiency of third party expert agency regulations to protect human health and safety, and the environment. The County directed that the current ordinances be updated to substantially expand the County's oversight and enforcement role, which now includes over 100 new procedural and substantive requirements applicable to Project activities. The Board of Supervisors directed that this ordinance update process be procedurally structured to avoid imposing excessive administrative burdens, while assuring effective implementation and enforceability. Nevertheless, though the regulatory structure proposed by Project is substantially similar to analogous zoning ordinances enacted throughout the state following certification of a single project-level EIR, some comments state that a first tier program EIR is required for the Project as a matter of law. According to such comments, project-level EIRs are reserved only for specific individual well construction proposals and program EIRs are required for the adoption of policies, plans, programs, or ordinances that contemplate a "series of related actions." According to these comments, no matter how detailed the analysis in this EIR, CEQA prohibits the County form certifying a project-level EIR for a zoning amendment that would authorize ministerial well permits without additional CEQA review. As explained below, such comments are misguided.

No court has ever held, as a matter of law, that CEQA required a program EIR and prohibited a project-level EIR. The CEQA statute itself refers only to "environmental impact reports" or EIRs, making no distinction between project EIRs and program EIRs.[23] The CEQA Guidelines identify various types of EIRs, including project EIRs, master EIRs, general plan EIRs, subsequent EIRs, staged EIRs, supplemental EIRs, focused EIRs, and program EIRs.[24] However, the CEQA guidelines explain that these are but "examples of variations in EIRs" and that these variations "are not

[22] *BAD* at 1.
[23] Pub. Res. Code §§ 21003, 21061, 21000.
[24] CEQA Guidelines §§ 15161, 15162, 15163, 15166, 15167, 15168, 15175, 15175.5, 15179.5.

exclusive."[25] According to the CEQA Guidelines, the lead agency "may use other variations" if desired to "meet the needs of other circumstances."[26] Irrespective of the type of EIR that the lead agency prepares, the Guidelines state that *all* EIRs must "meet the content requirements discussed in Article 9 beginning with section 15120."[27] These include, among other things, the requirements to provide a project description, describe the environmental setting, analyze and mitigate significant impacts, consider alternatives, and discuss cumulative impacts.[28] Thus, CEQA provides a variety options the lead agency "may use" at its discretion, provided the content of each document variation meets CEQA's content requirements. As discussed above, the CEQA Guidelines explain that a program EIR "*may* be prepared" for "a series of actions that can be characterized as one large project[,]" but the Guidelines don't *require* a program EIR in such cases.[29] As the Court of Appeal held in *Treasure Island*, "the fact that this EIR is labeled a 'project' rather than a 'program' EIR matters little for purposes of its sufficiency as an informational document."[30]

CEQA Guidelines § 15166 governs the preparation of an EIR in conjunction with the adoption of a local general plan, the quintessential example of a local "policy, plan, program, or ordinance" that contemplates a "series of related actions." Section 15166 is a prime example of CEQA's focus on substance over form because it explains that the general plan *can itself serve as an EIR*, so long as it satisfies CEQA's mandatory content requirements. Notably absent from section 15166 is any mention of program EIRs. Thus, even were the project is as broad as a general plan, the lead agency has discretion to decide what sort of EIR to prepare, provided it meets CEQA's mandatory content requirements.

To claim that the County can legally adopt the Project *only* if it first prepares a program EIR is to focus on semantics, rather than content. However, "[i]t is the substance, rather than the form, of [the] document which determines its nature and validity."[31] "The degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR."[32] Therefore, "the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible."[33] Accordingly, the relevant question is not whether it is appropriate for the County to prepare a project-level EIR in this matter, but whether this EIR addresses the Project's environmental impacts to a "degree of specificity" consistent with the nature of the Project.[34] CEQA thus directs the County to focus on substance over form in order to ensure that this EIR provides "decision makers with sufficient analysis to intelligently consider the environmental consequences

[25] CEQA Guideline § 15160.
[26] *Id*.
[27] CEQA Guidelines § 15160.
[28] CEQA Guidelines §§ 15124, 15125, 15126, 15126.2, 15126.4, 15126.6, 15130.
[29] *Id*.
[30] *Treasure Island*, 227 Cal.App.4th at 1048 (internal citations and quotations omitted).
[31] *Natural Resources Defense Council, Inc. v. California Coastal Zone Conservation Comm.* (1976) 57 Cal.App.3d 76, 91.
[32] CEQA Guidelines § 15146.
[33] *San Diego*, 219 Cal.App.4th at 21 (*quoting* CEQA Guidelines § 15151.)
[34] CEQA Guidelines §§ 15146, 15168(c)(5).

of [the] project."[35] "Designating an EIR as a program EIR … does not by itself decrease the level of analysis otherwise required in the EIR. All EIR's must cover the same general content. The level of specificity of an EIR is determined by the nature of the project and the 'rule of reason,' rather than any semantic label accorded the EIR."[36]

Some comments equate project-level review with detailed site-specific development proposals, but they are not the same thing. CEQA has never mandated that an EIR evaluate site-specific, detailed, construction plans because such a requirement would limit CEQA's effectiveness by freezing proposed projects before environmental review has commenced. However, CEQA Guidelines § 15004(b) makes it clear that "EIRs … should be prepared as early as feasible in the planning process to enable environmental considerations to influence the project program and design[.]" Indeed, conceptual or illustrative plans suffice for project-level review, provided they provide sufficient information to enable the lead agency to evaluate the project's impacts.[37] As held in *Dry Creek Citizens Coalition v. County of Tulare*:

> [CEQA Guidelines § 15124(c)] requires a "general description" of the project's technical characteristics. "General" means involving only the main features of something rather than details or particulars. The "general description" requirement for the technical attributes of a project is consistent with other CEQA mandates to make the EIR a user-friendly document. For example, Guidelines section 15140 states the EIR's must be written in plain language so that decisionmakers and the public can rapidly understand them. The general description requirement also fosters the principle that EIR's should be prepared early enough in the planning stages of a project to enable environmental concerns to influence the project's design. A general description of a project element can be provided earlier in the process than a detailed engineering plan and is more amendable to modification to reflect environmental concerns.

Indeed, by describing numerous Project modifications implemented specifically to address environmental concerns raised during the Draft EIR's public review process, this document appropriately serves the very CEQA principles identified by the *Dry Creek Citizens* court.

Rio Vista Farm Bureau Center v. County of Solano (1992) 5 Cal. App. 4th 351, 372–73 has been raised as opposing authority. It has been suggested that *Rio Vista Farm Bureau* compels a tiered approach to environmental review when evaluating a more general project—such as the adoption or amendment of a zoning ordinance or a plan. However, *Rio Vista Farm Bureau* and the project are inapposite. In *Rio Vista Farm Bureau*, the agency approved an EIR and broad plan without conducting any site-specific project-level analysis. The court found the EIR was not required to conduct such an analysis because the EIR functioned as a "general planning device." *Id.* at 373. The scope of the plan in question was limited to "recitation of policies, requirements, and siting criteria"

[35] *In re Bay-Delta etc.* (2008) 43 Cal.4th 1143, 1175.
[36] *Friends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency* (2000) 82 Cal.App.4th 511, 533.
[37] *Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 28 ("*Dry Creek Citizens*").

and future site-specific activities were made contingent on further CEQA review. *Id.* The *Rio Vista Farm Bureau* EIR was a program EIR that was not intended to provide project-level CEQA coverage and was adequate as such. *Rio Vista Farm Bureau* is therefore inapposite. As discussed above, the EIR provides project-level analysis. The EIR has not deferred environmental analysis to a later date, but has conducted a thorough review of all environmental impacts and developed a suite of mitigation measures that are tailored to each specific oil and gas activity and its location within the Project area.

Cases discussing the necessity of tiering when drafting a program EIR were raised by several commenters. These cases are not relevant to the Project. This EIR is a project-level EIR. A second environmental evaluation is only necessary when the first-tier analysis is limited to broadly analyzing the implementation of a general set of actions. *In re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceeding* (2008) 43 Cal. 4th 1143, 1169–1170; *Fiends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency* (2000) 82 Cal. App. 4th 511, 528. The EIR is not so limited. As discussed above, the EIR engages in both regional and project-level analysis to create mitigation measures tailored to the specific conditions of an oil and gas activity and its site. This is distinct from cases like *In re Bay Delta* (in which the program-level EIR deferred analysis of certain environmental impacts to later review, necessitating future independent determinations of environmental impacts), *Center for Sierra Nevada Conservation v. County of El Dorado* (2012) 202 Cal. App. 4th 1156 (in which the series of interrelated tasks at issue were subsequent plans, the effects of which were not addressed in the program EIR), or *Rio Vista Farm Bureau*. This EIR has not deferred its analysis for later review; it is not a program-level EIR. As such an iterative process is not necessary.

It has also been suggested by several commenters that the Project Description is inadequate for a project-level EIR. It is a correct statement of law that "[a]n accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." *San Joaquin Raptor/Wildlife Rescue Ctr. v. Cnty. of Stanislaus* (1994) 27 Cal. App. 4th 713, 730. It has been suggested that there are certain, minor discrepancies in the Project Description and that, as a result of these discrepancies, the EIR fails to comport with CEQA's requirements for a project-level EIR. These alleged discrepancies in, for example, the duration of the Project are inconsequential. "CEQA requires an EIR to reflect a good faith effort at full disclosure; it does not mandate perfection." *Dry Creek Citizens Coal. v. Cnty. of Tulare* (1999) 70 Cal. App. 4th 20, 28. It has been suggested that the alleged discrepancies in the EIR rise to the level of discrepancies found in *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal. App. 4th 70, 89. In that case, however, the EIR failed because the fundamental purpose of the project was unclear; the EIR claimed that the project was designed to allow more flexibility in crude supplies, including "increasingly heavier" crude, while the project description denied that the project would enable processing of heavier crude. No commenter has identified even an alleged discrepancy rising to this level of conflict. The alleged discrepancies do not make the Project Description incomplete, vague, or obscure. The EIR functions as an informational document allowing the public and the County to "ascertain the project's environmentally significant effects, assess ways of mitigating them, and consider project alternatives." *Sierra Club v. Cty. Of Orange* (2008) 163 Cal. App. 4th 523, 533.

Finally, some comments state that the Project and this EIR are intended to evade future CEQA review of oil and gas activities, but this argument is belied by the record. This EIR clearly acknowledges the County's obligation to perform supplemental environmental review under Public Resources Code section 21166 if the annual Project activity level or total activity level assumed by this EIR is exceeded.[38] If the criteria for subsequent or supplemental CEQA are met, further review environmental would be required for the County's continued reliance on Project's conformity review process.[39]

3: EIR Shelf Life

Commenters propose that the Amended Zoning Ordinance and this EIR should have a defined "shelf life" and expire after a specific term. In its EIR on Oil and Gas Well Stimulation Treatments in California prepared pursuant to Senate Bill (SB) 4, for example, DOGGR noted that a County representative predicted that "the County's EIR should remain sufficient and reasonably up-to-date for a period of approximately 10 years." (p. C.2-43).

There is no scheduled expiration date for a County zoning ordinance. The development standards and conditions specified in the Amended Ordinance will continue to apply unless and until the Zoning Ordinance is amended again. Moreover, there is no set time frame beyond which an EIR expires or must be supplemented. This EIR is expected to remain sufficient and up-to-date for a period of approximately 20 years, and could remain so beyond that time frame, depending on whether annual oil and gas activity levels turn out to be less than expected and there is no other trigger for further CEQA review. The County has also included in the Revised Amended Ordinance an annual cap on the number of well permits that may be issued through the ministerial approval process to 3,647 since that is the maximum number of ministerial permit approvals that are reasonably foreseeable and included within the scope of this EIR.

The Project Description in this EIR assumes that 3,647 new wells will be drilled per year, which is a conservative (high) number of new oil and gas well activity. In practice, it is likely that annual activity levels will be lower, especially if oil prices remain low for a substantial period of time. However, the analysis of environmental impacts is based on the conservative assumption that this level of activity will continue each year for the next 20 years. Similarly, the mitigation measures identified in this EIR are designed to mitigate impacts based on this projected level of activity. The County can rely on this EIR and further environmental review would not be needed, as long as the annual projected activity level is not exceeded (no more than 3,647 wells are drilled in a single calendar year), the total projected activity level does not exceed 72,940, and none of the environmental impact projections are exceeded such that continued implementation of the Amended Ordinance would cause a significant new impact not identified in the EIR, or worsen a significant impact already identified in the EIR.

[38] Draft EIR at 3-30.
[39] *Id*.

At the point that either the annual activity level or total activity level is exceeded, or there is evidence of a significant new or significantly worse impact, the County will consider whether the circumstances require further environmental review in accordance with CEQA (Pub. Res. Code) Section 21166 and CEQA Guidelines Section 15162. CEQA Guidelines Section 15162 provides that no subsequent or supplemental EIR is required for a project unless one or more of the following events occurs:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The County will make the decision as to whether further CEQA review is required and its determination is entitled to deference. *A Local & Regional Monitor v. City of Los Angeles* (1993) 12 Cal.App.4th 1773, 1799-1800. In making that determination, the County is specifically authorized to limit its consideration to effects not considered in connection with the previous EIR. *Temecula Band of Luiseño Mission Indians v. Rancho Cal. Water Dist.* (1996) 43 Cal.App.4th 425, 437. Similarly, a Responsible Agency will use this EIR unless it determines that subsequent CEQA review is permissible under the same standard described above. Guidelines, § 15096(e). See Global Response 6: Use of this EIR by the Lead Agency and Responsible Agency.

If and when the County determines that any of the criteria in CEQA Guidelines Section 15162 is met, further CEQA review would be required (e.g., an Addendum, supplemental EIR, etc.) in order

to continue to issue permits under the Amended Ordinance. However, until one or more of those criteria is met, the County may continue to implement the Amended Ordinance (e.g., by approving additional wells under the Conformity Review process) without further CEQA review. For example, if 2,697 wells have already been permitted in one year, but the County determines that drilling a 2,698th well will not result in new or worse significant impacts than were already considered in this EIR, supplemental environmental review would not be required, and the County could approve the 2,698th well through the Conformity Review process. If, on the other hand, the County determines that the 2,698th well would cause a new or worse significant impact than already considered in this EIR, then further CEQA review would be required before approving the well.

4: Surface Owners and Agriculture

Several commenters raised questions about how the Project relates to the property rights and protections of surface owners on split estates. In certain Project Area (as defined in the DEIR) locations, surface and subsurface mineral rights, including the ownership of oil and gas deposits, have been split or severed by deed, government patents or by similar property conveyances. These lands are commonly referred to as "split estates." The different situations include:

1. Surface owner and mineral owner are different and both have rights to the surface;
2. Surface owner and mineral owner are different but the surface owner controls down to 500 feet or other depth and then the mineral ownership begins; and
3. The surface owner owns the private surface and the minerals are owned by the Federal Government or State Government. All federal mineral ownership, regardless of location is managed by the US Department of Interior, Bureau of Land Management (BLM). This zoning ordinance does not apply to the permitting of the BLM.

The Amended Ordinance include significantly enhanced permit review timelines and requirements that create new incentives for mineral estate owners to negotiate with surface owners prior to initiating construction activities for oil and gas extraction activities on split estate parcels. The zoning ordinance requirements center on the requirement for the surface owner to sign the site plan submitted for the Oil and Gas Conformity review by the County in order to expedite permit processing, and provide an alternate permit procedure for applications for which surface owner signatures have not been included in the Site Plan. The Revised Amended Ordinance (Section 7.1.3) and revised Mitigation Measures (Section 7.1.4) included in this Final EIR further clarify and expand on the notice and documentation rights of surface owners, and on mitigation measures applicable to agricultural areas.

Responses to the many related comments on these surface owner agricultural issues are provided below, and in responses to comment letters.

In contrast with most oil and gas-producing states, California has not adopted legal principles or legislative measures that have amended or lessened the common law rights of mineral estate owners to enter into and use surface land as reasonably required to extract oil, gas and other minerals. In addition, oil and gas exploration and production in the Project Area is not subject to permitting or review in most agricultural zoned locations under the existing Zoning Ordinance. As a result, under

current law, Project Area surface right owners that may have concerns about mineral rights development have relatively limited opportunities and short timeframes to affect mineral estate, including oil and gas operations and activities on split estate parcels. The proposed revisions to the Zoning Ordinance implement new mineral estate owner disclosure to the surface owners and County oversight requirements that provide surface estate owners with additional timeframes to understand the actual site development plans so they can engage directly with mineral owners and seek modifications to the operational plans. These modifications and discussions can include changes to the site plan to minimize surface disruption and any other issues of concern, to a much greater extent than under existing state and local law.

Split estates occur in the Project Area and throughout California and the United States. A substantial majority of the land in Colorado, Wyoming and other Rocky Mountain states, for example, consists of split estates created by federal land grants. Over 140,000 acres of land within or adjacent to the Project Area consists of split estates resulting from federal mineral reservations, and the subsurface rights to oil, gas and similar mineral assets for these parcels are managed by the U.S. Bureau of Land Management (BLM). Private transactions can also sever a parcel's mineral and surface ownership. The locations of privately-generated split estate properties in the Project Area cannot be precisely identified from available data sources, but most locations where agricultural, ranching and other surface owners have expressed concerns about split estate oil and gas estate operations are located in the Eastern and Central Subareas. The ownership and control of surface and mineral rights has not been severed, and is subject to common ownership and management, within a significant portion of the Project Area.

Split estates are relatively unique to the United States and can give rise to situations in which the surface and subsurface mineral rights holders may be completely unknown to each other. Split estate surface owners may conduct activities, such as farming, for several years without contact with subsurface rights holders. As mineral market conditions or extraction technologies change, however, mineral rights holders may seek to explore and produce oil, gas or other subsurface minerals in new locations and where surface activities, such as farming, ranching or other industrial developments , have become established. The unanticipated legal entry on to and use of surface land by mineral estate owners can disrupt existing surface activities, such as crops and orchards, and has generated legal conflict throughout the United States.

American common law considers a mineral estate to be "dominant" over a surface estate because without surface access sufficient to locate and remove subsurface deposits, a mineral ownership would have no value. As a result, most states, including California, provide a mineral estate owner with surface rights that are often likened to an implied easement to use surface land in any way "reasonably necessary" for mineral exploration, drilling, production, or recovery. Under these principles, a mineral estate holder may reasonably access and use surface land without the surface estate holder's consent. The common law of split estates often does not specifically require that surface owners be compensated for reasonable mineral estate-related surface disruption, although mineral rights holders typically compensate surface owners for damage to crops or existing structures. Surface owners also have the right to sue mineral owners for damages for negligent or unreasonable surface land use.

Conflict between surface and mineral rights holders in split estate parcels, especially in the western United States, has generated judicial and legislative efforts to attenuate the common law dominance of the mineral estate and to provide surface estate owners with more capacity to negotiate access and land use agreements that reduce potential surface farming or other disruption. Many state courts, including in Texas and Colorado, have modified the common law of split estates to include an "accommodation doctrine." In general, states that recognize the accommodation doctrine allow surface owners to bring a lawsuit to show that a mineral estate owner can reasonably use a less disruptive, alternative method for extracting oil, gas or other minerals. Should a surface owner prevail in court, the mineral estate owner is required to implement the less disruptive method identified by the surface owner to reduce impacts to the surface estate.

Many states, including Alaska, Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming have also enacted "surface damage" or "surface use" statutes that partially attenuate the common law dominance of the mineral estate. While statutory requirements vary from state to state, most of these laws require: (1) notice to surface owners prior to commencing drilling or other major operations; (2) good faith negotiations with the surface owner if the surface owner desires to modify a mineral operation plan; and (3) methods for valuing, compensating or bonding to protect surface owners from damages to surface assets. Similar requirements have been implemented by the BLM for federal mineral estates, including evidence of good faith negotiation with a surface owner prior to the issuance of drilling or other mineral-related permits, and bonding if an agreement with the surface owner cannot be completed.

The practical effect of the accommodation doctrine (as defined above), state surface damage or surface use statutes in other States, and the BLM mineral estate management policies, is to create incentives for the mineral estate holder to notify and reasonably accommodate the concerns of surface estate holders prior to the commencement of oil, gas or other mineral operations. None of the state statutes or BLM mineral policies specifically require that surface owners consent to a mineral estate plan of operations as a condition of permit issuance (Schwan 2015; Jones 2013; Watson 2008).

California remains one of the few significant oil and gas producing states that has not, through court actions, recognized the accommodation doctrine and that has not enacted surface damage or surface use statutes specifically for split estates. As discussed in the DEIR, the current County Zoning Ordinance allows for oil and gas exploration and production as an "of right" land use in most of the County that is zoned for agricultural uses, including virtually all locations where agriculture and ranching occurs on split estate parcels in the Project Area. Consequently, the common law dominance of mineral estates (e.g., oil and gas rights holders) over surface estate holders (e.g., agricultural and ranching operators) has been much less lessened or amended by legal or legislative action in California, including the Project Area, than in almost all other major oil and gas producing states.

California law provides relatively limited rights to surface owners. The state legislature most recently addressed split estates involving oil and gas operations in 2012 (effective 2013) and amended Section 848 of the California Civil Code to require that a mineral estate owners provide a surface owner with: (1) at least 5 days advance notice prior to commencing "non-surface-disrupting

activities such as surveying, water and mineral testing, and removal of debris and equipment not involving use of an articulated vehicle on the real property;" and (2) at least 30 days prior notice before conducting "surface-disrupting activities, including drilling new wells, constructing structures, bringing articulated vehicles or excavation equipment on the site, or reclamation of the real property after the surface has been disturbed." The 30-day notice must identify (A) the extent and location of the prospecting, mining, or extraction operation; and (B) the approximate time or times of entry and exit upon the real property. Unlike many other states, and the BLM mineral lease policies, these provisions do not specifically require that the mineral estate owner discuss or attempt to negotiate an intended plan of operations with an agricultural surface owner to minimize crop or other surface impacts. As amended, Section 848 only allows a surface owner to file a lawsuit "to enjoin the prospecting, mining, or extracting operation" until a mineral rights owner has complied with the applicable notice requirements. Based on common law lawsuits in other states, such as Texas, surface owners should also be able to sue for damages if the mineral estate owner's surface use is unreasonable or negligent (Norwood 2007). There are few if any reported cases in California involving surface owner claims that mineral estate owners unreasonably used surface land to access and remove oil, gas or other minerals.

Except in rare circumstances, almost no mineral-related activities on split estate lands in the Project Area would be subject to review and approval by the County under the existing the Zoning Code. Certain oil and gas operations are subject to general Zoning Code requirements, such as setbacks from schools, but the existing Ordinance does not generally impose specific mineral operation planning and impact avoidance, minimization and mitigation requirements in the Project Area, including split estate lands. Once the Section 848 notice requirements have been completed, (specifically the 30 day notice before conducting surface disturbance activities) and applicable state permits, primarily a permit from the Division of Oil, Gas and Geothermal Resources have been obtained, a mineral estate owner may generally commence surface activities consistent with common law and that are reasonably required to access and remove oil, gas or other minerals. As noted in the July 27 Workshop Briefing Staff Planning Department Staff Report , certain agricultural and ranching surface owners have asserted that, under existing state and local law, mineral estate owners have failed to contact them to discuss reasonable mineral operation accommodations after providing the required 30 day notice and obtaining state Department of Oil, Gas and Geothermal Resource (DOGGR) permits. These surface owners have been concerned that oil and gas operations on split estate lands have resulted in the creation of new access roads, productive crop removal, conflicts over the placement of pipelines, tank farms and electrical connections and disputes about monetary compensation that can only be addressed after the fact by means of frequently costly and time-consuming litigation.

The proposed Zoning Ordinance amendments provide surface owners with significantly enhanced protection from potential oil and gas activity impacts, and opportunities to provide input into and negotiate the terms of mineral estate operations that could affect surface uses All oil and gas activity in the Project Area subject to the proposed Zoning Ordinance amendments will be required to comply with much more substantial County development standards and mitigation requirements, including 88 new mitigation requirements (several of which incorporate multiple additional measures). These new mitigation measures are required to reduce impacts related to the proposed

Zoning Ordinance amendments under the California Environmental Quality Act (CEQA). They are not applicable to oil and gas activity under the existing Zoning Code as there is currently no County permit necessary for these areas.

Proposed mitigation measures that directly benefit and protect surface owners include the following:

Mitigation Measure (MM) MM 4.1-1, which requires that oil and gas applicants use existing roads whenever possible and route new roads in a manner that minimizes surface disturbance.

MM 4.1-2, which requires that all derricks, boilers, and other drilling equipment used to drill, repair, clean out, deepen or redrill any well with oil, gas, or other hydrocarbon, and sump facilities, be removed from a drill site within 90 days after completion of production tests or after abandonment of any well.

MM 4.1-3, which requires that all surface sumps and ponds be permitted only to the extent authorized by the Central Valley Regional Water Quality Control Board (via waiver, Waste Discharge Requirements, or other form of authorized written documentation) and must comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation or evaporation ponds for produced water.

MM 4.1-4, which requires screening of oil or gas tanks located within 200 feet of any sensitive receptor, fencing within 500 feet of any dwelling, and limits oil and gas equipment to 80 feet in height.

MM 4.2-1, which requires 1:1 mitigation by means of land or easement conservation expenditures for oil and gas exploration and extraction activities that are: 1) on land designated Prime, Farmland of Statewide Importance or Unique Farmland; and 2) that have been actively farmed 5 years or more out of the last 10 years and provides significant economic incentives to minimize agricultural land disturbance.

MM 4.2-2 which required numerous measures that protects crops and structures adjacent to oil and gas activities on active agricultural lands, including: (a) surface water runoff and drainage well pads mitigation; (b) implementation of a Spill Prevention Countermeasure and Contingency Plan or Division of Oil Gas and Geothermal Resources (DOGGR) Assembly Bill 1960 spill plan and treatment of chemical spills treated in accordance with the DOGGR well stimulation treatment regulations; (c) speed limits to reduce dust generation or an alternate, more stringent dust suppression standard as adopted by the San Joaquin Valley Air Pollution Control District; (d) watering unpaved roads for dust suppression and control; (e) vehicle mud, dust, and weed seed tracking control where unpaved roads intersect with paved roads; (f) stormwater controls during well drilling, reworking, and/or decommissioning; (h) secondary containment for hazardous materials; (h) alignment of overhead electrical or communication lines on each applicant's site plan to the greatest extent feasible with existing access roads and the minimum distance between the access road and the well installation or other oil and gas facility and parallel to tree or row crops or, if not feasible, alignment to minimize surface disturbance and impacts to surface activity; and (i)

location of underground pipelines serving an oil and gas facility on each applicant's site plan, the recordation of these locations with the USAA, and periodic pipeline inspection and maintenance.

MM 4.3-2, which requires numerous measures to reduce construction emissions of particulate matter, including: (a) implementing a Fugitive Dust Control Plan in compliance with San Joaquin Valley Air Pollution Control District fugitive dust suppression regulations; (b) discontinuing operations if winds exceed 25 miles per hour; (c) limiting debris track out on paved roads to 50 feet; (d) moistening hauling materials when loaded into dump trucks; (e) covering all haul trucks with soil, sand, and other loose materials on public roads; (f) limiting soil loads below 6 inches or the freeboard of the truck, minimizing soil dump drop heights, tight gate seals on dump trucks; (g) a 25 mph traffic speed limit; (h) grading suspension when visible dust emissions exceed 20%; (i) other fugitive dust control measures as necessary to comply with San Joaquin Valley Air Pollution Control District Rules and Regulations, minimizing disturbed areas, and (j) revegetating disturbed areas as soon as possible after disturbance if an area is no longer needed for oil and gas activities.

MM 4.3-5, which requires the identification of and setbacks from, or alternative impact minimization and avoidance measures for, any sensitive receptors (e.g., farmworkers, farm residences, and other occupied agricultural facilities or locations), for air quality purposes on each applicant's site plan within 3,000 feet of a construction site for a proposed new well or other ancillary facility or equipment (excluding pipelines).

MM 4.3-7, which requires that each applicant prepare and implement an Odor Complaint Management Plan to the County, including a designated contact for odor complaints, creation of a log for odor complaints, and protocol for handling odor complaints.

MM 4.4-15, which requires numerous measures to avoid and minimize impacts to protected and sensitive species that will also protect agricultural operations, including: (a) a 20-mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted and the prohibition of off-road traffic outside of designated access routes is prohibited; (b) disposal of all food-related trash items and all forms of microtrash, such as wrappers, cans, bottles, bottle tops, and food scraps in closed containers removed daily from the site; (c) dust control measures for all excavations, spoils piles, access roadways, and parking and staging areas; (d) herbicides and rodenticide use restricted to those approved by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, and no herbicide use for vegetation control on split estate land in Tier 2 areas without surface owner approval; (e) drilling installations and operations must comply at all times with the applicable federal, State, County, and local law ordinances and regulations; (f) the use of previously disturbed areas for new oil and gas activities to the maximum extent feasible to minimize the amount of new disturbance; (g) vehicle, equipment, and material storage limited to previously disturbed areas, no construction or operational material placement or storage outside of the planned disturbance area or stockpiled for future disposal, and the removal of all concrete and asphalt debris should from the site for recycling or proper disposal; (h) washing or maintaining tracked vehicles and other construction equipment to be weed-free prior to entering and working within areas of new disturbance; (i) full containment, collection and offsite disposal of all truck washing, paint, equipment, or similar activities; and (j) prohibitions on pets, firearms and smoking except in designated areas on a site.

MM 4.6-1, which requires substantial earthquake risk analysis and structural mitigation, including for pipelines that carry oil, gas, produced water, or other oil and gas related materials, to avoid and minimize damage due to seismic activity that could affect Project Area agriculture.

MM 4.6-3, which requires that structures on slopes greater than 30% be avoided unless an applicant determines that mineral recovery is infeasible from a different location, and site-specific professional engineering certification is submitted concluding that the new equipment will not cause landslides that could affect adjacent and downstream activities, including agriculture.

MM 4.6-4, which requires a repressuring plan to avoid and minimize potential oil and gas related surface subsidence.

MM 4.6-5, which requires avoiding the placement of infrastructure on expansive soils unless an applicant determines that mineral recovery is infeasible from a different location, and site-specific professional engineering certification is submitted concluding that the new equipment will not cause substantial risks to life or property, including agriculture.

MM 4.8-1, which requires a comprehensive Worker Environmental Awareness Program that includes hazardous materials and hazardous waste management, and emergency preparedness, release reporting, and response requirements.

MM 4.8-2, which requires transportation, storage and disposal of all hazardous materials in compliance with the Hazardous Materials Transportation Act and measures to avoid roll-over accidents involving cargo tank trucks.

MM 4.8-3, which requires numerous spill prevention and cleanup measures, including: (a) construction activities allowing for easy cleanup of spills and construction crews that have sufficient tools, supplies, and absorbent and barrier materials to contain and recover spilled materials, fuels and lubricants shall be stored only at designated staging areas; (b) fuel and lubricant tanks with appropriate secondary spill containment, (c) fuel trucks with oil spill response kits and equipment at all times; (d) regular routine equipment maintenance at the well pad, and prompt collection and lawfully disposal of wastes at an authorized recycling, treatment or disposal facility; (e) berms and/or dikes (secondary containment) for permanent above-ground bulk tanks, foundations with a passive leak detection system, and no tank placement in areas subject to periodic flooding or washout; and (f) a sufficient supply of sorbent and barrier materials on construction sites and contain runoff from contaminated areas, including shovels, drums for collection and disposal of contaminated soils, above ground tank inspection, drain locks, inspections conducted as much as possible in staging areas; and maintaining or repairing equipment and vehicles to reduce the likelihood of fuel or oil line breaks and leakage.

MM 4.8-4, which requires several measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations, including (a) the identification and evidence of integrity testing for all gas, oil and produced water pipelines located within 200 feet of any sensitive receptor; (b) a pipeline management plan for all waste gas lines less than or equal to 4 inches in diameter, developed and implemented in accordance with DOGGR regulations Title 14, Division 2, Chapter 4,

Section 1774.2. The Pipeline Management Plan shall include; (c) pipeline design , testing methods, maintenance, recordkeeping requirements; (d) County notification of reportable quantities of fuel, gas, petroleum or hazardous materials leaks within 48 hours of discovery, and to other applicable agencies as required by other laws, with immediate containment, clean up , and repair.

MM 4.8-5, which requires that if an oil and gas applicant observes visual or olfactory evidence of contamination, or if soil contamination is otherwise suspected, work near the excavation site must be terminated, the work area must cordoned off and appropriate health and safety procedures implemented for the location.

MM 4.8-6, which requires that all oil and gas applicants implement the most up-to-date best management practices to prevent the release or accidental spillage of solid waste, garbage, construction debris, sanitary waste, industrial waste, naturally occurring radioactive materials, oil and other petroleum products, and other wastes into water bodies or water sources.

MM 4.8-7, which requires that exploration and development activities be conducted in accordance with the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development The Gold Book (Bureau of Land Management 2007), including sufficiently impervious secondary containment,, not storing chemical containers on bare ground or exposed to the sun and moisture; maintenance and secondary containment of chemicals containers; proper construction of containment dikes, containment to the extent feasible for all produced water tanks, and the removal of trash, junk, and other materials not in current use.

MM 4.8-8, which requires compliance with well and related facility construction standards for well completions, testing, and limiting a facility's environmental footprint and the incidence of releases of hazardous substances in accordance with the practices described in applicable American Petroleum Institute publications, State Water Resources Control Board General Orders or appropriate Regional Water Quality Control Board waste discharge requirements or general orders.

MM 4.8-9, which requires that all operations subject to the proposed Oil and Gas Conformity Review process comply with the pipeline management plan, including inspection and maintenance requirements, as administered by DOGGR pursuant to 14 California Code of Regulations 1774.

MM 4.8-10, which requires annual maintenance checks for leaks and corrosion and inspection schedules as required by California law.

MM 4.8-11, which requires annual worker training consistent with the facility's Hazardous Materials Business Plan and Spill Prevention, Control and Countermeasures Plan.

MM 4.8-12, which requires that cyclic steam injection activities above reservoir fracture levels comply with the terms and conditions of an applicable DOGGR site-specific Project Approval Letters for an injection project and appropriate monitoring and response if any surface expressions are observed.

MM 4.8-13, which requires compliance with all DOGGR safe drilling and drill casing practices, well design, construction and well management requirements, blowout requirements, all other provisions

of 14 California Code of Regulations 1744 and other applicable regulations, and the practices described in Recommended Practice for Well Control Operations (American Petroleum Institute 2012).

MM 4.8-14, which requires reporting and notification of reportable contamination caused by oil and gas activities.

MM 4.8-15, which requires numerous measures pertaining to the use of acutely hazardous chemicals, including (a) evaluating whether other alternative chemicals that are less hazardous could be used; (b) ensuring that the smallest quantity of necessary acutely hazardous materials are stored on site; (c) notifying building occupants and the Kern County Fire Department when and where acutely hazardous materials would be used; and (e) ensuring that all applicable employees are trained to handle, transport store, dispose of, and are trained in the spill prevention, control and countermeasures for acutely hazardous materials.

MM 4.8-20, which requires the implementation of numerous onsite equipment and training measures to prevent fires from oil and gas activities.

MM 4.8-21, which requires minimization of onsite use of chainsaws, chippers, vegetation masticators, grinders, tractors, torches, and explosives and the implementation numerous onsite equipment and training measures to prevent fires from and safely use such equipment.

MM 4.8-22, which requires that trash be stored in closed containers and removed from the site at regular intervals.

MM 4.9-1, which requires that oil and gas applicants comply with all applicable federal, state, regional and local agency water quality protection laws and regulations, and commonly utilized industry standards, including (where applicable) stormwater and well stimulation treatment permit coverage.

MM 4.9-2, which requires that a drainage plan and related measures be prepared in accordance with the Kern County Grading Code, the Green Code and approved by the Kern County Engineering, Surveying and Permit Services Department, Floodplain Management Section where oil and gas sites subject to the proposed Zoning Code do not have stormwater permit coverage.

MM 4.9-3, which requires that all drilling operations either use a closed loop system to avoid discharges of drilling muds and fluids, or obtain coverage under the State Water Resources Control Board low threat discharge General Order, individual Waste Discharge Requirements issued by the Central Valley Regional Water Quality Control Board for the unit, or obtain coverage under a general order issued by the Central Valley Regional Water Quality Control Board applicable to drilling ponds.

MW 4.9-4, which requires that any activity subject to proposed Zoning Code Chapter 19.98 not conduct any injection activity regulated by the Underground Injection Control program, including enhanced oil recovery activities that discharge into any underground source of drinking water unless the aquifer has been exempted by the United States Environmental Protection Agency or injection

has otherwise been authorized by the U.S. Environmental Protection Agency or by DOGGR under delegated authority under the Safe Drinking Water Act.

MW 4.9-5, which requires that any activity subject to proposed Zoning Code Chapter 19.98 not discharge produced water into any surface disposal facility unless the facility has received Waste Discharge Requirements or a waiver from the Central Valley Regional Water Quality Control Board.

MM 4.9-6, which requires that all oil and gas constructed facilities within a mapped 100-year floodplain be protected from the maximum potential elevation of flooding during a 100-year flood by elevating structures or by implementing containment berms or other protective measures in compliance with the standards in the Kern County Floodplain Management Code and Chapters 19.50 and 19.70 of the Kern County Zoning Code.

MM 4.12-1, which requires noise mitigation measures for any sensitive receptors within 3,000 feet of an oil and gas construction site.

MM 4.12-2, which requires that all oil and gas wells be located at least 190 feet from the closest sensitive receptor.

MM 4.14-1, which requires that oil and gas applicants defray the costs of purchasing additional County fire fighting equipment that would also provide service to agricultural and other portions of the Project Area.

MM 4.14-2, which requires that oil and gas applicants defray the costs of increasing the capacity of the County Sheriff's Rural Crime Unit, including one new Sergeant, two new Senior Deputies (investigators), three new Deputies, One new Support Technician (clerical), and new helicopter usage, which would also provide service to agricultural areas (e.g., responding to agricultural copper, other metal and equipment thefts).

MM 4.16-1, which requires that oil and gas applicants pay a road maintenance mitigation fee of $1,500 per permit for new wells to pay for roadway maintenance and related improvements to address wear and tear on roads caused by oil and gas industry traffic, including in agricultural areas.

MM 4.16-2, which requires a traffic control plan for oil and gas operations that use arterial, collector, or Caltrans routes for access to a construction site to maintain normal and emergency access to adjacent property, including agricultural areas.

MM 4.17-1, which requires approved septic systems in appropriate locations for oil and gas operations and maintenance buildings.

MM 4.17-2, which requires that oil and gas applicants increase the re-use of produced water and reduce the use of municipal and industrial-quality ground or surface water to the extent feasible in accordance with a plan submitted to the County to conserve higher quality water supplies for agricultural and other uses.

MM 4.17-3, which requires that oil and gas applicants work with the County during the County's participation in the creation of a Groundwater Sustainability Agency and to integrate into the Groundwater Sustainability Plan for the Tulare Lake-Kern Basin, best practices from the oil and gas industry to encourage the re-use of produced water from oil and gas activities, and (with appropriate treatment) to produce new water supplies for other uses such as agricultural irrigation and groundwater recharge.

MM 4.17-4, which requires that oil and gas applicants work with the County on the Groundwater Sustainability Plan to increase the use of reclaimed water and reduce the use of municipal-and-industrial quality imported surface water or groundwater.

MM 4.17-5, which requires that oil and gas applicants not store construction waste onsite for longer than the duration of a construction activity, not transport any waste to any unpermitted facilities, and reduce construction waste transported to landfills by recycling solid waste construction materials.

Other DEIR mitigation measures, including air emissions control measures identified in Section 4.3 (Air Quality) and greenhouse gas emissions reduction measures in Section 4.7 (Greenhouse Gases) would also benefit Project Area agriculture by improving regional air quality and implementing measures consistent with state and federal climate change policies.

The proposed Zoning Ordinance amendments include a two-track system of oil and gas project review and permitting that requires, for a shortened timeframe for permitting, the mineral estate owners to secure surface owner signatures on the site plan required for the application. This application can only be submitted after the 30 day notification period required by State Law and now included as a requirement of the County as well.

The requirement for a site plan signature is not a requirement for a surface access agreement. A surface access agreement is a voluntary agreement between mineral and surface estate owners that identifies mutually acceptable locations, methods for conducting oil and gas exploration and monetary compensation on split estate land. The method and terms of obtaining the signature on the site plan is between the negotiating parties and enforceable through the courts. It will not be presented to the County on the application and the County will not be an responsibly for enforcement of any terms of that agreement, but only the necessary information and details required for the Oil and Gas Conformity Review site plan.

The proposed Zoning Ordinance amendments would expedite processing of oil and gas applications for a split estate parcels that have the signature of the surface owner on the site plan. Under these circumstances, the County would issue permits to an oil and gas applicant in most cases within 7 days after the statutory 30-day notice period required by Civil Code Section 848 (or a shorter period, if waived by the surface owner). Subsequent compliance with permit terms and conditions, including all applicable mitigation and monitoring requirements, would be conducted under a self-certification program by the project applicant. Consequently, oil and gas mineral estate owners that contact, discuss, and reach agreement with surface estate owners regarding oil and gas operations prior to submitting an application to the County will be subject to substantially expedited, streamlined and less costly permit review, approval, and compliance requirements.

In contrast, applications for oil and gas activities on split estate parcels that do not have the signature on the site plan of the surface owner will be subject to a minimum processing time of 120 days, including the pre-application notification process under Section 848 (30 days), a mandatory first County site plan review (30 days), a mandatory County second site plan review process (30 days), and a minimum County permit approval waiting period of 30 days. If additional site plan reviews are required, each would extend for at least a mandatory 30-day period. Applicants that are issued permits for split estate lands without the signature on the site plan will also be required to pay for: (1) a County building inspector to be present at all times during construction activities to ensure full and complete compliance with the approved site plan; and (2) a County or third party expert retained by the County to confirm compliance with all Zoning Ordinance, mitigation, and federal and state laws. Applicants will not be allowed to self-certify construction, mitigation and state and federal law compliance if the surface owner has not signed the site plan.

The longer, mandatory processing period, and additional independent inspection and compliance monitoring requirements, are intended to provide mineral estate owners with significant incentives to contact the surface owner and engage in meaningful discussions and attempt to obtain the signature on the site plan. During the County review process, applicants will be required to provide evidence that the proposed site plan has been provided to the surface owner within the initial 30-day notice period. In addition, the County will invite the surface owner to meet with County staff to understand the permitting process, including the mitigation measures that will be applicable to oil and gas operators on the site, during the first mandatory 30-day site plan review process. While the County staff will not negotiate site plan terms or conditions with or on behalf of either the applicant or the surface owner, the surface owner will be able to provide staff with any concerns and comments regarding the site plan. The second mandatory 30–day review will then provide feedback to the surface owner on any site plan modifications provided by the applicant in the second submittal. If at any time during the process, the signature is obtained the process immediately goes to the streamlined 7 day review, self certification process.

As a result, applicants will have incentives to consider the concerns of and negotiate with surface owners to reduce permit issuance delays, and avoid the cost and coordination issues associated with onsite County construction period and compliance inspections. Surface owners will, at a minimum, be provided with a detailed site plan for the proposed oil and gas activity, an opportunity to meet with and discuss the site plan with County staff, and with additional time to negotiate and discuss with the mineral estate holder or to seek other legal remedies, including the possibility of an injunction.

In sum, the proposed Zoning Ordinance amendments will significantly enhance the negotiating position of a split estate surface owner relative to the mineral estate owner compared with existing state and local law. As discussed above, California has not recognized or adopted legal principles or legislative measures that have amended or lessened the legal dominance of the mineral estate under the common law of split estate land in other jurisdictions. Recent state law amendments applicable to oil and gas activities on split estates require only 30 days notice before the commencement of ground disturbance activities, and allow for injunctive relief only until the mineral owner provides the required notice. Most oil and gas operations that may occur on split estate agricultural or

ranching lands in the project area are currently not subject to County permit, review or mitigation requirements and must comply with only a limited number of Zoning Ordinance and related County building and operational standards. The proposed Zoning Ordinance amendments: (1) create, for the first time, a County permit and review process for most oil and gas activities in the project area including on split estate agricultural or ranching lands; (2) impose significantly enhanced mitigation, monitoring and operational standards on any County- permitted oil and gas activity; (3) expedite permitting for applications that have the signature of the surface owners on the site plan for split estate parcels; (4) require much more extensive oil and gas site plan disclosures to split estate surface owners when applications do not include the required signature ; and (5) require significant additional permit processing time, and construction inspection and compliance verification requirements, with associated costs, that provide incentives for applicants and enhanced opportunities for surface owners to discuss and negotiate issues and concerns when oil and gas operations occur on split estate lands. The effect of the Zoning Ordinance amendments is to largely implement most of the measures that have been adopted in other states, and by the BLM for federal mineral parcels, that modify the common law dominance of mineral estates and provide surface estate owners with additional capacity to be educated on the oil operations proposed for their property, incentivize discussions and minimize the disruption of and damage to the mutually available surface space.

Additional information about split estates can be found in: (1) David L. Schwan (Schwan 2015) *Preemption Update: Local Attempts to Preempt State Regulation of Hydraulic Fracturing*, American Bar Association, January 2015; (2) Kendor Jones et al., (Jones 2103) *Split Estates and Surface Access Issues,* Landman's Legal Handbook, Chapter 9, Rocky Mt. Min. L. Fdn., 5th ed. (2013); (3) Rebecca W. Watson (Watson 2008), *State Surface Owner Protection Laws: Tales Of Preemption, Federalism, And A Changing West*, Mineral Development in the New West) Chapter 13A, February 2008; and (4) E.R. Norwood (Norwood 2007), *Oil and Gas Litigation: What Usually Goes Wrong and What Can Be Done to Prevent It,* Oxy Technology Conference, 2007.

Numerous commenters address the procedure through which oil and gas development may be commenced on a "split estate"; that is, a parcel of real property where the surface rights and the mineral rights are owned by different legal entities. Some commenters suggested that the County should refuse to permit any and oil and gas activities on a split estate without the surface owner's express consent. The County lacks authority to impose such a condition.

Mineral rights are distinct from "surface rights," i.e., the ownership of and right to use the surface of the land for residential, agricultural, recreational, commercial, or other purposes. A mineral right is also an interest in real property and may be sold, transferred, leased, or retained separately from the surface rights, in which case the mineral rights are said to be "severed", creating a split estate. In addition to the activities that occur in the subsurface, petroleum exploration and extraction involves the use of the surface for the establishment of well drilling and associated activities. Although the land overlying the oil and gas reservoir (the minerals) may have other surface uses (e.g., commercial businesses or residences), the oil or gas operator has a legal right to access the minerals and is entitled to extract them from the surface. The rights to use the land surface for these activities are

governed by applicable laws, regulations and court orders, as well as leases and other agreements that oil and gas operators have established with individual surface landowners.

California has long held that the right of entry onto the surface is incident to the grant of mineral rights and exists even without an express grant. Callahan v. Martin (1935) 3 Cal. 2d 110, 125–26; Dabney-Johnston Oil Corp. v. Walden (1935) 4 Cal. 2d 637, 649. As provided by California Civil Code section 3522, one who grants something to another person is presumed to grant whatever is essential to its use. By severing and selling a mineral interest or granting a mineral lease, surface owners have implicitly granted a right of entry onto the surface land. The County does not have authority to deny this pre-existing right, already held by the mineral owner, by conditioning a permit on express permission of the surface owner. Moreover, if the surface owner refused to give permission, the County would be subject to the potential cost of compensating the mineral rights owner for the "taking" of mineral property rights effected by the County's unlawful condition. Land use regulations can constitute improper takings under both the federal and California constitutions if they go "too far." See e.g., Lockaway Storage v. Alameda, 216 Cal. App. 4th 161, 184 (2013). Important factors in this regard are: the economic impact of the regulation; the extent to which the regulation interferes with distinct investment-backed expectations; and the character of the governmental action. Penn Cent. Transp. Co. v. N.Y. (1978) 438 U.S. 104, 124. The County does not have the resources to compensate mineral rights holders for the lost value of their investments.

More recently, the state legislature struck a balance between the concerns of surface owners and the rights of mineral rights holders. AB 1966, passed in 2012, amended the notice requirements in Civil Code Section 848. As amended, the statute requires a mineral owner/operator wishing to enter the property for exploration of minerals to provide a minimum of 30-days' advance notice to the surface owner. The notification must state the location and time in which the activity is planned to occur. Once notice has been provided, under California law, the mineral owner/operator may proceed to obtain a DOGGR permit and any other required federal, state or local permit(s) and, without consultation with the surface owner, may enter the property, remove obstructions and commence drilling. During this time, the surface owner may go to court to seek an injunction against the mineral owner/operator to stop all activities and to determine the relative rights and obligations of the surface owner and mineral rights owner. As both surface and mineral owners have a property right, the surface owner cannot lawfully bar or prevent the mineral owner/operator from accessing the minerals, unless the surface owner buys out the mineral rights. In passing this amendment to Civil Code Section 848, the legislature struck a balance between the concerns of surface owners and the long-standing right of mineral owners to enter on to the surface land.

The legislature further addressed surface owner concerns specifically related to well stimulation treatment in Senate Bill 4. Once an application has been deemed complete by DOGGR, a well operator must hire an independent entity or person to provide notification to every tenant and owner of neighboring property within a specified distance from the wellhead and horizontal projection of the applicable well at least 30 days before beginning a well stimulation treatment. Pub. Res. Code 3160(d)(6).

Conditioning the grant of a County permit on the surface owner's express consent would be unlawful and would disturb the balance of interests established by the legislature in AB 1966 and SB 4.

5: Use of EIR by Responsible Agencies

Some commenters questioned how this EIR would be used by other agencies with permitting jurisdiction, called "responsible agencies" under CEQA, over oil and gas production activities in Kern County. The following Global Response explains the difference between a "lead agency" and a "responsible agency" and discusses how this EIR will be used by responsible agencies when considering approvals for oil and gas activities in the County.

Under CEQA, the "lead agency" is "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment." (Pub. Res. Code § 21067). With respect to the EIR, the County is the "lead agency" because it has principal responsibility for "approving" the Project – *i.e.*, the Amended Zoning Ordinance – and "carrying out" the Project by issuing future permit approvals for oil and gas activities that implement the Amended Zoning Ordinance.

As explained in Draft EIR Chapter 2, Introduction, future oil and gas projects or actions authorized by the lead agency – *i.e.*, the County - in accordance with the Amended Zoning Ordinance may require subsequent discretionary approvals or permits from other public agencies. Under CEQA, such other public agencies are referred to as "responsible agencies."

A "responsible agency" is a public agency that proposes to carry out or approve a project for which a lead agency is preparing or has prepared an EIR or negative declaration. (CEQA Guideline § 15381.) For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the lead agency that have discretionary approval power over a project. (*Id*.)

This EIR was prepared as a "project-level" CEQA document that is intended to be used by responsible agencies to comply with CEQA in conjunction with the issuance of subsequent approvals for future oil and gas projects in the County. The various state and local agencies that may serve as responsible agencies with respect to the Project, and thus may rely on this EIR for purposes of CEQA compliance, include, but are not limited to, the following: California Air Resources Board; California Department of Conservation Division of Oil, Gas & Geothermal Resources; California Department of Fish and Wildlife; California Department of Public Health; California Department of Toxic Substances Control; California Energy Commission; California Highway Patrol; California Public Utilities Commission; California Native American Heritage Commission; California Office of Historic Preservation; California State Lands Commission; Governor's Office of Planning and Research; Regional Water Quality Control Board, Central Valley District; State Water Resources Control Board; San Joaquin Air Pollution Control District; and the Kern County Council of Governments.

For purposes of CEQA, each permit issued for a new oil and gas well analyzed in this EIR constitutes just one component of a single overall "project," irrespective of whether such permit was

issued by the lead agency or a responsible agency. CEQA defines the term "project" to mean "the *whole of an action*, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect change in the environment." (CEQA Guideline § 15378(a)(1)(emphasis added).) CEQA expressly states that "[the] term 'project' refers to the activity which is being approved and which may be subject to several discretionary approvals by governmental agencies" and that "[t]he term 'project' does not mean each separate governmental approval." (CEQA Guideline § 15378(c).) Finally, CEQA is clear that, in order to "implement the lead agency principle[,]" where "the Lead Agency could describe the project as either the adoption of a [zoning amendment] or as a development proposal which will be subject to several governmental approvals[,]" then "the lead agency shall describe the project as the development proposal for purposes of environmental analysis." (CEQA Guideline § 15378(d).) Thus, for purposes of CEQA, the County is the "lead agency" not only with respect to its adoption of the Amended Zoning Ordinance, but also with respect to the full extent of the oil and gas well development that would be implemented pursuant to the Amended Zoning Ordinance. This is true despite that fact that such development "will be subject to several governmental approvals," some of which will be granted by various responsible agencies.

Will the County lose its lead agency status when it issues ministerial oil and gas well permits under the Amended Zoning Ordinance, followed by a discretionary approval issued by a Responsible Agency?

CEQA applies only to the discretionary actions of a public agency that may have a physical effect on the environment; it does not apply ministerial actions. (Pub. Res. Code § 21080(a), (b)(1).) An action is discretionary if the public agency is required to exercise judgement in deciding whether to approve or disapprove the particular activity, whereas an action is ministerial when the public agency need only determine whether there has been conformity with objective standards in applicable ordinances or other laws. (CEQA Guideline § 15357.)

Under the Amended Zoning Ordinance, most, though not all, oil and gas well permit approvals granted by the County will qualify as ministerial actions that are not individually subject to CEQA. However, the County does not lose its lead agency status simply because its implementation of the overall discretionary project – *i.e.*, its adoption of the Amended Zoning Ordinance – will be followed by ministerial approvals by the County and discretionary approvals by one or more responsible agencies. As discussed above, for purposes of CEQA, the term 'project' refers to the "whole of the action" and "does not mean each separate governmental approval." Indeed, CEQA mandates that the lead agency play an integral role in the implementation of the overall project well beyond the date on which the lead agency issues the project's last discretionary approval.

To reduce a project's significant environmental effects, the lead agency is required to adopt a mitigation monitoring and reporting program (MMRP) to ensure that its adopted mitigation measures will be complied with "during project implementation" and will not merely be adopted and later disregarded. (Pub. Res. Code § 21081.6(a)(1); CEQA Guideline §§ 15091(d), 15097(a); *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th 1081.) Pursuant to CEQA Guideline § 15097(a), "until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in

accordance with the [MMRP.]" Thus, by its plain terms, CEQA is structured to ensure that the County will maintain its status as the "lead agency," and will thus "remain responsible" for mitigation enforcement, well beyond its initial discretionary approval of the Amended Zoning Ordinance. Nothing in CEQA permits the County to avoid or surrender its lead agency obligations with respect to future oil or gas well development simply because the County permit authorizing such development is ministerial in nature.

A responsible agency has two primary roles in the CEQA environmental review process.

First, before completing an EIR, the lead agency is required to consult with and receive comments from every responsible agency that has jurisdiction over some aspect of the project. With respect to this EIR, for example, the County submitted a Notice of Preparation to each applicable responsible agency and received comments and recommendations from the responsible agencies regarding the scope of environmental analysis set forth herein. Upon publication of the Draft EIR, the County again consulted with responsible agencies, who provided comments on the Draft EIR that were considered by the County and responded to in the Final EIR. Indeed, the Final EIR incorporates many Draft EIR revisions to address comments made by various responsible agencies in this matter, as described in Final EIR Chapter [XXX], as well as performance standards and mitigation measures relating to potentially significant impacts identified by responsible agencies.

The second role that CEQA assigns to responsible agencies concerns their environmental review obligations when in considering subsequent discretionary approvals for a project for which the lead agency has prepared an EIR or negative declaration. Before reaching a decision on a discretionary approval for oil and gas projects in the County, the responsible agency's decision-making body must consider the environmental effects the environmental effects of the project in accordance with CEQA. Per CEQA Guideline 15096(a), a responsible agency complies with CEQA by considering the EIR or negative declaration prepared by the lead agency and by reaching its own conclusions on whether an how to approve the project involved. However, the responsible agency's consideration of a project for purposes of CEQA extends only to matters which fall within the jurisdictional control of the responsible agency. (*See RiverWatch v. Olivenhain Municipal Water Dist.* (2009) 170 Cal.App.4th 1186, 1202.)

By way of illustration, in this case, an applicant for a gas well permit to be issued by the County pursuant to the Amended Zoning Ordinance may also need a subsequent permit approval from the California Department of Conservation Division of Oil, Gas and Geothermal Resources (DOGGR), the State agency with primary jurisdiction over the surface and subsurface operation of oil and gas wells. Thus, in this example, DOGGR would comply with CEQA by considering this EIR's analysis of impacts related to those project features within DOGGR's jurisdiction and by reaching its own conclusions on whether and how to approve well project's initially authorized by Kern County pursuant to the Amended Zoning Ordinance.

As part of its consideration of the environmental effects related to the issuance of discretionary approvals for oil and gas projects in the County, the responsible agency must determine whether any alternatives or mitigation measures within its control are feasible and would substantially lessen or avoid a significant effect of the project on the basis of the lead agency's CEQA document, such as

this EIR. (CEQA Guideline § 15096(g)(1).) If the responsible agency finds that any alternatives or feasible mitigation measures within its jurisdictional control would substantially lessen or avoid a significant project effect, it may not approve the project, but must first adopt the feasible mitigation measures or the alternative. (CEQA Guideline § 15096(g)(2).)

To document its compliance with CEQA, a responsible agency must adopt findings for its approval of the project and, if necessary, a statement of overriding considerations that explains why the project was approved despite its significant environmental effects. (CEQA Guideline § 15096(h).). Finally, the responsible agency must certify that it reviewed and considered the information in the lead agency's EIR. (CEQA Guideline § 15050(b).) Once the above described tasks are complete, the responsible agency will typically file a notice of determination with the County or the State, as appropriate, which begins a thirty day period within which the responsible agency's CEQA compliance may be legally challenged. (CEQA Guideline § 15096(i).)

An EIR approved by a lead agency is conclusively presumed to comply with the requirements of CEQA for use by a responsible agency unless the EIR is legally challenged within the applicable statutory challenge period. (Pub. Res. Code § 21167.2.) Once the EIR is final, however, a lead or responsible agency may not require a subsequent or supplemental EIR unless it first finds, on the basis of substantial evidence, that either (i) substantial changes are proposed in the project that will require major revisions of the EIR, (ii) substantial changes have occurred in the circumstances under which the project is being undertaken that will require major revisions in the EIR, or (iii) new information of substantial importance to the project that was not known and could not have been known at the time the EIR was certified as complete becomes available. (Public Resources Code § 21166.) If the responsible agency can adequately substantiate any of these three findings, it may then, and only then, require additional CEQA review.

The degree of specificity in this EIR corresponds to the degree of specificity in the proposed Project and serves as a "project-level" EIR for CEQA purposes. A project-level EIR provides responsible agencies with the level of completed CEQA process required by such agencies to inform and reach final decisions regarding subsequent discretionary approvals and other actions regarding oil and gas activities proposed within the County. Based on the comprehensive project-level analysis, mitigation measures, and performance standards included in the EIR and the Amended Zoning Ordinance, it is anticipated that in the vast majority of future oil and gas production activities, implementation of the Amended Zoning Ordinance will not result in the need for responsible agencies with discretionary review and approval processes to prepare additional CEQA documents for individual well or field development proposals. Thus, the County expects that responsible agencies will generally rely only on this EIR to comply with CEQA when considering subsequent approvals for the oil and gas well projects analyzed in this EIR.

6: Baseline: 2012

A few comments questioned the existing environmental setting or baseline used in the DEIR. Generally, they assert that the number of wells drilled in 2012 is not a reasonable reflection of current oil and gas development activity. As explained below, the wells per year assumed in the baseline represents a conservative figure and was not calculated as an average of multiple prior years

(which could underrepresent the amount of activity under existing conditions in light of past fluctuations), or based on well completion data from 2013 or 2014, after the price of oil began to soften and fall. Commenters also question the use of 2012 numbers for plugging and abandonments and well stimulation.

The EIR's approach to environmental setting and baseline is described in the DEIR in Section 2.6.2 at pages 2-21 to 2-23. The DEIR explains that the current level of oil and gas development activity is one component of the existing conditions. The DEIR further explains that at the time environmental review commenced, 2012 was the most recent year for which complete data were available. The NOP was released in August 2013. In California, it typically takes one to two years for DOGGR to receive and review the relevant well data and release it for general distribution. Thus, at the time technical analyses were initiated to support the DEIR, 2012 data was the most recent complete data set available. This data set also was considered a reasonable choice for describing the existing conditions because it reflected the cumulative effect of technological and regulatory factors that influence activity levels.

The description of the current level of well activity was first developed by the Applicant's technical consultant, WZI Inc. (WZI), for County review. WZI began by reviewing the DOGGR database for years 1983 through 2012. The Annual Reports of the State Oil and Gas Supervisor for calendar years 2009 and earlier summarized well activity a number of different ways, including by DOGGR district, but not by county. By examining other DOGGR databases and reports, WZI determined that Kern County production generally accounts for 92% of the production from District 4, and adjusted the District 4 annual well activity numbers accordingly. For calendar years 2010 and 2011, no Annual Report of the State Oil and Gas Supervisor was produced, and annual reports since that time have been abbreviated reports labeled "preliminary." The preliminary reports contain aggregate, statewide activity data, and do not show the data by DOGGR district or by type of well. To fill in the gaps and determine the portion of statewide well activity that was attributable to Kern County, WZI reviewed the complete well database for the missing years. In addition, WZI calculated the statewide well activity occurring in Kern County for years 1995 to 2009, and applied that percentage to the statewide well activity for years 2010 through 2012 to calculate Kern County well activity for those years. DOGGR receives and compiles notices for many different well-related events. WZI sorted the data and compiled annual totals for new producing wells, as well as other types of wells. WZI clarified information in the DOGGR database through discussions with the oil and gas companies reporting well activity for DOGGR District 4. For the more recent years, WZI also cross-checked the totals for producing wells by interviewing the largest well logging company active in the state and comparing against their records.

As discussed at page 2-22 of the DEIR, data from 1985 through 2012 show wide fluctuations in the number of new well completions per year in response to the price of oil, available technology, available reserves, and changing regulatory requirements. Peak years for drilling activity during this period included 3,005 wells in 1985 and 2,896 wells in 2007. The most recent peak was 2,619 new well completions in 2012. The lowest activity year during this period was 1992 with only 730 new well completions.

A lead agency has the discretion to decide how the existing physical conditions can be most realistically measured, provided the agency's decision is supported by substantial evidence. Where an industry is subject to wide market fluctuations and trends, a lead agency must have latitude in selecting an appropriate baseline because "[e]nvironmental conditions may vary from year to year and in some cases it is necessary to consider conditions over a range of time periods."[40] Some comments claim that the lead agency was required to use an average of well completion activity in a number of prior years, and that by using a relatively high activity rate from 2012, the DEIR overstates baseline and underestimates the impacts of the Project. Neither CEQA nor reported cases require using a past average for the baseline. Rather, the California Supreme Court stated: "In some circumstances, peak impacts or recurring periods of resource scarcity may be as important environmentally as average conditions." In light of the past fluctuations in oil and gas development activity, using an average of activity levels over a range of prior years would tend to obscure peak activity that can contribute to impacts, and would underrepresent the amount of activity occurring at the time environmental review commenced.

The environmental setting/baseline information in the DEIR represents a reasonable choice based on available information. The DEIR reviewed prior years' data going back to 1985, and explained the rationale for using 2012 data in the description of existing environmental conditions. The 2012 data is not the highest activity level in the data set—the peak years were 1985 and, more recently, 2007. Neither is the 2012 data the lowest annual activity level. Rather, it is within the range of recent activity, and it is intended to reflect the cumulative effect of technological developments and regulatory changes, together with the current mature condition of most of the oilfields.

More importantly, the selection of 2012 as the year to represent existing environmental conditions does not skew the results of the Project impact analysis performed in the DEIR because this EIR does not subtract out the existing activity from the future impacts analysis to determine the net impacts caused by the Project. CEQA Guidelines Section 15125 requires an EIR to include a description of the physical environmental conditions in the vicinity of the project as they exist at the time of publication of the notice of preparation or commencement of the environmental review. Ordinarily, this environmental setting will constitute the baseline by which a Lead Agency determines whether an impact is significant. Where the project undergoing review involves the continuation of a prior program or activity, this means that the environmental baseline ordinarily includes continuation of the existing program or activity, even if that means that the baseline conditions and the conditions under the proposed future project are essentially the same.[41]

---

[40] *Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310, 327-28, citing *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125.

[41] *Center for Biological Diversity v. Department of Fish and Wildlife,* (2015) 234 Cal.App.4th 214, 248 ("the proposed project being evaluated is the continuation of the existing [fish] stocking enterprise", and "the baseline for a continuing project is the current environmental condition including the project, even if the project has not undergone prior environmental review").

For this Project, application of the conventional baseline approach would mean that the impacts associated with continuation of oil and gas development as it has been conducted in the past would all be considered part of the baseline, and the impacts of the Project—with its more stringent site development standards—would be considered environmentally beneficial. However, as discussed at page 3-30 of the DEIR, the County decided to take a much more environmentally conservative approach in this EIR. The future environmental impacts associated with new oil and gas activities subject to approval by the County utilizing the new conformity review process are considered impacts of the Project, even though they represent a continuation of existing activities. Accordingly, the selection of 2012 or any other prior year(s) to represent current well development activity in the existing environmental setting does not affect the EIR's analysis of significant impacts.

Finally, as stated in the DEIR, the current level of oil and gas activity is only one component of the environmental setting. Other relevant information in the DEIR regarding existing environmental setting includes the following:

- Section 3.2.5, Regulatory Setting - Kern County Zoning Ordinance, p. 3-8, describing the existing zoning ordinance as it relates to oil and gas development.
- Section 3.3, History, Existing Operations and Background, pp. 3-15 to 3-16, describing oil development in Kern County, and specifically Table 3-2 showing annual well counts and production of oil, gas, and produced water.
- Section 3.3.1, pp. 3-17 to 3-20, describing the existing oilfields for which DOGGR has established Administrative Boundaries.
- Section 3.4.3, Core Areas, p. 3-24, to the extent that the Core Areas reflect the locations of most intensive current oil and gas development, and fields within established DOGGR Administrative Boundaries that have historically been the location of 95% of oil and gas production within the County.
- Section 3.4.4, pp. 3-24 to 3-26, Tiers, to the extent that the tiers (especially Tiers 1 and 2) reflect a blend of the existing physical and regulatory settings based on existing land use and existing zoning.
- Chapter 4, and the detailed descriptions of Existing Setting and Regulatory Setting at beginning of each sub-chapter.

Each subchapter within Chapter 4 commences with detailed information regarding the setting relevant to that topic. Relevant information and time frame varies from topic to topic because each environmental medium has different sensitivities, and there is different information available for each. For example, the relevant setting can include historical information and trends over centuries (e.g., seismic events), decades (e.g., drought cycles and long-term planning for water supply) or shorter (e.g., air quality, where more recent data reflects the benefits of aggressive rule development by the air district, and the continuing struggle as new population is added to the County). The setting information provided in each topical chapter thus creates the context for evaluating the ongoing and future oil and gas activities included in the Project.

7: Baseline: Legacy Conditions

Some commenters generally state that the project definition should have addressed pre-existing legacy conditions. They state that the Project should include all legacy equipment and activities, including unneeded oil and gas equipment and long-term idle wells. They claim this failure to include all legacy equipment and activities as part of the Project has resulted in a DEIR that underestimates the true impacts of oil and gas activities in the County. Commenters request an analysis of the impacts, including loss of Farmland and Grazing Land and fragmentation impacts, resulting from the failure to abandon thousands of existing idle wells in the County and to restore agricultural lands to productive use by promptly removing equipment. See also Haz-3.

The purpose of the Amended Ordinance is to adopt a permit program applicable to future oil and gas production activity, consistent with other zoning ordinances. In response to comments regarding concerns with legacy operations and existing conditions, the Revised Amended Ordinance now includes a new procedure by which members of the public can contact the County to report a well that they believe may be idle or abandoned, that requires the County to report this information to DOGGR (which regulates idled and abandoned wells, as well as new and existing wells, under state law), and to deny approvals for new well permits for operators whom DOGGR has determined are in violation of idled well permit regulations. (See section 7.1.3) The mitigation measures included in this EIR have also been clarified, and in some cases expanded, to address surface owners concerns, and to further encourage operator removal of legacy equipment to satisfy agricultural land mitigation requirements. (See section 7.1.4)

The remainder of this response addresses questions raised by commenters about legacy conditions in relation to the CEQA process and this Project and EIR.

CEQA defines "project" as an activity which may cause a direct or reasonably foreseeable indirect physical change in the environment, and is either an activity directly undertaken by a public agency, or an activity undertaken by a person that is financially supported or approved by a public agency (e.g., through the issuance of a lease, permit license or other entitlement).[42] Here, the Project has two components: the amendment to Title 19 and related sections of the Kern County Zoning Ordinance to include updated procedures, development and implementation standards relating to future oil and gas exploration; and the implementation of future oil and gas development activities expected to be undertaken pursuant to the amended ordinances.

The ordinance amendment undergoing CEQA review was initiated by a letter from the Applicant to the Board of Supervisors dated January 18, 2013, requesting "an amendment to update details of oilfield operations, production and exploration…. It is Applicants' intention that any amendments to the zoning ordinance would be prospective in nature, and would not have any application to current projects or operations." Adoption and amendment of County Ordinances are legislative actions of the Board of Supervisors, and the scope of issues addressed by the legislative action reflects policy

[42] Pub. Res. Code § 21065.

choices within the discretion Board. Following consideration of the Applicant's request at a public hearing on January 22, 2013, the Board directed staff to initiate the process to amend the Zoning Ordinance to establish a new, ministerial permit process for certain oilfield activities. The Board did not direct the Planning and Community Development Department to initiate amendments addressing legacy equipment and activities that were being conducted lawfully under existing County codes.

CEQA defines "project" to include "the whole of an action" that has the potential for resulting in a physical change in the environment.[43] However, this does not mean that the "project" includes equipment or activities that already are in the environmental setting or baseline. In preparing an EIR, the lead agency must distinguish the setting (things that already exist) from the project (the future action with the potential to change the environment). Environmental analysis is required only for the project and its impacts, not for things in the existing setting or baseline. Thus, analysis of legacy equipment and activities is not required or necessary under CEQA, and the DEIR need not be revised to show the location of idle and long-term idle wells on Farmland and Grazing Land within the Project Area.

Where the project undergoing review involves the continuation of a prior program or activity, the environmental baseline ordinarily includes continuation of the existing program or activity, even if that means that the baseline conditions and the conditions under the proposed future project are essentially the same.[44] Even when a new permit or permit extension is required to continue an activity, existing equipment and activities are ordinarily considered part of the baseline for environmental review.[45]

The purpose of an EIR is to inform the decision-maker and the public about the potential consequences of the action the decision-maker is about to approve. Feasible mitigation or alternatives must be explored to address the impacts flowing from that approval. CEQA is forward-looking.[46] CEQA is not remedial, and an agency is not required to define the project in a way to address past environmental harm, or to adopt mitigation or alternatives to remedy those effects.[47] Thus, commenters' request that the County establish a program to properly abandon deserted or long-time idle wells before approving new oil and gas wells is not required under CEQA or Pub. Res. Code § 3206.5.

---

[43] CEQA Guidelines § 15378.

[44] *Center for Biological Diversity v. Department of Fish and Wildlife,* (2015) 234 Cal.App.4th 214, 248 ("the proposed project being evaluated is the continuation of the existing [fish] stocking enterprise", and "the baseline for a continuing project is the current environmental condition including the project, even if the project has not undergone prior environmental review").

[45] *Citizens for East Shore Parks v. State Lands Commission (2011)* 202 Cal.App.4th 549, 560-561.

[46] *Bloom v. McGurk* (1994) 26 Cal.App.4th 1307, 1315 (no legislative or regulatory directive to apply CEQA to permit renewals, and "such a result would contravene the regulatory language and prospective character of the statute").

[47] See, e.g., *In re Bay-Delta Programmatic Environmental Impact Report* (2008) 43 Cal.4th 1143, 1167-68 (EIR need not include an alternative that would address existing environmental problems).

For this Project, application of the conventional baseline approach would mean that the impacts associated with continuation of oil and gas development as it has been conducted in the past would all be considered part of the baseline, and the impacts of the Project – with its more stringent site development standards – would be considered environmentally beneficial. Even so, Kern County decided to take a more environmentally conservative approach to defining the Project for this DEIR. A general description of the DEIR's approach to environmental setting and baseline is described in the DEIR in Section 2.6.2 at pages 2-21 to 2-23, and in Section 3.5 at pages 3-30 to 3-32. See also Global Response GR-6 describing in general CEQA's approach to baseline, and the more environmentally conservative approach taken in the Draft EIR. For any new well or facility subject to approval by the County utilizing the new conformity review process, the equipment and other associated activities are treated by this DEIR as new impacts, even if they would ordinarily be considered a continuation of activities currently occurring within the County (e.g., the same drill rig moving to a succession of sites).

In addition, a number of mitigation measures are designed to require or create incentives to reduce the impacts from continuing legacy oil and gas facilities and activities. In some cases, these measures are triggered by attaching a proposed new well or facility to existing legacy equipment. In other cases, the measure creates an incentive for an oil and gas developer to rehabilitate already disturbed or degraded lands. Some of these measures are summarized below.

- MM 4.2-1: To mitigate impacts related to conversion of farmland to non-agricultural use, this measure provides the applicant several options, including: "Restore agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment."
- MM 4.2-2: This measure includes several components to protect crops and agricultural structures from oil and gas development on active agricultural lands. Subparts c., d. and e. regulate speed on unpaved roads, require dust suppression on unpaved roads, and require measures to reduce tracking from unpaved roads to paved roads, respectively. To the extent that an existing unpaved road will be utilized for a well or other facility subject to site plan review under the Amended Ordinance, compliance with these measures may reduce fugitive dust and seed from existing use of the road. Subpart i. of MM 4.2-2 requires that underground pipelines serving a well or other facility subject to site plan review under the Amended Ordinance be shown on the site plan and periodically inspected and maintained in accordance with the mitigation measures for Hazards. To the extent that an existing underground pipeline will be utilized for a well or other facility subject to site plan review, compliance with this measures may reduce potential impacts associated with existing use of the pipeline. These benefits have not been quantified in the DEIR, enhancing the environmentally conservative approach of this EIR.
- MM 4.3-2 requires development of a Fugitive Dust Control Plan. Items 1, 4 and 10 in Subpart d. of MM 4.3-2 regulate speed, require dust suppression, and require measures to reduce track-out of debris into public roads. To the extent that an existing unpaved road will be utilized for a well or other facility subject to site plan review under the Amended Ordinance, compliance with these measures may reduce fugitive dust from existing use of the

road during the period of construction of the new well or facility. These benefits have not been quantified in the DEIR, enhancing the environmentally conservative approach of this EIR.

- MM 4.4-16 requires mitigation of biological impacts of ground disturbance, usually at a ratio of 1:1. Mitigation may be accomplished via a conservation easement or other means, including removal of legacy oil and gas equipment and restoration of the site (subpart c.) or enhancement or restoration of existing habitat (subpart d.).
- MM 4.8-4 a. requires an applicant to mitigate the hazards associated with transportation of hazardous materials. This measure requires the applicant to identify on the proposed site plan the gas, oil and produced water pipelines to be used for each new or reworked well site, and to show sensitive receptors within 200 feet of any such pipeline. The measure further requires integrity testing or other leak detection, reporting and repair for specified pipelines, including preparation of a Pipeline Management Plan. (See also MM 4.8-9 and MM 4.8-10.) To the extent that an existing pipeline will be utilized for a well or other facility subject to site plan review under the Amended Ordinance, compliance with these measures may reduce the risk of and impacts from an unauthorized release of hazardous materials from existing use of the pipeline. These benefits have not been quantified in the DEIR, enhancing the environmentally conservative approach of this EIR.

Based on the foregoing, the commenter is incorrect that the DEIR merely acknowledges the significance of the above-described impacts to Farmland and Grazing Land. Instead, the DEIR creates a credit through removal of idle wells. See also GR Haz-3. The DEIR provides decisionmakers with sufficient information to enable them to make a decision which takes account of the Project's environmental consequences.[48]

Finally, it is important to note that no one raised this issue in comments on the NOP. CEQA sets forth a comprehensive, step-wise process for development of an EIR. The statute emphasizes the importance of lead agency consultation with responsible agencies very early in conceptualizing project review.[49] CEQA Guidelines Section 15082 – entitled "Notice of Preparation and *Determination of Scope of EIR*" – requires the lead agency to provide responsible agencies a NOP to initiate the formal process of preparing the EIR. The NOP must include a description of the project so that the responsible agencies can comment on the scope of the project and environmental review. Sections 15082 and 15083 also encourage early consultation or "scoping" meetings with agencies and the public regarding the "range of actions … and significant effects to be analyzed in depth" in the EIR. The primary purpose of outreach at this stage is to obtain clarity regarding project definition, the needs of the responsible agencies who will review the project, and the issues of concern to the public. The project scope affects every chapter of the EIR, and so it is vital to orderly

[48] Authority cited by commenters which provides this general rule does not affect this conclusion. *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1123 (quoting CEQA Guidelines § 15151).

[49] See, e.g., CEQA Guidelines § 15060.5 encouraging lead agency consultation with responsible agencies even at the pre-application stage.

review under CEQA that questions of project scope be brought forward at the NOP stage, before a considerable effort is expended in drafting the EIR.

The NOP for this Project was released on August 30, 2013. See Appendix A to the DEIR. Responsible and trustee agencies and the public were invited to provide comments in writing through September 30, 2015 or in person at one of four public meetings held in the community on September 16, 18, 23 and 25, 2013. The scoping meetings were well attended. A total of 57 individuals signed the sign-in sheets, and additional people attended who did not sign in. 57 individuals spoke at the scoping meetings. Written comments were received from government agencies, environmental organizations, community and business organizations, and individuals. No oral or written comments on the NOP raised this issue at a time when it could have been effectively and efficiently addressed in the DEIR.

8: Future Well Projections

Commenters assert that the County should not have relied on projections of future well development, that the projections are faulty, or that they are not supported by substantial evidence. Commenters challenge the DEIR's potential future oil and gas development scenario, which they state impermissibly underestimates the total number of new wells and fails to describe the Project's maximum development potential. One commenter challenges projected future oil and gas activity because it is based on current practice with the assumption that future development will follow the same trends. Another commenter requests clarification of the basis for the DEIR's estimate of average annual new production wells. This group of comments is addressed together here because the responses to all of these comments depend on a common explanation of the reasons for using projections, and the basis for the well projections used in the DEIR.

CEQA's primary purpose is to inform the public agency decision-makers and the public about the significant environmental consequences of an action, identify ways to minimize the effects, and explore feasible alternatives.[50] An EIR may present certain information in a qualitative manner,[51] but it must contain a sufficient degree of analysis to allow the decision-makers to intelligently take account of environmental consequences.[52]

CEQA anticipates that drafting an EIR necessarily involves a degree of forecasting. Indeed, lead agencies "are encouraged to make reasonable forecasts in the preparation of the EIR."[53] But CEQA also acknowledges that forecasting will not yield perfect predictions about the future. In developing forecasts, CEQA Guidelines Section 15144 instructs: "While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can."

[50] CEQA Guidelines § 15121(a).
[51] See, e.g., CEQA Guidelines § 15064.7 allowing thresholds of significance to be qualitative or quantitative; and CEQA Guidelines § 15142 requiring an interdisciplinary approach that includes consideration of qualitative and quantitative factors.
[52] CEQA Guidelines § 15151.
[53] *San Francisco Ecology Center v. City and County of San Francisco* (1975) 48 Cal.App.3d 584, 595.

In preparing the DEIR for this particular Project, the County was able to develop reasonable projections based on available data, and the projections allow a more thorough analysis for consideration by the decision-maker, the Board of Supervisors. Without projections, the EIR could broadly describe characteristics of future oil and gas development; but without quantification, the EIR would be unable to meaningfully assess impacts for many environmental topics, reach conclusions regarding the significance of the impacts, or support those conclusions with substantial evidence. In this case, the best information available allows the County to make reasonable forecasts regarding future activity, and to better inform the Board of Supervisors and the public of the potential consequences of the Project.

The County followed four primary steps in developing the potential future oil and gas development scenario. First, the County solicited information from the Project Applicant, including the trade associations and their affected oil and gas operator members. Second, the information was validated by comparing it to historical trends and available third party data, including data maintained by other agencies. Third, experienced County staff conferred with the County's expert consultant team regarding the reasonableness of the projections. Fourth, at several points in the process the number was adjusted upward slightly to provide a margin for future growth, and to reduce the chance of the EIR underestimating future activity levels and related impacts. The steps are described in more detail below.

Development of the forecast began with a survey of the Project Applicant and their member companies (oil and gas operators) regarding their future business forecasts. Commenters challenge the DEIR's reliance on purportedly unverified information submitted by the oil industry. However, these comments ignore the additional steps undertaken by the County as discussed below.[54] It is not unusual for a lead agency to rely on the business plans of the project proponent as the starting point in the CEQA analysis. (For private projects, for example, the applicant defines the scope of the proposed project for which it is seeking approval.). Here, the Project consists of the proposed Amended Zoning Ordinance together with the future oil and gas development activities that will be carried out pursuant to the ordinance. As the entities that will need to provide the capital, people, expertise and technical knowledge to plan, drill and operate the wells and ancillary facilities, the oil companies are in a unique position to estimate future activity. They also possess proprietary information not routinely shared with one another or the public agencies regarding their future plans. To provide the best possible estimate without inappropriately divulging competitive information in violation of antitrust laws, the oil and gas associations comprising the Project Applicant retained an independent third party to survey member companies regarding their future business plans.[55] The third party consolidated the responses of individual companies so that it would not be possible to determine the projections of any single company.

[54] As discussed in this response, the County sufficiently exercised its independent judgment over the environmental analysis and fully complied with authority cited by commenters. *Foundation for San Francisco's Architectural Heritage v. City and County of San Francisco* (1980) 106 Cal.App.3d 893, 908; accord, *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357, 369.

[55] Documents submitted by the oil industry contain proprietary and other protected information and may not be disclosed for public inspection as requested by one commenter.

Survey responses were more complete from larger companies, and companies with large holdings in Kern County. To account for the wells and ancillary facilities of small companies, the preliminary projection compiled from the survey responses was both scaled from larger company data, and rounded up to avoid underestimates. In addition, as explained in the DEIR, many oilfields in the County are mature fields experiencing a decline in oil production.[56] Accordingly, in the future, it will likely require more wells to sustain comparable levels of oil production, and so it is anticipated that there will be an increase in the number of new well completions per year. The preliminary projection developed from survey results was further adjusted upward to provide for this as well as other factors that could increase production such as oil supply interruptions or decreased production levels from other parts of the world.

he preliminary projection was then compared to the historical trends for the number of oil and gas wells that were completed in the database maintained by the state agency responsible for issuing permits for all oil and gas wells in California, DOGGR. (Well completions are a subset of the number of well permits issued, as not all permits are used and not all wells successful completion. See also, GR-6, Baseline, for a discussion of historical new well completions.) As discussed at page 2-22 of the DEIR and in GR-6, data from 1985 through 2012 show wide fluctuations in the number of new well completions per year in response to the price of oil, available technology, available reserves, and changing regulatory requirements. Annual new well completions during this period ranged from a low of 730 in 1992, to a high of 3,005 in 1985. The most recent peak was 2,619 new well completions in 2012. The Project Applicant's technical consultant, WZI, used the historical data to develop an historical trend line extending into the future to estimate potential future well drilling activity. This historical trend analysis produced an estimate of future drilling activity less than the preliminary projection based on the Project Applicant survey, thus confirming that the projected well development assumptions used in the DEIR would not underestimate future well drilling activity or resulting environmental impacts.

The County then reviewed the technical information provided by the Project Applicant. With more than 100 years of experience with oil and gas development, Kern County staff has substantial knowledge regarding oilfield trends. County staff was assisted in its review by its technical consultant, Ecology and Environment, Inc. (E & E). (E & E is a recognized global leader in environmental management and has extensive experience with oil and gas production.)[57] Based on its own experience and the expertise of its consultant, County staff judged the projections of the Project Applicant to be reasonable and supported by substantial evidence.

[56] See DEIR at p. 2-22 (many of the oildfields in the County are mature fields that are experiencing declining oil production). See also SB4 Final EIR p. 6-3, Figure 6-1 (California Oil Production and Number of Producing Wells, 1980 Through May 2013 (DOGGR 2015) (showing declining oil production, with peak production in 1985).

[57] E & E is an internationally recognized leader in environmental planning and has completed thousands of projects worldwide, with particular expertise in the oil and gas market. See generally http://www.ene.com/About (E & E employs "nearly 1,000 respected experts in 85 engineering and scientific disciplines."); http://www.ene.com/Markets (Oil and Natural Gas).

The final forecast used in the DEIR is 2,697 new producing wells per year. This projection for future well development activity fell within the range of activity from 1985 through 2012. Table 3-5 of the DEIR also shows projections for other types of wells, including water disposal wells, injection wells, observation wells, etc.[58] The DEIR's projected total number of wells drilled per year is 3,649 (including new production wells, all categories; water disposal; water flood injectors; idle wells, non-cyclic; observation wells; steam flood injectors; air injection; and gas disposal). DEIR p. 3-32.

One commenter questioned the DEIR's use of 2,697 new wells as an estimate in some places, but 4,083 and 3,647 in other places. However, the DEIR clearly distinguishes between and explains these figures, with support in the record. As explained in Section 3.5, over the next 25 years, for analytic purposes, the DEIR assumes that an average of 2,697 new producing wells (oil and gas, dry gas, dry hold and liquid petroleum gas wells) could be drilled in the Project Area as part of the potential future oil and gas development scenario included in the proposed Project.[59] The level of well drilling in any given year may be higher or lower than this average, consistent with the variations in well drilling activities that have historically occurred due to market and other conditions. Commenters assert the DEIR impermissibly relies on this "average" annual number of producing wells, rather than the "maximum" that could occur in any given year. One commenter points to expert statements that the number of new wells drilled will greatly exceed—and could even double this average during periods of high-oil prices, which are expected to occur regularly in the future. Commenters state the DEIR must be revised to reflect these spikes and evaluate the maximum number of new wells that could be drilled in any given year. However, the DEIR does include this analysis and makes clear that the maximum number of new wells that may be authorized in any given year is 3,647. DEIR p. 4.3-98; p. 4.3-79 (the DEIR does not authorize the County to permit more than 3,647 new well permits in a single year). Regardless of oil pricing fluctuations, only the number of wells studied in the DEIR can be drilled in any given year – with no carry-over from prior years or borrowing from future years. The County may not issue more than 3,647 well permits (including the estimated 2,697 producing wells) per year. This annual permit limit will be enforced. The DEIR clearly states the maximum number of well permits that will be issued in any given year and, accordingly, fully identifies the nature and scope of the Project in compliance with CEQA and *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645.

Moreover, the DEIR examines the history of oil production on pages 2-22 to 2-23, including pricing and production variability.[60] Notwithstanding the commenter's expert opinion that market conditions in some circumstances may warrant more drilling than forecast, the County's experts disagree based

[58] Research and analysis based on DOGGR's databases showed that these other types of support wells (referred to in many DOGGR reports as "service wells") are usually drilled per year in consistent ratios with new producing wells; therefore, the forecasts for these service well categories was developed by applying the historical ratios to the projected number of new producing wells.

[59] Future oil and gas exploration and production activities that would be authorized under the proposed Amendment to Chapter 19.98 (Oil & Gas Production) of the Kern County Zoning Ordinance would result in 2,697 new production wells being drilled annually, while 2,231 wells would be plugged and abandoned. DEIR p. 1-19.

[60] DEIR pages 2-22 - 2-23, 4.5-9 to 4.5-15, 4.13-9, Sections 3.3, 4.13, and 5.6. The dramatic drop in the global price of oil in 2014, for example, resulted in production curtailments and well construction activity levels in 2014 that were well under 2012 levels. DEIR p. 4.13-9.

on historical and forecast data, and the cap on annual well permits reflects a conservative analysis that both exceeds the actual well permits issued annually and for the first time establishes a cap on annual well permits issued in the future.[61] Commenter's assertion that 5,000 wells may be drilled annually is not supported by the County's experts, nor would it be lawful under the Amended Ordinance.

In sum, the DEIR includes an estimated future level of wells based on an expert assessment. The Amended Ordinance caps the number of wells that can be issued annually to 3,647 wells (including 2,697 producing wells). The Amended Ordinance thus includes the "maximum" number of well permits that can be issued annually, and the DEIR analyzes this maximum rather than the "estimated average" annual production faulted by the court in *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, cited by commenter.

For purposes of emissions modeling, the DEIR conservatively assumed a higher well count than 3,647 (with a maximum annual well count of 4,083), but nonetheless acknowledged that the Project Description includes a yearly total of wells not to exceed 3,647. DEIR p. 4.3-101. The number of wells, for the emissions analysis, projected to be built every year exceeds the number of wells that would be authorized under the Project and therefore the estimates are considered conservative. DEIR pp. 4.3-71, 4.3-79 – 4.3-80, 4.3-97, 4.3-101, 4.7-30. Final total emissions from the Project are calculated by scaling down the emissions calculated using the assumed number of new wells to the emissions corresponding to the authorized number of new wells per year, that is 3,647 wells each year. DEIR p. 4.3-741, Table 4.3-32D.

The commenter also stated it is unclear whether the reactivation of idle wells is included in the tally. The DEIR makes clear that idle wells/non-cyclic wells are included in the total annual well forecast (3,649), which includes the category of new producing wells (2,697). DEIR p. 3-32.

One commenter states impacts are understated because the analysis includes only the drilling of 2,697 producing wells in a single year, but fails to account for drilling of injection wells. Similarly, a commenter states the DEIR's future oil and gas development scenario, upon which its impacts analysis is based, only estimates the number of "new producing wells." However, as detailed above, the DEIR provides projections for all wells (including new production wells, all categories; water disposal; water flood injectors; idle wells, non-cyclic; observation wells; steam flood injectors; air injection; and gas disposal). DEIR p. 3-32. As discussed in this response and in Global Response GR-6, projected well numbers represent conservative estimates. Moreover, the DEIR analyzes impacts of the project maximum yearly total of all wells, 3,647, not just producing wells. One commenter asserts the DEIR attempts to downplay future oil and gas production levels in the County (and thus the associated indirect effects on population, employment, and housing) by distinguishing

[61] Disagreement among experts does not make an EIR inadequate. CEQA Guidelines, § 15151; *Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437; *Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1397 ("When the evidence on an issue conflicts, the decisionmaker is 'permitted to give more weight to some of the evidence and to favor the opinions and estimates of some of the experts over the others.' [Citation.]").

the region's geology from other states that have undergone "fracking booms." The commenter questions the DEIR's discussion of the amount of recoverable oil and gas in the Monterey Shale Formation and challenges estimates which cover territory outside Kern County. The County is not aware of any independent third party or academic source that issues publicly available forecasts of oil and gas development in Kern County, and none are cited in the comments. Kern County includes the Monterey Shale, but that geologic feature extends beyond Kern County, and there are no peer reviewed estimates of future oil and gas development in the Kern County portion of the Monterey Shale.[62] Further, there has been uncertainty in public sources regarding the future development potential of the Monterey Shale, including a high estimate from the U.S. Energy Information Administration (EIA) in 2012 of 13.7 billion barrels of technically recoverable oil, and a restated estimate from that same agency in 2014 that reduced the prior estimate by nearly 96% to approximately 600 million barrels of recoverable oil.[63] The California Council on Science and Technology recently opined that there is little evidence to support either estimate.[64] The County determined that the forecasting process described above for this EIR resulted in a more sound projection of future well activity specific to Kern County than the EIA estimate or other estimates for the Monterey Shale generally.

Finally, the projection in the DEIR follows a similar path as that used in the well stimulation EIR recently certified by DOGGR under SB4 (DOGGR 2015). [65] The two agencies developed similar forecasts. As with Kern County's forecast for this EIR, DOGGR's forecast for the SB4 EIR started with a survey of affected oil and gas companies.[66] DOGGR then compared the survey results to its historical database, and applied its expertise and independent judgement to confirm the reasonableness of the forecast.[67] A buffer was included in the forecast for future growth. The SB4

---

[62] As explained in the DEIR, while hydraulic fracturing and other well stimulation techniques have resulted in very substantial increases in oil and gas production activities in other states, the Monterey Shale geologic formation in Kern County is fundamentally different and estimates of both the quantity and rate of petroleum production from the Monterey Shale using existing technologies have been substantially reduced (See, e.g., http://www.postcarbon.org/publications/drilling-california/). DEIR p. 4.13-9; see also DEIR pp. 4.6-28 – 4.6-29 (informational discussion of 2014 independent study commissioned by the Bureau of Land Management (CCST 2014), which concludes acid fracturing is not expected to lead to major increases in oil and gas development in California). The CCST study also concluded that technologies might be developed to extract oil and gas from new locations, e.g., the Monterey Formation. *Id*. However, analysis of potential new technologies that could emerge during the life of the Project in this context would be speculative. See Global Response GR-18.

[63] US Energy Information Administration (2011), Review of Emerging Resources: US Shale Gas and Shale Oil Plays. 82 p.; US Energy Information Administration (2013), Outlook for shale gas and tight oil development in the U.S.19 p.; US Energy Information Administration (2014), Assumptions to the Annual Energy Outlook 2014—Oil and Gas Supply Module. June 2014, 16 p.

[64] An Independent Scientific Assessment of Well Stimulation in California, January 2015, Vol. 1, p. iv (the EIA estimates are "highly uncertain"; "[t]here is little evidence to support either estimate.") , p. 247-249.

[65] The process for development of the forecast for the SB4 EIR is described at DOGGR 2015 Vol. I, p. C.2-59 and C.6-7; and Vol. II, p. 7-22.

[66] DOGGR 2015 Vol. I, p. C.2-59 ("Since probable future projects (i.e., future well stimulation treatments) will be proposed by members of WSPA, DOGGR and its consultants properly relied to a considerable degree on the business plans of these entities to determine what is reasonably foreseeable.")

[67] DOGGR 2015 Vol. I, p. C.2-59 ("DOGGR's experienced staff and the preparers of the EIR did the following: reviewed the information provided by the oil and gas industry; checked that information against DOGGR's own

EIR used a forecast of up to 3,300 new wells (including production, cyclic producer, injection, and other miscellaneous wells, e.g., observation, water supply, etc.) annually for DOGGR District 4.[68] The outcome of the DOGGR forecasting exercise is the same order of magnitude as the Kern County projection.

Although the estimates reached by both agencies are similar, there are a number of reasons why the DOGGR estimate may not be precisely the same as the Kern County estimate. First, the DOGGR estimate is for DOGGR District 4, not just for Kern County. Second, the business surveys may have presented somewhat different questions, eliciting different responses from the oil and gas operators. Third, it is important to compare projections for similar types of wells. DOGGR's forecast of 3,300 new wells annually for DOGGR District 4 included new production, cyclic producer, injection, observation, water supply and other miscellaneous wells.[69] Rather than comparing DOGGR's SB4 forecast to the 2,697 new producing wells annually projected in the DEIR, the SB4 projection should be compared to the projection of "Total New Wells (Annually)" in DEIR Table 3-5, p. 3-32 (3,649 total), which includes water disposal, water flood injectors, and a number of other categories of wells. Finally, DOGGR and the County may have applied different buffers or adjustments for potential future growth in well drilling activity, both falling within a reasonable range based on their respective experiences and independent judgement.

In sum, the well projections used in the DEIR were based on the best information available to the County at the time preparation of the EIR commenced, including the business forecasts of the companies who would carry out the oil and gas development. The forecasts were validated by the County and its consultant, and adjusted upward so that the EIR would analyze a reasonably high maximum impact case. The projection represents a good faith, reasonable effort to forecast the future using the best information available to Kern County. As stated at page 3-30 of the DEIR, it is likely that the actual development will be less than the forecast. In such case, the environmental impacts of the Project will be less than estimated in the DEIR.

9: DOGGR: SB 4 EIR

Some commenters raised questions about the relationship between the EIR approved by DOGGR pursuant to Senate Bill 4 (SB 4) following issuance of the Kern County Draft EIR, and the EIR issued by the County for the Amended Ordinance.

The SB 4 EIR was required to examine oil production activities using well stimulation techniques (WST) to inform DOGGR's regulation and permitting of WST. The SB 4 EIR was a statewide EIR that considered WST in a wide range of physical environmental conditions, ranging from ocean drilling, to drilling in highly populated urban areas in Los Angeles County, to drilling in rural areas such as Kern and San Benito counties.

---

historic files and data, assessed the information relying their professional knowledge of trends in the industry, and reached their own conclusions based on all available input and their own knowledge and professional judgment.")

[68] DOGGR 2015 Vol. II, p. 7-23.

[69] DOGGR 2015 Vol. II, p. 7-23.

The Kern EIR has a much narrower geographic focus (the Project Area within Kern County), but addresses a broader scope of oil and gas production activities in that it is not limited to WST activities.

The SB 4 Draft EIR was available for review by the preparers of the Kern EIR, and is cited within and helped inform preparation of the Kern DEIR. Similarly, the Final SB 4 EIR helped inform the contents of the Kern Final EIR. Please see responses to Letter 2 (DOGGR) and other responses for a more detailed response to specific comments raised about the SB 4 EIR.

10: DOGGR: Regulations

Commenters assert that the DEIR regulatory setting, environmental baseline and impact analysis should not incorporate or rely on compliance with DOGGR's final regulations governing well stimulation treatment pursuant to SB 4 (Pub. Res. Code § 3160 et seq.), which were not in effect until July 1, 2015. In addition, some commenters claim that DOGGR's regulations are insufficient and/or will be insufficiently enforced to protect against environmental impacts of well stimulation, and that the County should impose more stringent requirements.

SB 4 directed DOGGR to adopt regulations on hydraulic fracturing and other forms of well stimulation treatment. The regulations cover all facets of subsurface operations, including well maintenance and testing, operational requirements and well stimulation fluids and wastes, as shown in the table below. On December 30, 2014 the Office of Administrative Law approved DOGGR's final regulations and filed them with the Secretary of State. Although the regulations did not go into effect until July 1, 2015 as provided by SB 4 (Pub. Res. Code § 3161(a)), the regulations were final and available for incorporation in the analysis as the DEIR was prepared, and were effective months before certification of the Final EIR.

14 Cal. Code Regs. Section	Summary of DOGGR Final Well Stimulation Treatment (WST) Regulations
1751	Provides for a single DOGGR approval for multiple WST permit applications
1761, 1781	Definitions
1777.4	Requires submission of well maintenance and cleanout history to DOGGR after WST activities
1782	Outlines general WST wells requirements, including for well casing
1783, 1783.1	Specifies information that must be submitted with a WST permit application
1783.2, 1783.3	Imposes obligation on WST operators to identify and notify neighboring surface property owners, including as to rights to request water testing
1783.4	Requires groundwater sampling, testing and monitoring as part of WST activities
1784	Ensures WST wells are designed to meet hydrologic and geologic isolation standards
1784.1	Mandates pressure testing for WST activities
1784.2	Requires cement evaluations for WST activities
1785, 1785.1, 1787	Imposes monitoring obligations during and after WST, including for seismic activity
1786	Outlines requirements for storage and handling of WST fluids and wastes
1788	Mandates certain public disclosures
1789	Specifies reporting obligations following WST activities

In connection with its environmental review of well stimulation treatment operations throughout the state, DOGGR announced in July of 2015 its intent to, "very shortly after July 1, 2015 … initiate rulemaking with respect to" certain proposed mitigation measures from the Final SB 4 DEIR. The details of these forthcoming well stimulation treatment regulations were also available for incorporation in the analysis as the DEIR and Final EIR were prepared. They include:

SB 4 Final EIR Reference	Summary of DOGGR Forthcoming Regulation
MM GW-1a	Requires the use of alternative water sources, to the extent feasible
MM SWR-1b	Establishes setbacks from perennial water bodies and intermittent or ephemeral water bodies in certain circumstances
MM GEO-1	Requires avoidance of active faults in certain circumstances
MM GEO-1b	Requires that the Spill Contingency Plan already required for each oil and gas well by 14 CCR 1722.9 include as additional contents well control and well shut-in procedures that adequately address the consequences of the rupture of a known fault, seismically induced ground shaking, and/or ground failure that could occur during the well stimulation process
MM GEO-1e	Requires that the Spill Contingency Plan referenced above also include elements of an earthquake response plan
MM HAZ-1a	Requires that the Spill Contingency Plan referenced above be sufficient to prevent any leaks, spills, or other discharges of well stimulation fluids, flowback fluids, produced water, hazardous chemicals, contaminated surface water runoff, oil, or other potentially dangerous materials that might occur before, during, and after the well stimulation process from reaching the soil at all site pads
MM GW-4b	Requires, for a new well drilled for a stimulation treatment, that the well contain an annular 500-foot cement seal extending across the base of protected water and that the integrity of the seal will prevent unintended migration of fluids

In addition to the existing and impending SB 4 regulations, well operations are subject to DOGGR's existing regulations for all oil and gas wells, which set the standards for well construction, operation and abandonment. See 14 Cal. Code Regs., Div. 2, Ch. 4.

The DEIR properly relies on DOGGR's SB 4 regulations. The amended oil and gas zoning ordinance operates in the context of other federal, state and local law, including SB 4 and its implementing regulations. To the extent compliance with the SB 4 and its regulations will avoid or lessen a potentially significant environmental impact, CEQA allows such reliance on existing laws and regulations. *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal. App. 4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance"); *Ctr. for Biological Diversity v. Dep't of Fish & Wildlife* (2015) 234 Cal. App. 4th 214, 243 ("Complying with government regulations as a mitigation measure is not an improper deferral").

It is reasonable for the DEIR to assume that operators will comply with SB 4 and its implementing regulations. *Towards Responsibility in Planning v. San Jose* (1988) 200 Cal. App. 3d 671, 680 ("City is not obliged to speculate about effects which might result from violations of its own ordinances or water quality standards set by other agencies"); *Rominger v. Colusa* (2014) 229 Cal. App. 4th 690, 728 (arguments against significance analysis rejected where challengers offered "no evidence to suggest that it would be unreasonable to expect" compliance with statewide regulations). The DEIR may also assume that DOGGR will carry out its duty to enforce its regulations. Cal. Evid. Code § 664 ("It is presumed that official duty has been regularly performed").

As explained in Section 2.6.4 of the DEIR, Kern County cannot lawfully impose in its zoning ordinance requirements specifically for well stimulation activities below ground that are more stringent than those imposed by DOGGR. DOGGR is the state agency with exclusive authority to regulate the subsurface operations of oil and gas activities. Under CEQA, lead agencies may enforce only "feasible" mitigation measures. "Feasibility" is defined in CEQA Guidelines § 15364 to include "legal feasibility" (*i.e.*, mitigation must be lawfully enforceable by the lead agency). The County lacks the legal authority to regulate subsurface oil and gas activities because such regulation is preempted by state law.

Local legislation that conflicts with state law is preempted and void. *Conejo Wellness Ctr., Inc. v. Agoura Hills* (2013) 214 Cal. App. 4th 1534, 1552 ("Local legislation enters an area or field that is 'fully occupied' by state law when the Legislature has either expressly manifested its intent to fully occupy the area or has impliedly has done so"). *Id.* "Implied preemption occurs when: (1) general law so completely covers the subject as to clearly indicate the matter is exclusively one of state concern; (2) general law partially covers the subject in terms clearly indicating a paramount state concern that will not tolerate further local action; or (3) general law partially covers the subject and the adverse effect of a local ordinance on transient citizens of the state outweighs the possible municipal benefit." *Big Creek Lumber Co. v. Santa Cruz* (2006) 38 Cal. 4th 1139, 1157–1158.

Even before the passage of SB 4, the California Attorney General concluded that the state had fully occupied the field with respect to subsurface oil and gas operations:

> State laws on drilling and production activities of oil, gas and geothermal resources wells for the purpose of conserving and protecting those resources take precedence over local regulations, particularly where the state law approves of or specifies plans of operation, methods, materials, procedures, or equipment to be used by the well operator or where activities are to be carried out under direction of the State Supervisor.

59 Ops. Cal. Atty. Gen. 461, Opinion No. 76-32 (Aug. 24, 1976). The Attorney General further reasoned that "the State has so fully occupied [the underground phases of oil and gas activities] that there is no room left for local regulation" *Id.* at 477–478.

The degree of detail in which the state has specified requirements has only increased with the adoption of SB 4 and its implementing regulations. The highly specific technical prescriptions for well stimulation treatment leave no room for additional, inconsistent or duplicative downhole

regulation imposed by local zoning ordinances, reinforcing the conclusion of preemption reached by the Attorney General.

11: Regulatory Developments: General

Some commenters have suggested that certification of the Environmental Impact Report (EIR) should be delayed to account for pending regulatory developments. Although a number of regulatory developments related to oil and gas exploration activities were recognized throughout the Draft EIR, a summary of pending regulatory developments considered by the County in its review of the Project has been summarized below.

U.S. EPA's Proposed Regulation of Methane Emissions from Oil and Gas Production

On January 14, 2015, President Obama's Administration announced a new goal to cut methane emissions from the oil and gas sector by 40-45 percent from 2012 levels by 2025. To achieve this goal, the Administration outlined a cross-agency effort that considers the role of the federal Environmental Protection Agency, the Department of the Interior, and industry. Administration actions include:

- Proposing and setting commonsense standards for methane and ozone-forming emissions from new and modified sources.
- Developing new guidelines to reduce volatile organic compounds in ozone non-attainment areas.
- Enhancing leak detection and emissions reporting.
- Leading by example on public lands.
- Reducing methane emissions while improving pipeline safety.
- Driving technology to reduce natural gas losses and improve emissions quantification.
- Modernizing natural gas transmission and distribution infrastructure.
- Releasing a quadrennial energy review.

The proposal is designed to help the United States a goal unveiled by Obama in China last year to reduce greenhouse gas emissions 26-28 percent below 2005 levels by 2025.

In furtherance of these goals, the U.S. EPA is expected to propose new source performance standards for all new and modified sources in the oil and gas industry. EPA is also expected to propose control technique guidelines that will provide a methane co-benefit by reducing VOC emissions in ozone non-attainment areas. In addition, the Bureau of Land Management is expected to release rules that would reduce methane and VOC emissions from flaring and venting from oil and gas operations on federal leases. The new BLM rules would impact new and existing sources.

CARB Methane Rule

CARB is expected to adopt a new rule aimed at reducing methane emissions from the oil and gas sector in October 2015. The draft rule includes requirements for controls on storage tanks, liquid unloading, pneumatic devices, completion operations and compressors, and requires leak detection and repair programs, as well as equipment associated with hydraulic fracturing operations.

DOGGR's Proposed Aquifer Exemption Compliance Schedule

In April 2015, DOGGR released a notice of proposed emergency rulemaking action to adopt emergency regulations necessary to protect public health, safety and the environment, and to bring California's Class II Underground Injection Control program into compliance with the federal Safe Drinking Water Act. The regulations were adopted on a temporary basis by emergency rulemaking, and DOGGR initiated formal rulemaking in May 2015 to adopt permanent regulations that, when final, will replace the emergency regulations.

The rule serves to address U.S. EPA concerns that fluids from Class II wells may be being injected into aquifers that have not been formally designated as exempt by U.S. EPA. An "exempt aquifer" is defined by U.S. EPA as an aquifer that meets one or more of the criteria specified in Underground Injection Control (UIC) Program regulations, which means that it is not an "underground source of drinking water. Exempt aquifers are those for which "protection under the Safe Drinking Water Act has been waived because the aquifer is not a source of drinking water or a source of water for public water supply systems. If an aquifer has not been formally exempted by EPA, it cannot be used in connection with oil and gas operations, whether for waste disposal or enhanced oil recovery.

DOGGR's emergency regulations, and the proposed permanent regulations, phase out injection into non-exempt aquifers by 2017. In addition, DOGGR has begun collecting data from oil and gas operators in order to support requests for aquifer exemptions for certain aquifers, thus allowing Class II injection to continue into aquifers once they have received an exempt status. The 45-Day comment period for DOGGR's permanent Aquifer Exemption Compliance Schedule Regulations ended on July 13, 2015.

Although the County cannot be certain that pending legislative and regulatory developments will be adopted, it will continue to monitor the legal landscape to assure that future oil and gas exploration, development, and production activities in unincorporated Kern County comply with any newly adopted mandates. Notably, the DEIR recognized that developing legislation and regulations could affect future exploration activities within unincorporated Kern County. In fact, several of the Proposed Project's objectives considered the evolving regulatory landscape:

- Update the County's Zoning Ordinance to include additional procedures and compliance standards that address changes in laws and regulations by other agencies, and technological advancements within the oil and gas industry, for the purpose of reducing or eliminating potential significant adverse environmental

impacts, to the extent feasible, of future oil and gas activities, and thereby ensure that current County ordinances reflect the County's interest in protecting the health, safety, and general welfare of residents and visitors.

- Continue Kern County's ongoing commitment to consult and cooperate with federal, state, regional, and local agencies by periodically reviewing adopted regulations to ensure the long-term viability of Kern County's resources.
- Continue to improve and streamline current energy regulations and increase County monitoring and involvement in state and federal energy legislation.

Similar directives are included in the County's General Plan Goals and Policies, which were reviewed for consistency. The DEIR determined that the Proposed Project would be consistent with General Plan Section 1.9, Goal 6, Policy 25, Implementation Measure J: "The County shall continue to monitor new legislation as it relates to energy production and periodically review the General Plan and Zoning Ordinance for any required updates." (DEIR, p. 4.10-104.) In addition, the EIR determined that the Proposed Project would be consistent with General Plan Section 5.3.1, Policy 8, Implementation Measure C: "The County shall monitor its regulations pertaining to petroleum exploration, production, and update such regulations as necessary." (DEIR, p. 4.10-131.) Each of these implementation measures requires the County to keep abreast of regulatory developments to assure that any adopted mandates are properly implemented.

In sum, the County recognized that there will continue to be legal developments related to oil and gas exploration activities. Given the evolving legal landscape, the County will continue its monitoring efforts to assure that any newly adopted legislation or regulation is considered during future oil and gas exploration entitlement efforts. However, as legislative and regulatory developments remain ongoing, and new developments are likely to arise in the future, it is not feasible to wait for all such efforts to be completed before finalizing the EIR. Further action at this time would be speculative and potentially counterproductive as the County does not want to create conflicts with new laws and regulations that may come out of the ongoing regulatory dialogue concerning the oil and gas sector.

12: CCST: General

Several commenters raised questions about the relationship between this EIR and studies issued by the California Center on Science and Technology. (Volume 1 of the CCST study was issued earlier this year, and Volumes 2 and 3 were issued after publication of the DEIR.) This response addresses the CCST study issues generally, and other global responses as well as responses to individual comments address more specific CCST study issues as noted.

As discussed in the DEIR, in 2014, California enacted new laws pertaining to well stimulation treatments in the state (commonly referred to as the "Senate Bill 4" or "SB 4" legislation). The laws required DOGGR to adopt new interim and final well stimulation treatment regulations and also commissioned the California Council on Science and Technology (CCST) to conduct an independent scientific assessment of well stimulation treatments, including hydraulic fracturing, in California. The purpose of the CCST analysis was to synthesize and assess the available scientific

information associated with well stimulation treatments in California. The CCST review surveyed hydraulic fracturing, matrix acidizing, and acid fracturing as they are applied both onshore and offshore for oil and gas production in the state. The study work scope was organized in three major areas, which were documented in three separate report volumes delivered to the California Natural Resources Agency.

Volume I was released on January 14, 2015 and provides a factual basis for the analysis including a description of well stimulation treatments (WST), how they are conducted in general and practiced in California, and where they have been and are being used for oil and gas production in the state.

Volume II was released on July 9, 2015 and discusses how well stimulation could affect water, atmosphere, seismic activity, wildlife and vegetation, and human health, reviews available data, and identifies knowledge gaps and alternative practices that could avoid or mitigate possible impacts.

Volume III was released on July 9, 2015 and presents four case studies that assess environmental issues and qualitative risks for specific geographic regions: Offshore, Monterey Formation, Los Angeles Basin, and the San Joaquin Basin.

The report findings were organized into seven "principles" and CCST "conclusions" and "recommendations" applicable to each of the principles. CEQA did not and does not impose any requirement on the County to await the finalization of the CCST review prior to completing its DEIR analysis. (See *Chaparral Greens v. City of Chula Vista* (1996) 50 Cal.App.4th 1134, 1145 [CEQA contains no requirement that an agency rely on proposed or draft regional studies in evaluating a project]; see also *City of Maywood v. Los Angeles Unified School District* (2012) 208 Cal.App.4th 362, 411-412). Even so, as discussed below, the DEIR is consistent with the applicable principles, conclusions and recommendations developed by the CCST in the three-volume report on well stimulation in California.

CCST Principle 1. Maintain, expand and analyze data on the practice of hydraulic fracturing and acid stimulation in California.

CCST Conclusion 1.1. Most well stimulations in California are hydraulic fracturing and most hydraulic fracturing occurs in the San Joaquin Valley. About 95% of reported hydraulic fracturing operations in California occur in the San Joaquin Basin, nearly all in four oil fields in Kern County. Over the last decade, about 20% of oil and gas production in California came from wells treated with hydraulic fracturing. Hydraulic fracturing accounts for about 90% of all well stimulations in California; matrix acidizing accounts for only 10%; and acid fracturing operations nearly none. Operators in California commonly use acid for well maintenance, but acid stimulation will not likely lead to major increases in oil and gas production due to the state's geology.

CCST Conclusion 1.2. The California experience with hydraulic fracturing differs from that in other states. Present-day hydraulic fracturing practice and geologic conditions in California differ from those in other states, and as such, recent experiences with hydraulic fracturing in other states do not necessarily apply to current hydraulic fracturing in California.

CCST Conclusion 1.3. Hydraulic fracturing in California does not use a lot of fresh water compared to other states and other human uses. Operators in California use about 800 acre-feet per year.

CCST Recommendation 1.1. Identify opportunities for water conservation and reuse in the oil and gas industry.

Note: CCST Conclusions 1.4 and 1.5 and Recommendation 1.2 pertain to offshore activities and are not applicable to the Project Area.

The DEIR is consistent with CCST Principle 1, Conclusions 1.1-1.3, and Recommendation 1.1. As discussed in the DEIR, Kern County requires compliance with monitoring and data collection/reporting requirements of other agencies, requires submittal of written information about oil and gas activities (e.g., depth of well, produced water disposal practice, destination of produced oil and gas, biological and cultural resource survey results, stormwater management practices) in the required application documentation for activities subject to the proposed Conformity Review process. The application status information will be made available via the Acela program and DataBasin layers that are accessible online.

These measures are consistent with the CCST Principle 1 goal to maintain, expand and analyze data on the practice of hydraulic fracturing and acid stimulation in California.

The DEIR includes an appendix describing how hydraulic fracturing practices in other states differ from California. This analysis is consistent with the findings summarized in CCST Conclusions 1.1-1.3.

The DEIR requires the five largest oil and gas producers in the Project Area to cooperate in developing additional produced water treatment and re-use supplies, and to cooperate with the pending implementation of a Groundwater Sustainability Plan (GSP) for Project Area basins. The DEIR also encourages additional produced water reuse and recycled water use for oil and gas production activities. These measures are consistent with the CCST Recommendation 1.1 to identify opportunities for water conservation and reuse in the oil and gas industry.

CCST Principle 2: Prepare for potential future changes in hydraulic fracturing and acid stimulation practice in California.

CCST Conclusion 2.1. Future use of hydraulic fracturing in California will likely resemble current use.

CCST Recommendation 2.1. Assess the oil resource potential of the Monterey Formation. The state should request a comprehensive, science-based and peer-reviewed assessment of source-rock ("shale") oil resources in California and the technologies that might be used to produce them. The state could request such an assessment from the U.S. Geological Survey, for example.

CCST Recommendation 2.2. Keep track of exploration in the Monterey Formation.

As discussed above, the proposed County Conformity Review process will include application information that will be publicly available online and that will support efforts to track where oil and gas activity in the Project Area, including exploration related to the Monterey Formation, may occur in the future. The analysis and assessments included in CCST Principle 2, however, are beyond the scope of a local agency such as Kern County. As noted CCST Recommendation 2.1, Monterey Formation assessments should be addressed by applicable state and federal agencies with the appropriate expertise.

CCST Principle 3. Account for and manage both direct and indirect impacts of hydraulic fracturing and acid stimulation.

CCST Conclusion 3.1. Direct impacts of hydraulic fracturing appear small but have not been investigated

CCST Conclusion 3.2. Operators have unrestricted use of many hazardous and uncharacterized chemicals in hydraulic fracturing.

CCST Conclusion 3.3. The majority of impacts associated with hydraulic fracturing are caused by the indirect impacts of oil and gas production enabled by the hydraulic fracturing. Impacts caused by additional oil and gas development enabled by well stimulation (i.e. indirect impacts) account for the majority of environmental impacts associated with hydraulic fracturing. A corollary of this conclusion is that all oil and gas development causes similar impacts whether the oil is produced with well stimulation or not. As hydraulic fracturing enables only 20-25% of production in California, only about 20-25% of any given indirect impact is likely attributable to hydraulically fractured reservoirs.

CCST Conclusion 3.4. Oil and gas development causes habitat loss and fragmentation. Any oil and gas development, including that enabled by hydraulic fracturing, can cause habitat loss and fragmentation. The location of hydraulic-fracturing-enabled development coincides with ecologically sensitive areas in the Kern and Ventura Counties.

CCST Recommendation 3.1. Assess adequacy of regulations to control direct impacts of hydraulic fracturing and acid stimulations.

CCST Recommendation 3.2. Limit the use of hazardous and poorly understood chemicals. Operators should report the unique Chemical Abstracts Service Registry Number (CASRN) identification for all chemicals used in hydraulic fracturing and acid stimulation, and the use of chemicals with unknown environmental profiles should be disallowed. The overall number of different chemicals should be reduced, and the use of more hazardous chemicals and chemicals with poor environmental profiles should be reduced, avoided, or disallowed.

CCST Recommendation 3.3. Evaluate impacts of production for all oil and gas development, rather than just the portion of production enabled by well stimulation. Concern about hydraulic fracturing might cause focus on impacts associated with production from fractured wells, but concern about these indirect impacts should lead to study of all types of oil and gas production, not just production

enabled by hydraulic fracturing. Agencies with jurisdiction should evaluate impacts of concern for all oil and gas development, rather than just the portion of development enabled by well stimulation.

CCST Recommendation 3.4. Minimize habitat loss and fragmentation in oil and gas producing regions. Enact regional plans to conserve essential habitat and dispersal corridors for native species in Kern and Ventura Counties. The plans should identify top-priority habitat and restrict development in these regions. The plan should also define and require those practices, such as clustering multiple wells on a pad and using centralized networks of roads and pipes, which will minimize future surface disturbances. A program to set aside compensatory habitat in reserve areas when oil and gas development causes habitat loss and fragmentation should be developed and implemented

The DEIR is generally consistent with CCST Principle 3, Conclusions 3.1-3.4, and Recommendations 3.1-3.4. Kern County does not have the jurisdiction to directly implement Recommendation 3.1, which pertains to the assessment of the adequacy of applicable WST regulations that are adopted by state and federal agencies. The DEIR requires compliance with all laws and regulations, including WST-related regulations implemented and permit conditions that may be required by DOGGR and the Central Valley Regional Water Quality Control Board (CVRWQCB) as these may evolve and expand over time. The County will also request that responsible agencies provide copies of any oil and gas notices of violation or similar enforcement orders to the County and will coordinate with any agency issuing such orders to ensure that no new County permit will be issued for non-complying facilities. The County may exercise its enforcement discretion to seek revocation of approved permits in the event of serious non-compliance.

Similarly, the use or restriction of WST chemicals discussed in CCST Recommendation 3.2 is a state and federal regulatory issue. The DEIR requires compliance with existing and future regulations pertaining to WST and other activities subject to the proposed County permit review process, including any such laws or regulations that may restrict or limit the use of certain WST chemicals. In addition, the FEIR includes a new mitigation measure (see MM 4.8-16) which requires the submittal of certain information (safety data sheets, toxicity information, etc.) before a WST fluid may be used. Therefore, the DEIR also addresses CCST's concern that chemicals used are not fully known or understood.

The DEIR mitigation measures that would be implemented in conjunction with the proposed permit review process are consistent with CCST Recommendation 3.3, which pertains to the evaluation of impacts from all oil and gas development, rather than just the portion of production enabled by well stimulation. The permit application requirements and the DEIR mitigation measures encompass most oil and gas activities in the project area and are not limited to well stimulation.

The DEIR includes mitigation measures that avoid and minimize potential habitat fragmentation in the Project Area by requiring the use of existing roads where available to minimize new surface disturbance, and compensatory mitigation for biological resource impacts. These measures generate significant incentives for oil and gas applicants to avoid unnecessary new ground disturbance activities and are consistent with CCST Recommendation 3.4.

CCST Principle 4. Manage water produced from hydraulically fractured or acid stimulated wells appropriately.

CCST Conclusion 4.1. Produced water disposed of in percolation pits could contain hydraulic fracturing chemicals.

CCST Conclusion 4.2. The chemistry of produced water from hydraulically fractured or acid stimulated wells has not been measured.

CCST Conclusion 4.3. Required testing and treatment of produced water destined for reuse may not detect or remove chemicals associated with hydraulic fracturing and acid stimulation.

CCST Conclusion 4.4. Injection wells currently under review for inappropriate disposal into protected aquifers may have received water that contains chemicals from hydraulic fracturing.

CCST Conclusion 4.5. Disposal of produced water by underground injection has caused earthquakes elsewhere. Fluid injected in the process of hydraulic fracturing will not likely cause earthquakes of concern. In contrast, disposal of produced water by underground injection could cause felt or damaging earthquakes. To date, there have been no reported cases of induced seismicity associated with produced water injection in California. However, it can be very difficult to distinguish California's frequent natural earthquakes from those possibly caused by water injection into the subsurface.

CCST Conclusion 4.6. Changing the method of produced water disposal will incur tradeoffs in potential impacts. Based on publicly available data, operators dispose of much of the produced water from stimulated wells in percolation pits (evaporation-percolation ponds), about a quarter by underground injection (in Class II wells), and less than one percent to surface bodies of water. Changing the method of produced water disposal could decrease some potential impacts while increasing others.

CCST Recommendation 4.1. Ensure safe disposal of produced water in percolation pits with appropriate testing and treatment or phase out this practice.

CCST Recommendation 4.2. Evaluate and report produced water chemistry from hydraulically fractured or acid stimulated wells.

CCST Recommendation 4.3. Protect irrigation water from contamination by hydraulic fracturing chemicals and stimulation reaction products.

CCST Recommendation 4.4. In the ongoing investigation of inappropriate disposal of wastewater into protected aquifers, recognize that hydraulic fracturing chemicals may have been present in the wastewater.

CCST Recommendation 4.5. Determine if there is a relationship between wastewater injection and earthquakes in California. Conduct a comprehensive multi-year study to determine if there is a relationship between oil and gas-related fluid injection and any of California's numerous

earthquakes. In parallel, develop and apply protocols for monitoring, analyzing, and managing produced water injection operations to mitigate the risk of induced seismicity. Investigate whether future changes in disposal volumes or injection depth could affect potential for induced seismicity.

CCST Recommendation 4.6. Evaluate tradeoffs in wastewater disposal practices. As California moves to change disposal practices, for example by phasing out percolation pits or stopping injection into protected aquifers, agencies with jurisdiction should assess the consequences of modifying or increasing disposal via other methods.

The DEIR is consistent with CCST Recommendation 4.1 and requires that applicants produce written evidence from the CVRWQCB and/or DOGGR of lawful produced water disposal as a required element of the application process. As discussed above, the evaluation of technical and scientific issues associated with WST in general, such as the evaluation of WST water chemistry in CCST Recommendation 4.2, is most appropriately conducted by state or federal agencies with appropriate expertise. The DEIR requires that all applicants comply with all applicable laws and regulations, including reporting that include WST chemistry information.

The DEIR summarizes available information about contamination sources (primarily from percolation ponds, with none from hydraulic fracturing) including water quality exceedances associated with the reuse of produced water for irrigation. As discussed in Global Response Water-01, in 2014 the CVRWQCB implemented a work plan that included informational orders issued to 77 well operators that require data on the water quality of produced water disposed in surface ponds. This data could help identify whether WST chemicals remain resident in oil-bearing formations that could generate produced water used for irrigation. As discussed in Global Response GR Water-8, the CVRWQCB has also convened a panel to consider food safety issues that may be associated with the use of produced water for irrigation. The DEIR requires compliance with all DOGGR and CVRWQCB requirements, including waste discharge requirements (WDRs) applicable to agricultural use of produced water, and any future requirements that may be adopted to address food safety or other irrigation and water quality issues. As a result, the DEIR is consistent with CCST Recommendation 4.3.

Consistent with CCST Recommendation 4.4, the DEIR summarizes available information about the ongoing review of the Underground Injection Control (UIC) program in California by DOGGR, the CVRWQCB, and the EPA. The current (as of August 2015) status of these efforts is also discussed in Global Response Water-02. DEIR mitigation measure 4.9 prohibits any applicant under the proposed review process from conducting any injection activity regulated by the UIC program, including enhanced oil recovery activities that discharge into any underground source of drinking water unless the aquifer has been exempted by the EPA or the injection has otherwise been authorized by the EPA or by DOGGR under the Division's delegated Safe Drinking Water Act authority.

Consistent with CCST Recommendation 4.5, the DEIR addresses seismic risks from oil and gas activities, including produced water disposal. As discussed above, the DEIR requires compliance with all applicable laws and regulations, including future requirements that may be adopted in response to the CCST-recommended study of seismic risks by DOGGR or other applicable agency.

Consistent with CCST Recommendation 4.6, the DEIR requires that applicants produce written evidence from the CVRWQCB and/or DOGGR that all forms of produced water disposal will occur in a lawfully permitted manner and facility as an element of the application process. The regulatory requirements associated with the permitting of disposal methods and facilities requires measures that protect water quality and avoid and minimize other impacts that could be associated with different forms of produced water disposal.

CCST Principle 5. Add protections to avoid groundwater contamination by hydraulic fracturing.

CCST Conclusion 5.1. Shallow fracturing raises concerns about potential groundwater contamination. In California, about three quarters of all hydraulic fracturing operations take place in shallow wells less than 2,000 feet (600 meters) deep. In a few places, protected aquifers exist above such shallow fracturing operations, and this presents an inherent risk that hydraulic fractures could accidentally connect to the drinking water aquifers and contaminate them or provide a pathway for water to enter the oil reservoir. Groundwater monitoring alone may not necessarily detect groundwater contamination from hydraulic fractures. Shallow hydraulic fracturing conducted near protected groundwater resources warrants special requirements and plans for design control, monitoring, reporting, and corrective action.

CCST Conclusion 5.2. Leakage of hydraulic fracturing chemicals could occur through existing wells. California operators use hydraulic fracturing mainly in reservoirs that have been in production for a long time. Consequently, these reservoirs have a high density of existing wells that could form leakage paths away from the fracture zone to protected groundwater or the ground surface. The pending SB 4 regulations going into effect July 2015 do address concerns about existing wells in the vicinity of well stimulation operations; however, it remains to demonstrate the effectiveness of these regulations in protecting groundwater.

CCST Recommendation 5.1. Protect groundwater from shallow hydraulic fracturing operations. Agencies with jurisdiction should act promptly to locate and catalog the quality of groundwater throughout the oil-producing regions. Operators proposing to use hydraulic fracturing operation near protected groundwater resources should be required to provide adequate assurance that the expected fractures will not extend into these aquifers and cause contamination. If the operator cannot demonstrate the safety of the operation with reasonable assurance, agencies with jurisdiction should either deny the permit, or develop protocols for increased monitoring, operational control, reporting, and preparedness.

CCST Recommendation 5.2. Evaluate the effectiveness of hydraulic fracturing regulations designed to protect groundwater from leakage along existing wells. Within a few years of the new regulations going into effect, DOGGR should conduct or commission an assessment of the regulatory requirements for existing wells near stimulation operations and their effectiveness in protecting groundwater with less than 10,000 TDS from well leakage.

The DEIR summarizes available information about potential contamination sources related to oil and gas water use. To date, confirmed water quality impacts in the Project Area have been associated

with the use of percolation ponds and, in one instance, with subsurface injection. Global Response Water-01 summarizes additional information about surface pond use, and Global Response Water-02 summarizes the status of the state and federal review of the California UIC program regulating subsurface injection activities. The DEIR requires compliance with all existing and future laws and regulations applicable to groundwater protection and is consistent with CCST Recommendation 5.1. CCST Recommendation 5.2 pertains to the evaluation of state WST regulations by DOGGR that protect against leakage along existing wells. The DEIR requires compliance with all existing and future laws and regulations applicable to groundwater protection and is consistent with CCST Recommendation 5.1 and would also require compliance with any new regulatory measures DOGGR may implement to address WST leakage along existing wells.

CCST Principle 6. Understand and control emissions and their impact on environmental and human health.

CCST Conclusion 6.1. Oil and gas production from hydraulically fractured reservoirs emits less greenhouse gas per barrel of oil than other forms of oil production in California. Burning fossil fuel to run vehicles, make electricity, and provide heat accounts for the vast majority of California's greenhouse gas emissions. In comparison, publicly available California state emission inventories indicate that oil and gas production operations emit about 4% of California total greenhouse gas emissions. Oil and gas production from hydraulically fractured reservoirs emits less greenhouse gas per barrel of oil than production using steam injection. Oil produced in California using hydraulic fracturing also emits less greenhouse gas per barrel than the average barrel imported to California. If the oil and gas derived from stimulated reservoirs were no longer available, and demand for oil remained constant, the replacement fuel could have larger greenhouse gas emissions.

CCST Conclusion 6.2. Air pollutant and toxic air emissions from hydraulic fracturing are mostly a small part of total emissions, but pollutants can be concentrated near production wells. According to publicly available California state emission inventories, oil and gas production in the San Joaquin Valley air district likely accounts for significant emissions of sulfur oxides (SO_x), volatile organic compounds (VOC), and some air toxics, notably hydrogen sulfide (H_2S). In other oil and gas production regions, production as a whole accounts for a small proportion of total emissions. Hydraulic fracturing facilitates about 20% of California production, and so emissions associated with this production also represent about 20% of all emissions from the oil and gas production in California. Even where the proportion of air pollutant and toxic emissions caused directly or indirectly by well simulation is small, atmospheric concentrations of pollutants near production sites can be much larger than basin or regional averages, and could potentially cause health impacts.

CCST Conclusion 6.3. Emissions concentrated near all oil and gas production could present health hazards to nearby communities in California. Many of the constituents used in and emitted by oil and gas development can damage health, and place disproportionate risks on sensitive populations, including children, pregnant women, the elderly, and those with pre-existing respiratory and cardiovascular conditions. Health risks near oil and gas wells may be independent of whether wells in production have undergone hydraulic fracturing or not. Consequently, a full understanding of health risks caused by proximity to production wells will require studying all types of productions wells, not just those that have undergone hydraulic fracturing. Oil and gas development poses more

elevated health risks when conducted in areas of high population density, such as the Los Angeles Basin, because it results in larger population exposures to toxic air contaminants.

CCST Conclusion 6.4. Hydraulic fracturing and acid stimulation operations add some occupational hazards to an already hazardous industry.

CCST Recommendation 6.1. Assess and compare greenhouse gas signatures of different types of oil and gas production in California. Conduct rigorous market-informed life-cycle analyses of emissions impacts of different oil and gas production to better understand GHG impacts of well stimulation.

CCST Recommendation 6.2. Control toxic air emissions from oil and gas production wells and measure their concentrations near productions wells. Apply reduced-air-emission completion technologies to production wells, including stimulated wells, to limit direct emissions of air pollutants, as planned. Reassess opportunities for emission controls in general oil and gas operations to limit emissions. Improve specificity of inventories to allow better understanding of oil and gas emissions sources. Conduct studies to improve our understanding of toxics concentrations near stimulated and un-stimulated wells.

CCST Recommendation 6.3. Assess public health near oil and gas production. Conduct studies in California to assess public health as a function of proximity to all oil and gas development, not just stimulated wells, and develop policies such as science-based surface setbacks, to limit exposures.

CCST Recommendation 6.4. Assess occupational health hazards from proppant use and emission of volatile organic compounds. Conduct California-based studies focused on silica and volatile organic compounds exposures to workers engaged in hydraulic-fracturing-enabled oil and gas development processes based on the National Institute for Occupational Safety and Health occupational health findings and protocols.

The DEIR requires compliance with the California cap and trade program, which is designed to substantially reduce state greenhouse gas (GHG) emissions. The DEIR also requires that applicants implement GHG mitigation measures that will result in no net increase in GHG emissions for sources smaller than those regulated under the cap and trade program (i.e., those that emit less than 25 tons of GHG per year), and requires compliance with all other GHG regulations, including planned new methane controls for wells. These measures are consistent with CCST Recommendation 6.1.

Consistent with CCST Recommendations 6.2 and 6.3, the DEIR includes a Health Risk Assessment for construction and operation of different well configurations including hydraulically fractured wells at depths of 10,000 feet, and prescribed health-based setback requirements to assure no adverse health risks to sensitive receptors from toxic air contaminants. The DEIR also requires that applicants implement mitigation measures to ensure no net increase in Project Area non-attainment criteria air pollutants, including NO_x, PM_{10} and ROGs, which also contribute to adverse health impacts in the air basin. These measures may include emission reductions completed by the applicant (and verified by the San Joaquin Valley Air Pollution Control District (SJVAPCD) or via

emission reductions achieved by the County through an Emission Reduction Agreement with the SJVAPCD.

The DEIR does not specifically address occupational health and safety risks from proppant use. However, consistent with CCST Recommendation 6.4, occupational health risks related to volatile organic compounds, as well as reactive organic compounds, are addressed in the Health Risk Assessment included in the DEIR. See also, responses to letter 2 (DOGGR), comments 43 and 133.

CCST Principle 7. Take an informed path forward.

CCST Conclusion 7.1. Data reporting gaps and quality issues exist.

CCST Conclusion 7.2. Future research would fill knowledge gaps.

CCST Conclusion 7.3. Ongoing scientific advice could inform policy. As the state of California digests this assessment and as more data become available, continued interpretation of both the impacts of well stimulation and the potential meaning of scientific data and analysis would inform the policy framework for this complex topic.

CCST Recommendation 7.1. Improve and modernize public record keeping for oil and gas production.

CCST Recommendation 7.2. Conduct integrated research to close knowledge gaps. Conduct integrated research studies in California to answer key questions about the environmental, health, and seismic impacts of oil and gas production enabled by well stimulation. Integrated research studies should include regional hydrologic characterization and field studies related to surface and groundwater protection, induced seismicity, ecological conditions, as well as air and health effects.

CCST Recommendation 7.3. Establish an advisory committee on oil and gas. The state of California should establish a standing scientific advisory committee to support decisions on the regulation of oil and gas development.

Consistent with CCST Recommendation 7.1, the County will be using online systems, including the DataBasin and Acela program, and implementing a mitigation and monitoring reporting plan, that will significantly improve existing recordkeeping for oil and gas production activities in the Project Area. The information generated by these enhanced recordkeeping and informational requirements can be used to inform future regulatory activities and studies.

As discussed above, the WST-related integrated research programs described in CCST Recommendation 7.2 are most appropriately conducted by state and federal agencies with applicable expertise.

In summary, the mitigation, monitoring and application process that would be implemented by the County in conjunction with the proposed project is generally consistent with the CCST report principles, conclusions and recommendations. Certain of the CCST recommendations specifically refer to, or are appropriate for, implementation by state and federal agencies with applicable

technical expertise. The County process will help generate additional information that would support these efforts, and will also require applicant compliance with all laws and regulations that may be implemented as a result of large scale WST research projects and studies.

13: CCST - Well Stimulation

Numerous commenters express opposition to the use of well stimulation treatments (WST), arguing that the proposed mitigation measures are insufficient to protect against the risks associated with WST. Most of the cited impacts are common to all oil and gas production, rather than specifically related to WST. However, some of the cited risks have been attributed to WST, such as the potential for groundwater contamination at the surface or through hydraulic fractures. Surface contamination risks from WST fluids were recently addressed in a new DOGGR regulation that forbids surface disposal of WST fluids, as discussed further in GR Water 1. With respect to contamination risks from hydraulic fracturing, in its recently released report, the California Council on Science and Technology (CCST) concluded that the direct impacts of well stimulation appear to be small, although they bear further investigation. As explained by CCST, good management and mitigation measures can address these relatively small direct impacts.

Well stimulation can be conducted as part of the well completions process or as part of a well work-over process. Decisions on whether a well stimulation operation is required are generally dictated by the geologic characteristics of the reservoir. Stimulation is performed on a well to increase or restore production from new or under-producing existing wells. Public Resources Code Section 3157 of Division 3, Chapter 1, as amended, defines oil and gas well stimulation as "any treatment of a well designed to enhance oil and gas production or recovery by increasing the permeability of the formation. Well stimulation treatments include, but are not limited to, hydraulic fracturing treatments and acid well stimulation treatments. Well stimulation treatments do not include steam flooding, water flooding, or cyclic steaming."

CCST proposed 24 recommendations in its report. Of those applicable to Kern County, many are already included in this EIR or are required by existing regulations. In the lifecycle of a well, WST plays a small role, lasting only a few days at most while production over the life of the well may last years. As such, the risks associated with WST are relatively limited and manageable with proper mitigation measures.

Many commenters suggested that well stimulation is inadvisable due to associated risks, such as the use of fresh water for oil and gas development, the potential contamination of high quality groundwater, and induced seismicity. For the reasons described below, the County disagrees with these assertions.

Water Usage

Commenters have expressed concern that well stimulation requires a large amount of fresh water, the use of which is inadvisable in current drought conditions. Well stimulation in fact requires relatively little water—operators in California use about 800 acre-feet of water per year for hydraulic fracturing. This amount does not represent a large amount of freshwater compared

to other human use, representing less than 0.2% of all human water use. The majority of water use in oil and gas development occurs in enhanced oil recovery; well stimulation's contribution is relatively minimal.

Groundwater Contamination

Many commenters have voiced concerns regarding groundwater contamination. Only one of the identified pathways of groundwater contamination stems directly from well stimulation and its potential effects are overstated in the CCST report. The CCST report discussed a number of potential issues including use of evaporation-percolation ponds and underground injection for produced water disposal, reuse of produced water potentially containing hazardous concentrations of stimulation constituents, and the release of well stimulation constituents via induced fractures, faults, and wells present potential risks for groundwater contamination. Of these, well stimulation contributes only one potential pathway: the migration of stimulation fluids via faults, fractures, and wells.

Based on an analysis of the San Joaquin Basin's geology, CCST suggested that migration via faults, fractures, and wells poses a potential risk for groundwater contamination. However, this risk is overstated in the CCST report. As explained in the DEIR, recent studies have indicated that well failure rates in the Project Area have been significantly reduced over time by improved well construction technologies. Failure rates due to well operations in California Oil and Gas District 4 from 1991 to 2005 ranged from one per 10,000 to one per 60,000 well years, representing an 80% decline from 1991 to 2005. Further, new regulations regarding well stimulation require physical well inspections before commencing the stimulation process. Once stimulation has begun, well pressure must be closely monitored during the treatment operation and terminated immediately if pressure or performance thresholds are exceeded. In light of the declining rate of failures and stringent new regulations, the risk from well leakage is significantly reduced.

Please also see GR Water-1, which addresses potential impacts from the use of sumps, pits and ponds in connection with oil and gas activities, and RTC 2-56, which is an explanation of the EIR's evaluation of potential impacts of the Project related to the disposal of produced water and other Class II wastes.

Induced Seismicity

Commenters raised concerns regarding the potential for well stimulation treatments to induce seismicity. CCST conducted a literature review to assess the risk posed by well stimulation and its effect on net fluid balance, noting that the "lack of reported felt seismicity for hydraulic fracturing in California is consistent with the relatively shallow injection depths and small [fluid] volumes currently employed in California operations." Seismic events have been associated with WST in other parts of the United States, where high volume fracturing uses much greater quantities of water at greater depths. However, as the CCST report documents, seismic events in other states are not relevant predictors of risk of such events in California, where different geologic conditions and WST practices apply. In the SB 4 Final EIR, DOGGR

similarly concluded that "well stimulation treatments and oil and gas extraction themselves do not pose a high risk for inducing felt seismic events." SB 4 EIR at C.2-94–C.2-95.

In addition, DOGGR's SB 4 implementing regulations address potential seismic-related impacts. Section 1785.1 of DOGGR's permanent regulations require monitoring and evaluation of seismic activity in the vicinity of any proposed hydraulic fracturing operation, including an evaluation of any indication of a causal connection between the hydraulic fracturing and an earthquake. Section 1785.1 does not allow any further hydraulic fracturing within a specified radius until DOGGR has completed such evaluation and is satisfied that hydraulic fracturing within that radius does not create a heightened risk of seismic activity. If a seismic event is determined to be a result of WST operation, the WST regulations require that an evaluation be conducted to determine whether surrounding wells have zonal isolation. Post-earthquake evaluation is also required under the WST regulations — if a seismic event is WST related, the WST regulations require a post seismic event evaluation of the mechanical integrity of wells within the 5x radius to determine if any wells have been compromised and prohibit future wells in this area from WST activities until after an evaluation has been completed. Remediation of wells to ensure zonal isolation may also be required by DOGGR.

In addition to the above requirements, the FEIR includes a new mitigation measure which requires seismic monitoring. The potential for induced-seismicity impacts from WST is therefore expected to be less than significant after mitigation. Reducing the potential for induced seismic events to less than significant also reduces the level of potential post-earthquake harm to insignificance.

14: DOGGR Well Count Reconciliation

Commenters have stated that the Draft EIR's projection of future oil and gas activity in the County is inaccurate because the 2014 report of California Oil and Gas Production Statistics by DOGGR states that DOGGR issued 10,122 permits for oil and gas operators statewide in calendar year 2014, and most of the state's oil and gas activity occurs in Kern County. By comparison, the analysis in the Draft EIR includes a Project Description that includes 3,649 total wells per year, of which 2,697 would be producing wells.

As explained in the Draft EIR and further described in Global Responses to Comments 6 and 8, the County used a variety of data resources and reports available from DOGGR, as well as applicants' projections of potential future well activity, to derive the 3,649 and 2,697 well counts included in the Project Description. As explained in those responses, for calendar years up through 2009, the State Oil and Gas Supervisor published Annual Reports that summarized well activity a number of different ways, including by DOGGR district, type of well (e.g., exploration wells were called "prospect" wells, etc.) For calendar years 2010 and 2011, no Annual Report of the State Oil and Gas Supervisor was produced. For calendar years 2012 through 2014, the State Oil and Gas Supervisor issued shorter-form reports that were identified as "preliminary". These preliminary reports contain aggregate, statewide well activity data, but do not show data by DOGGR district (e.g., as explained in the DEIR, District 4 is primarily Kern County but also extends outside the County's boundaries), or by County. The preliminary reports also do not break out the type of

drilling activity (i.e., prospect, oil and gas, or service wells), although the notices required to be sent to DOGGR did include more detailed information.

The 2012 through 2014 DOGGR preliminary reports show that DOGGR receives more notices of planned well activities, but fewer actual well activities are actually completed. Table 7-3 below shows the annual number of notices filed compared to the number of wells drilled in the same year and the following year for the years summarized in the 2012 through 2014 preliminary reports. The number of wells drilled has ranged between approximately 20% and 35% of the number of notices filed in the same or the prior year.[70]

Table 7-3: Statewide Wells Drilled Compared to Notices Filed

Year	Notices Filed[a]	Wells Drilled	Wells Drilled / Notices Prior Year	Wells Drilled / Notices Same Year
2008	9,547 [b]	3,410 [b]	---	36%
2009	6,457 [b]	1,920 [b]	20%	30%
2010	8,845 [b]	2,103 [b]	33%	24%
2011	10,629 [b]	2,294 [b]	26%	21%
2012	9,410 [b]	3,081 [b]	28%	33%
2013	10,479 [c]	2,723 [c]	29%	26%
2014	10,122 [d]	2,087 [d]	20%	21%

[a] Drilling + Rework + Abandonment.
[b] 2012 Preliminary Report, p. 2.
[c] 2013 Preliminary Report, p. 2.
[d] 2014 Preliminary Report, p. 2.

It also should be noted that for all years presented in the Preliminary Reports, the total number of wells drilled statewide was less than the number of wells projected for future oil and gas development activity in Kern County in the Draft EIR. This confirms that the Draft EIR includes a conservative (greater) level of future actual well activity for purposes of completing a comprehensive environmental analysis and requiring appropriate mitigation measures, and also responds to the commenter's request for an explanation of the difference between DOGGR Notices Filed, actual permits completed, and forecast well activities in Kern County.

15: CCST: Hydraulic Stimulation Enabling/Production Inducing

Citing conclusions reached by the California Council on Science and Technology (CCST) in its statewide review of well stimulation treatment (WST), some commenters allege that WST has

[70] Notices of intent to drill ordinarily are cancelled if drilling operations have not commenced within one year after receipt of the notice. See Pub. Res. Code Section 3203; 14 C.C.R. Section 1722.

indirect, growth-inducing effects because it enables production from some wells and fields which may have been uneconomical if WST were not used. Commenters assert that any activities which would not occur but-for WST could have "growth –inducing" effects within the meaning of CEQA Guidelines § 15126.2(d) that were not properly accounted for in this EIR.

As CCST's review demonstrates, WST facilitates approximately 20% of California oil and gas production; that is, approximately 20% of production might become uneconomical if WST were unavailable. See CCST Report, Executive Summary, p. 42. CCST attributed indirect environmental impacts to such WST-enabled production, concluding:

> Hydraulic fracturing or acid stimulation can also incur indirect impacts, i.e., those not directly attributable to the activity itself. Some reservoirs require hydraulic fracturing for economic production. All activities associated with oil and gas production enabled by hydraulic fracturing or acid stimulation can bring about indirect impacts. Indirect impacts of hydraulic-fracturing-enabled oil and gas development usually occur in all oil and gas development, whether or not the wells are stimulated.

CCST Report, Executive Summary, p. 5.

> However, this EIR, which analyzes all oil and gas activities within the Project Area, including WST, already addresses the potential for increased production ("growth-inducing") from WST. As explained in section 5.5 of the DEIR, the growth-inducing analysis examined the number of new production wells that would be drilled as a result of the Zoning Ordinance amendment, including the number of wells which would undergo WST. The projected number of new wells captures all new wells, including those that would not be drilled if WST were unavailable. DEIR at 5-7. The EIR projections ongoing well stimulation activities in the Project Area, and these are included in the assessment of Project impacts. As relevant or requested, the EIR has also included refined projections based on projected levels of well stimulation activities. For example, GR Water-1 addresses the impact that WST fluid surface disposal regulations will have on changes to produced water disposal practices in the Project Area. Based on those assumptions, the DEIR found that the Project would not have significant growth-inducing impacts within Kern County.

Similarly, on a statewide basis, DOGGR's SB 4 EIR regarding WST concluded:

- Growth or changes in the local and state population projections would not occur as a result of the physical activities or employment associated with WST at existing or future oil and gas wells within the State;
- No change in population or employment trends would occur as a result of implementing WST activities; and
- No direct or indirect growth-inducing impacts that exceed current population growth projections and trends would occur as a result of implementing WST activities.

SB 4 EIR, p. 15-2.

Commenters have not pointed to substantial evidence, including evidence of supposed new or forthcoming technological changes, indicating that this EIR's assumptions about growth resulting from the Project are incorrect, or that the conclusions reached do not follow from those assumptions.

16: Mitigation Measures

Several comments requested that mitigation measures include more specific requirements and suggested, and that not doing so would amount to deferred mitigation. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implemented, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR.

With these revisions, the mitigation measures considered in the EIR are legally adequate. An EIR must propose mitigation measures that will minimize the project's significant impacts by reducing or avoiding them. (Pub. Resources Code, §§ 21002, 21100.) "Any action, whether it be part of the project or imposed as a condition of approval, that is designed to avoid, minimize, rectify, or reduce or eliminate a significant environmental impact or to compensate for the impact qualifies as a mitigation measure. (CEQA Guidelines, §§ 15126.4, subd. (a)(1), 15370.) "[A]n EIR need not analyze ""every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects."" [Citation.]" (*Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056.) The agency must ensure that these measures are "fully enforceable" through permit conditions, agreements, or other legally binding instruments. (Pub. Resources Code, §§ 21002, 21081.6(b); CEQA Guidelines, §§ 15002(a)(3), 15126.4(a)(2); *City of Marina v. Bd. of Trustees of the Cal. State Univ.* (2006) 39 Cal.4th 341, 359, 368-69.) Where substantial evidence supports the approving agency's conclusion that mitigation measures will be effective, courts will uphold such measures against attacks based on their alleged inadequacy (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d, 376, 407.)

Mitigation measures must provide enough detail and specificity to assure that they will be properly enforced. (See *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79 [rejecting the City's mitigation measure to expand Muni capacity by paying an unspecified fee at an unspecified time, with an unspecified funding mechanism].) A mitigation plan is sufficient if it identifies methods that will be used to mitigate the impact and sets out standards that the agency commits to meet. (*North Coast Rivers Alliance v. Marin Municipal Water District* (2013) 216 Cal.App.4th 614, 629-630 (*Marin*); see also CEQA Guidelines, § 15126.4, subd. (a)(1)(B) [mitigation measures "may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way"].)

Regarding deferred mitigation, the courts have developed legal principles regarding the extent to which an agency, in concluding that a significant impact will be mitigated to a less than significant level, can rely on a mitigation measure that defers some amount of environmental problem-solving until after project approval. Such deferral is permissible where the adopted mitigation measure both:

- Commits the agency to a realistic performance standard or criterion that will ensure the mitigation of the significant effect; and
- Disallows the occurrence of physical changes to the environment unless the performance standard is or will be satisfied.

(See CEQA Guidelines, § 15126.4, subd. (a)(1)(B) ["measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way"]; *Endangered Habitats League v. County of Orange* (2005) 131 Cal. App. 4th 777, 793-794 [deferral is permissible where the agency commits itself to mitigation and either (1) adopts a performance standard and makes further approvals contingent on finding a way to meet the standard or (2) lists alternative means of mitigating the impact which must be considered, analyzed, and possibly adopted in the future]*; Riverwatch v. County of San Diego* (1999) 76 Cal. App. 4th 1428, 1147-1448 ["the fact the entire extent and precise detail of the mitigation that may be required is not known does not undermine the Final EIR's conclusion that the impact can in fact be successfully mitigated;" such analysis was appropriately deferred where there was "nothing in the record which suggests that the impact cannot be mitigated in the manner described in the Final EIR."].)

For example, in *Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal. App. 4th. 371, 375-376, the Court of Appeal upheld mitigation measures adopted as policies within a hazardous waste management plan. The respondent intended to adopt more specific mitigation measures when individual projects were proposed in the future. The petitioners argued that the mitigation measures were "vague, inconclusive, and even inconsistent." The court disagreed, explaining that the EIR's discussion of mitigation measures was adequate "given the broad, nebulous scope of the project under evaluation." (*Id*. at p. 376) Additionally, the Court found that there was no flaw in the potential inconsistency between different mitigation measures, given that the plan did not embody any site-specific commitments and that the nature of any possible future projects remained speculative. (*Id*. at p. 376-377)

The mitigation measures included in the EIR comply with these requirements.

17: EIR Review Time/Comment Period

A few commenters suggested the 65 calendar day public comment period (20 days beyond the 45-day minimum for EIR comments) was insufficient given the complexity and volume of the EIR and appendices. The Draft EIR was made publicly available, and the public review and comment period commenced, on July 8, 2015, and closed on September 11, 2015, for a total of 65 calendar days.

CEQA Section 21091(a) requires a minimum 45-day public review period for any draft EIR submitted to the State Clearinghouse. Any extension beyond the minimum 45 days is subject to lead agency discretion. The CEQA Guidelines reiterate the 45-day minimum requirement:

> The public review period for a draft EIR shall not be less than 30 days nor should it be longer than 60 days except in unusual circumstances. When a draft EIR is submitted to the State Clearinghouse for review by state agencies, the public review period shall not be less

than 45 days, unless a shorter period, not less than 30 days, is approved by the State Clearinghouse.

CEQA Guidelines § 15105(a); *see also* CEQA Guidelines § 15087(e) ("In order to provide sufficient time for public review, the review period for a draft EIR shall be as provided in Section 15105"); *Gilroy Citizens for Responsible Planning v. City of Gilroy* (2006) 140 Cal. App. 4th 911, 921 n.6 ("When the EIR is submitted to the State Clearinghouse...the review period is 45 days.") The public and agency review and comment period for a Draft EIR should not be longer than 60 days except under "unusual circumstances." No unusual circumstances exist concerning the Draft EIR and the comment period was extended to 65 days. Nothing more is required.

The County acknowledges that the Draft EIR contained thousands of pages, including appendices. However, this is not uncommon or unusual for an EIR. In addition, the CEQA Guidelines make clear that the public comment period length is at the discretion of the lead agency, and only establish the minimum period.

Nothing in CEQA requires anything more than the 45-day minimum comment period. The 65 days provided by the County fully complied with all requirements under CEQA and the CEQA Guidelines.

18: Monterey Shale Recovery in Project Area

In 2011, the Energy Information Administration (EIA)[71] estimated that the Monterey shale contained 15.42 billion barrels of technically recoverable oil. This estimate was based on the areal extent of the play of (1,752 square miles), the assumption that 28,032 wells could be drilled throughout the play, an average recovery rate of horizontal wells at 500 barrels of oil equivalent per day, 250 to 800 barrels of oil equivalents per day for vertical wells; an average ultimate recovery from each well at 550,000 barrels of oil; and the use of completion technologies that have been successfully used in other tight oil plays (i.e. hydraulic fracturing).

A study by David Hughes of oil production data from the Monterey Formation, including geological properties, indicates that the EIA estimate is overstated due to the comparison of the Monterey play to the tight oil production in the Bakken and the Eagle Ford Plays of North Dakota/Montana and southern Texas, respectively. However, geologically, these two plays are very different from the Monterey. The Bakken and Eagle Ford plays are less than a few hundred feet thick and are generally flat-lying, compared to the Monterey, which is much thicker (up to 2,000 feet) and much more lithologically and structurally complex. Also, the Bakken and Eagle Ford plays cover roughly 20,000 to 8,000 square miles, respectively, where the Monterey play encompasses less than 2,000 square miles (Hughes, 2013). In addition, due to its deposition in a rapidly subsiding and tectonically

[71] U.S. Energy Information Administration, *Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays*, July 2011, http://www.eia.gov/analysis/studies/usshalegas/.

active deep marine basin environment, the Monterey shale's lithologic and structural complexity make extrapolation between control points much less predictable compared to these other plays. Moreover, due to its geologic complexity, the target production zones within the Monterey are typically very small in comparison to other more uniform and widespread oil shale deposits currently under development and production (e.g., Bakken, and Eagle Ford shales). Jointly, these factors present technical challenges which make development of the Monterey shale a much more high-risk endeavor compared to these other two plays.

For example, within Kern County, where the Monterey shale is typically present at significantly greater depths than most other oil plays, industry experience has demonstrated that Monterey wells may cost five to ten times the cost of wells completed in other, shallower, oil shale deposits in the same area. Beyond its geologic complexity, the condition of extreme depths and pressures under which the Monterey exists in this area requires use of only the largest drilling rigs available. Operating these large rigs requires the most advanced technologies, including both well control and emission control, and must be operated by only the most experienced drilling crews available. Such requirements present significant additional technological, as well as financial, challenges to production from the Monterey shale.

The average initial productivity of wells in the Monterey shale is only 25-50 percent of that assumed by the EIA estimate, even with fracking and acidization recovery techniques (Hughes, 2013). As discussed, a significant limiting factor of production for the Monterey shale fields is that the formation is restricted to relatively small, and structurally isolated geographic areas, not widespread, contiguous regions of source rock amenable to high tight oil production from dense drilling as assumed by the EIA report. Due to the complex lithology and geologic structure, and limitations in recovery technologies, of the total estimated 500 billion barrels of oil in place, the estimated recovery from the Monterey is only about 2.5 billion barrels (NETL, 2013) , or only approximately 0.5 percent of that estimated by the EIA.

Typically shale energy resources can be extracted economically only by using hydraulic fracturing techniques. Water flooding technology isn't an option in shale plays because the tight oil formations are too dense to permit those water flows. Carbon dioxide can be used to pressure-up an oil well, however, there are limited supplies of that gas to pump underground. Steam injection can boost recovery but is unlikely to be economic due to the large amounts of water required, the energy needed to heat the water, and the related difficulty of obtaining regulatory approval of the additional air emission sources posed by the needed boilers. For the Monterey shale to experience greatly increased development, recovery technologies will have to improve, and 3D seismic analysis and modeling of the formation will have to be conducted (AAPG, 2012). Technical challenges to production inherent in the Monterey shale may be overcome by improved 3D modeling of the formation in order to better define specific target production zones. Such modeling would provide the detailed lithostratigraphic and structural information needed to better focus hydraulic fracturing efforts, which in-turn would lessen the extent of hydraulic fracturing needed to reach and produce oil from these targeted zones.

Currently, studies of the Monterey shale are being conducted in an effort to improve recovery because recovery of this resource has been difficult due to complex, highly faulted, and structurally

disturbed stratigraphic framework. Typical flowrates from the largely vertical and non-fracked wellbores that specifically target the Monterey shale have been much less than expected. Companies like Schlumberger are using proprietary software to evaluate the reservoir potential and to provide an enhanced technical basis to support drilling and infrastructure. Their model uses a basin-scale 3D earth model that characterizes heterogeneity of the reservoirs to provide guidance on placement of wells, completion methods, and drilling techniques in order to maximize recovery (Redden, 2012). In addition, Professor Richard Behl, California State University, Long Beach, heads the Monterey and Related Sedimentary Rocks (MARS) Project, focused on investigating stratigraphic, geochemical, diagenetic, and structural aspects of the Monterey Formation. These studies are being conducted in hopes of developing a model of lithologic composition that can be predictive of mechanical stratigraphy and fracturability in different parts of the formation. Results of such advanced 3D modeling techniques, and studies such as the MARS Project, may eventually provide the additional detailed subsurface information which will allow more focused and targeted future development of the Monterey shale using horizontal or directional drilling techniques, as opposed to the typically vertical well bores that are currently used. It should be noted that such a shift in drilling technology for the Monterey shale would allow multiple wells to be drilled from a single pad, resulting in greatly reduced surface disturbance through lessened infrastructure requirements.

In sum, the evidence demonstrates that access to potential reserves of the Monterey shale is limited by geological conditions and technological constraints. The current methodological limitations and the EIA's downward revision of Monterey reserves indicate that unlocking the full potential of the Monterey shale is unlikely in the reasonably foreseeable future, even with improved recovery technology and better understanding of the formation.

19: Enforcement of Mitigation Measures and Ordinance

Several commenters questioned how the County would enforce the Amended Ordinance and the EIR mitigation measures. As discussed in Draft EIR Chapter 3, Project Description, the Project's proposed Amended Zoning Ordinance would establish permit procedures as well as Implementation Standards and Conditions that oil and gas permit applicants will be required to satisfy as a condition of permit approval, including mandatory compliance with the mitigation measures identified in this EIR. The County has broad authority to enforce its zoning regulations. The source of this broad authority is the police power conferred on the County by Article XI, Section 7 of the California Constitution, which expressly provides that the County may "make and enforce within its limits all local police, sanitary and other ordinances and regulations not in conflict with the general laws." The County implements its enforcement powers through revocation actions, administrative penalties, nuisance abatement actions, criminal sanctions and injunctive relief authorized by the County Code. In addition, the County may enforce mitigation requirements pursuant to CEQA. Each of these enforcement mechanisms are discussed below.

Zoning Ordinance – Revocation Actions

The Zoning Ordinance (Title 19 of the Kern County Ordinance Code) provides for general and specific provisions for enforcement and penalties. The General Provisions Chapter 19.02 of the Zoning Ordinance, Section 19.02.070 Violation-Penalty, provides that any person, firm or corporation using any building, structure or parcel of land in violation of any provision of this title is guilty of a misdemeanor and may be prosecuted to the fullest extent of the law under Chapter 19.114 of this title. Unauthorized activities would be subject to the provisions in Chapter 19.114 Enforcement and Penalties, which provides for the process and authority for inspection, complaints, noticing requirements, administrative penalties, injunctive relief, abatement proceedings and the collection of costs for the abatement proceedings.

Oil and Gas Conformity Reviews, Minor Activities issued, and approved Conditional Use Permits for covered oil and gas activities would be subject to Section 19.102.020 Permit Revocation and Modification, which provides that the permit may be revoked or modified by the official or decision-making body that originally approved the permit by the same procedure under which the permit was issued for any of the following causes: (A) that any term or condition of the permit, conditional use permit, variance, or zone modification has not been complied with; (B) that the property or portion thereof subject to the permit, conditional use permit, variance or zone modification is used or maintained in violation of any statute, ordinance, law or regulation; (C) that the use for which the permit, conditional use permit, variance or zone modification was granted has been so exercised as to be detrimental to the public health, safety or as to constitute a nuisance; or (D) that changes in technology or in the type or amount of development in the vicinity of the use or other good cause warrants modifications of the conditions of operation or imposition of additional conditions of operation to assure that the use remains compatible with existing and potential uses of other property within the general area in which the use is located.

Under these provisions, an Oil and Gas Conformity Review or Minor Activity Review could be revoked or amended, with appropriate due process notice, by the Planning Director. The action would include timeframes for the implementation of corrective measures for discontinuing the activity and any remediation, restoration or abandonment required by conditions, or by State and/or Federal law.

As provided in Chapter 19.102.060 – Permit Denial – Appeal, if an Oil and Gas Conformity Review or Minor Activity Review is revoked or amended by the Planning Director, the applicant may then file an appeal, with the established fee, within seven (7) calendar days of the action and the matter will be heard before the Planning Commission within 30 days. No public hearing notice shall be required (Section 19.102.060 B.) No appeal rights are provided for the public to file the appeal The Planning Commission may reverse or affirm the action of the Planning Director and that action is considered a ministerial action. The determination by the Planning Commission can only be based on compliance with the conditions, and standards in the zoning ordinance. Conditions include all required mitigation measures under the California Environmental Quality Act.

The decision of the Planning Commission may be appealed ,with appropriate fees, by either the applicant or a member of the public for a hearing before the Board of Supervisors within fourteen (14) calendar days from and including the date of the decision (Section 19.102.160 D and 19.102.170.) A noticed public hearing, including appropriate notices to the applicant for a

revocation action, is required and the Board can take action on the same ministerial findings of facts regarding compliance with conditions and standards in the ordinance title and timeframes for implementation of a revocation or corrective actions. The action by the Board of Supervisors is final.

The revocation of a Conditional Use Permit would require a noticed public hearing, with notice to the applicant, before the Planning Commission with appeal by either the applicant or member of the public to the Board of Supervisors. If the original Conditional Use Permit was approved through an appeal process by the Board of Superiors, then the revocation hearing would be conducted only at the Board of Supervisors as they are the decision making body that approved the permit (19.102.020). The action by the Board of Supervisors is final.

Administrative Penalties

Pursuant to County Code section 8.54.040, any person that violates any provision of the County zoning regulations may be issued an administrative citation for each day such violation is allowed to continue. Since the Amended Zoning Ordinance would require permit applicants to comply with each Implementation Standard and Condition, any failure to maintain compliance would constitute a continuing administrative violation subject to penalty for each day the violation is allowed to continue. Administrative penalties for a violation of the County zoning regulations are assessed as a fine not to exceed $250 for the first violation, $500 for the second violation, and $1,000 for each additional violation thereafter within one year from the date of the first violation. Any County public official may also petition the Board of Supervisors to increase the fine amount, which the Board may approve in its discretion. Failure to pay an administrative penalty is subject to a civil action initiated by the County to collect the unpaid fines with interest, as well as to seek reimbursement of the County's costs to enforce, investigate, establish and collect such fines.

Nuisance Abatement

Pursuant to County Code section 19.114.090, any building or structure set up, erected, constructed, altered, enlarged, converted, moved or maintained in a manner contrary to the County's zoning regulations, or any use of land, building or premises conducted, operated or maintained in violation of the County's zoning regulations, constitutes a public nuisance subject to abatement in accordance with County Code chapter 8.44, Public Nuisances. Since the Amended Zoning Ordinance would require permit applicants to comply with each Implementation Standard and Condition, any failure to maintain compliance with any standard or condition that regulates the construction, operation or maintenance of permitted oil and gas facilities would constitute a public nuisance. Upon a reasonable determination that a public nuisance exists, the County must notify the responsible party of the offending use or condition constituting a nuisance and order that it be corrected or abated within a reasonable time, as determined by the County. If, however, the County determines that the offending use or condition presents an *immediate* threat or danger to the public health, safety or welfare, the County may order summary abatement of the nuisance and require the responsible party to take immediate action to eliminate the hazardous use or condition. Otherwise, the permit holder may request a public hearing to present evidence to the Board of Supervisors that demonstrates why the use or condition does not constitute a nuisance. If a hearing is not requested, or if a hearing is

conducted an the nuisance determination is upheld, the County may abate the nuisance without further notice and commence a civil action against the responsible party to seek reimbursement of the County's costs of abating the nuisance. Moreover, any materials obtained from the nuisance abatement may be sold at a noticed public auction.

Injunctive Relief

Pursuant to County Code section 19.114.080, the County may seek injunctive relief in superior court to prohibit any violation of the County's zoning regulations, including the Amended Zoning Ordinance (and its Implementation Standards and Conditions). Injunctive relief may be sought at any time, including prior to the issuance of, or compliance with, a notice of violation if the County determines that an anticipated violation of the County zoning regulations might injure the public health or safety.

Enforcement Under CEQA

In addition to the zoning enforcement mechanisms set forth in the County Code, as described above, CEQA provides the County with a mechanism to remedy a permit holder's failure to implement mitigation measures required by permit. If the County approves the Project, it will be required to adopted a Mitigation Monitoring and Reporting Program (MMRP) pursuant to Public Resources Code § 21081.6 in order to ensure implementation the mitigation measures identified in this EIR. CEQA also requires the County to ensure that the Project mitigation measures are made fully enforceable as conditions of future oil and gas development activities in the County. If approved, the Amended Zoning Ordinance would establish Implementation Standards and Conditions that require permit applicant's to comply with the mitigation measures identified in the EIR. Permit applicants that fail to implement a mitigation measure will be subject to "work stop" orders and/or permit revocation. Moreover, once a mitigation measure has been adopted, it cannot be cancelled or modified unless the County first reviews the ongoing need for the measure, stating the reasons for modifying or deleting the measure, and supporting its decision with substantial evidence demonstrating that the measure is unnecessary or otherwise infeasible. (*See Katzeff v. Department of Forestry and Fire Protection* (2010) 181 Cal.App.4th 601, 604; *Mani Bros. Real Estate Group v. City of Los Angeles* (2007) 153 Cal.App.4th 1385, 1388; *Napa Citizens for Honest Gov't. v. Board of Supervisors* (2001) 91 Cal.App.4th 342, 359.) In addition, additional CEQA review may be required per Public Resources Code section 21155 if an adopted mitigation measure is modified in manner that would increase the severity of an existing significant impact, or allow a new significant impact to occur.

Criminal Sanctions

Pursuant to County Code section 19.114.060, any person who causes or permits a violation of any County zoning regulation commits a misdemeanor that, upon conviction, is punishable by a maximum fine of $1,000 or by imprisonment for up to six months, or both. In addition, each day the violation continues constitutes a separate offense. Accordingly, per the County Code, the County may stack cumulative punishments for each day a zoning violation is continued, a practice upheld by the courts in *People v. Djekich* (1991) 229 Cal.App.3d 1214, 1224. Since the Amended Zoning

Ordinance would require permit applicants to comply with each Implementation Standard and Condition, any failure to maintain compliance would constitute a continuing misdemeanor violation subject to criminal prosecution for each day such violation is allowed to continue.

Through the mechanisms described above, the County has several tools that it can use to enforce implementation of each mitigation measure identified in this EIR.

20: Recirculation

Several comments state that the EIR should be recirculated. Some of these comments are based on general assertions that the EIR is inadequate, and others are linked to analysis in specific resource areas. Recirculation is not required here. The EIR presents an exhaustive review of the potential environmental impacts of the project, including activities to be undertaken pursuant to the proposed ordinance. Additionally, there has been no new information added to this EIR that would trigger the need to recirculate for further public comment.

CEQA requires recirculation of an EIR only when "new significant information is added to the EIR" after the EIR is circulated for public review but before the EIR is certified. CEQA Guidelines § 15088.5 (a); see also CEQA § 21092.1. "Significant new information" can include the following disclosures : (1) a new significant environmental impact that would result from the project or from a new proposed mitigation measure; (2) a substantial increase in the severity of an environmental impact unless mitigation measures are adopted that reduce the impact to a level of insignificance; (3) a feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the project's environmental impacts, but the project's proponents decline to adopt it; or (4) when a draft EIR is so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. CEQA Guidelines § 15088.5(a).

However, "new information" added to the EIR is not "significant unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement." CEQA Guidelines § 15088.5 (a); *Laurel Heights Improvement Assn. of San Francisco, Inc. v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1129; *Center for Biological Diversity v. Cal. Dept. of Forestry and Fire Protection* (2014) 232 Cal.App.4th 931, 949. When the Legislature drafted the requirements for recirculating an EIR, the Legislature intended to balance the goal of promoting meaningful public participation with the goal of protecting against endless rounds of revisions and recirculation. *Laurel Heights Improvement Assn. of San Francisco, Inc. v. Regents of the Univ. of Cal.* (1993) 6 Cal.4th 1112, 1132. "Recirculation was intended to be an exception, rather than the general rule." *Id.*

Recirculation is <u>not</u> required when new information is added that "merely clarifies or amplifies or makes insignificant modifications in an adequate EIR." CEQA Guidelines § 15088.5(b). In response to comments received on the DEIR, this EIR includes additional information to clarify information or make minor modifications to the EIR. For example, a comment suggested that the EIR should be recirculated to provide adequate information specifically concerning hydrology. GR Water-01

through GR Water-08, as well as Appendix E-1, Final Water Supply Assessment, provide information responsive to this comment. However, this information does not rise to the level of "significant information" that would warrant recirculation.

The EIR includes additional new appendices which contain updated or clarifying information on air quality, water supply, water quality, noise and vibration. Other information is included in Section 7.2.1 with the global responses. The EIR also includes new and revised mitigation measures, and a revised summary of impacts and significance conclusions (see Sec. 7.1.4). While these additions to the EIR provide valuable information by which to evaluate the environmental impacts of the Project, and include clarification and insignificant modifications to the EIR, they do not trigger recirculation under the standard articulated in the Guidelines or in *Laurel Heights.*

This determination is consistent with a line of cases in which courts have considered whether certain types of new information warrant recirculation and determined they did not. *Silverado Modjeska Recreation & Park Dist. v County of Orange* (2011) 197 Cal.App. 4th 282 (holding that an EIR need not be recirculated because of new information about the proximity of sensitive toad larvae to the project site when the earlier analysis had assumed that the toad was present near the project); *Clover Valley Found. V. City of Rocklin* (2011) 197 Cal.App. 4th 200 (finding that specific information added to the final EIR about cultural resources sites added narrative detail about the resources' characteristics but did not add new substantive information affecting the EIR's findings relating to significant impacts); *Marin Mun. Water Dist. v KG Land Cal. Corp.* (1991) 235 Cal.App.3d 1652 (EIR on district's moratorium on water hookups did not need to be recirculated because of new information that it would be extended by additional 5 years); *Sierra Club v Gilroy City Council* (1990) 222 Cal.App. 3d 30 (preparation of supplemental EIR was unnecessary in light of incorporation of study and mitigation measures concerning newly discovered species on project site in final EIR, which was circulated for 2 weeks for public and agency review), disapproved on other grounds by *Western States Petroleum Ass'n v Superior Court* (1995) 9 Cal.4th 559.

Like the examples cited above, the information added to the EIR does not reveal any potentially new significant impacts which had not been previously analyzed. Similarly, information in the EIR demonstrates that the new and revised mitigation measures are feasible and will adequately mitigate impacts discussed in the EIR (see section 7.1.4 and discussion related to the revised mitigation measures in the respective GRs). Recirculation is not required here.

21: Use of Best Available Information

Several commenters have questioned whether the County should certify an EIR while ongoing scientific studies of oil and gas extraction activities, especially WST, are underway. Other have claimed that a different expert judgement about an issue considered in the EIR renders the EIR legally inadequate. The CEQA Guidelines expressly address these issues:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of

> what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

CEQA Guidelines § 15151. *See also Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal. App. 4th 214, 234. Courts recognize, for example, that perfection would be an impossible standard for lead agencies to satisfy under CEQA, especially for major projects. *Kings County Farm Bureau v. Hanford* (1990) 221 Cal. App. 3d 692, 727 ("It is doubtful that any agency, however objective, however sincere, however well-staffed, and however well-financed, could come up with a perfect environmental impact statement in connection with any major project.").

In addition, CEQA does not require lead agencies to "conduct every test or perform all research, study, and experimentation recommended or demanded by commenters." CEQA Guidelines § 15204(a). Rather, a lead agency must "use its best efforts to find out and disclose all that it reasonably can" about potential environmental impacts. CEQA Guidelines § 15144; *see also Planning & Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal. App. 4th 210, 253 ("When, as here, an EIR must address controversial matters that resist reliable forecasting, CEQA requires only that the agency use its best efforts to find out and disclose all that it reasonably can, and that the EIR display adequacy, completeness, and a good faith effort at full disclosure."). The primary standard in this regard is reasonableness — "CEQA does not demand what is not realistically possible, given the limitation of time, energy and funds." *Saltonstall v. Sacramento* (2015) 234 Cal. App. 4th 549, 583. If, for example, certain data or projections are not readily available, the EIR is not necessarily defective due to a failure to include such data or speculate about it. *Id.* ("'Crystal ball' inquiry is not required.").

Although it may be the case that reasonable experts disagree as to the analysis presented in the DEIR, the relevant question is whether the DEIR adequately supports the County's findings:

> Disagreements among experts do not make an EIR inadequate. Technical perfection is not required; we look not for an exhaustive analysis but for adequacy, completeness, and a good faith effort at full disclosure … The issue is not whether the studies are irrefutable or whether they could have been better. The relevant issue is only whether the studies are sufficiently credible to be considered as part of the total evidence that supports the findings.

Eureka Citizens for Responsible Government v. Eureka (2007) 147 Cal. App. 4th 357, 371–372; *see also Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 28 ("The court must uphold an EIR if there is any substantial evidence in the record to support the agency's decision that the EIR is adequate and complies with CEQA").

This EIR satisfies that above standards, as it represents a good faith effort at full disclosure of the potential environmental impacts of the Project, and contains sufficient information to support the analysis and conclusions.

22: Compliance with Regulations as CEQA Mitigation

Some commenters questioned whether compliance with regulatory requirements can be a CEQA mitigation measure. Mitigating a project's contribution to cumulative impacts can be achieved through reliance on some prior plan or program, and/or the EIR prepared for a prior plan or program, that already addresses cumulative impacts in a specified area. The CEQA Guidelines contain several variants on this approach:

> CEQA Guidelines § 15064(h)(3): "A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. When relying on a plan, regulation or program, the lead agency should explain how implementing the particular requirements in the plan, regulation or program ensure that the project's incremental contribution to the cumulative effect is not cumulatively considerable."
>
> CEQA Guidelines § 15130(d): "Previously approved land use documents, including, but not limited to, general plans, specific plans, regional transportation plans, plans for the reduction of greenhouse gas emissions, and local coastal plans may be used in cumulative impact analysis. A pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference pursuant to the provisions for tiering and program EIRs. No further cumulative impact analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the Lead Agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequate addressed, as defined in section 15152(f), in a certified EIR for that plan."[72]
>
> CEQA Guidelines § 15130(e): "If a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then the EIR for such a project should not further analyze that cumulative impact, as provided in Section 15183(j)."

[72] "Adequately addressed" means that the cumulative impacts have been mitigated or avoided as the result of the prior first-tier EIR, or have been "examined at a sufficient level of detail in the prior [EIR] to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project." CEQA Guidelines § 15152(f)(3).

> CEQA Guidelines § 15152(f)(1): When a project-specific EIR or negative declaration is "tiered" from a prior EIR for a general plan, policy or program, and the "lead agency determines that a cumulative effect has been adequately addressed in the prior EIR, that effect is not treated as significant for purposes of the later EIR or negative declaration, and need not be discussed in detail."
>
> CEQA Guidelines §15183(j): "When a project is consistent with the development density established by existing zoning, community plan or general plan policies for which an EIR was previously certified, "[i]f a significant offsite or cumulative impact was adequately discussed in the prior EIR, then this section may be used as a basis for excluding further analysis of that offsite or cumulative impact."

The broad range of plans, policies, programs and documents cited in these provisions – especially the list in CEQA Guidelines § 15064(h)(3) (water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas emissions) – embraces many of the types of cumulative impacts addressed in EIRs.

Consistent with these CEQA Guidelines, courts have upheld reliance on existing general plans, water, air quality or traffic plans and their prior EIRs that analyzed future projects and determined that the cumulative impacts of projects complying with the plan will be less than significant. *See, e.g.*, *Preserve Wild Santee v. City of Santee*, 210 Cal. App. 4th 260, 276–79 (2012); *CBE*, 103 Cal. App. 4th at 114–15. Previously adopted plans, policies, programs, land use documents and their respective EIRs may be incorporated by reference and relied on in the proposed project EIR, so long as they are sufficiently comprehensive to provide the cumulative impact analysis for the proposed project. *Las Virgenes Homeowners Federation v. County of Los Angeles* (1986) 177 Cal. App. 3d 300.

Lead agencies may also rely on other regulatory problems that can provide comparable assurance that each project will address its contribution to a cumulative impact. To the extent that compliance with other regulatory programs will avoid or reduce significant environmental impacts, CEQA authorizes reliance on those regulatory programs. *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal. App. 4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance"); *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal. App. 4th 214, 243 ("Complying with government regulations as a mitigation measure is not an improper deferral"). The lead agency may presume that other agencies charged with enforcing environmental regulations will do so. *Towards Responsibility in Planning v. San Jose* (1988) 200 Cal. App. 3d 671, 680 ("City is not obliged to speculate about effects which might result from violations of its own ordinances or water quality standards set by other agencies"); *Rominger v. Colusa* (2014) 229 Cal. App. 4th 690, 728 (challengers offered "no evidence to suggest that it would be unreasonable to expect" compliance with statewide regulations); Cal. Evidence Code § 664 ("It is presumed that official duty has been regularly performed").

Ag-1: Agricultural Impacts and Farmland Mitigation Program

Several commenters suggested that the mitigation program for impacts to prime farmland, farmland of statewide importance, or unique farmland ("Farmland") was inadequate.

The mitigation measures will ensure that any active Farmland that is converted by future oil and gas exploration and extraction activities authorized by the Project over its 25-year life span are mitigated at a ratio of 1:1. (DEIR at pp. 4.2-18, 4.2-19.) The DEIR's analysis shows that this mitigation program will reduce the impacts on Farmland to a level that is less than significant. (DEIR at p. 4.2-19.)

Specifically, under the mitigation program required in the DEIR, prior to conducting any ground disturbing activity, the Applicant must submit to the County written evidence of completion of one or more of the following measures to achieve a 1:1 mitigation ratio:

a. Funding and/or purchasing agricultural conservation easements or similar instrument acceptable to the County (to be managed and maintained by an appropriate entity).

b. Purchasing of credits for conservation of agricultural lands from an established agricultural farmland mitigation bank or an equivalent agricultural farmland preservation program managed by the County.

c. Restoring agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment.

d. Participating in any agricultural land mitigation program adopted by Kern County that provides equal or more effective mitigation than the measures listed above.

Mitigation lands shall meet the definition of Prime Farmland, Farmland of Statewide Importance, and/or Unique Farmland, as defined by the California Department of Conservation, and be of similar or higher agricultural quality as the disturbed lands. Completion of the selected measure or, with the Kern County Planning and Community Development Director's approval, a combination of measures, are to occur on qualifying land in Kern County. If qualifying lands cannot be found in Kern County, upon written application to the County, the mitigation lands may be located within the San Joaquin Valley (San Joaquin, Stanislaus, Merced, Fresno, Madera, Kings, Tulare, or Kern County) or outside the San Joaquin Valley with written evidence that the same or equivalent crops can be produced on the mitigation land. (DEIR at p. 4.2-19.)

Mitigation is only required for the conversion of "active" Farmland, which is defined as land that has been actively farmed 5 years or more out of the last 10 years. (DEIR at p. 4.2-19.) This distinction is consistent with the FMMP's Important Farmland Categories. (California Department of Conservation 2015.) Specifically, lands considered Prime, Farmlands of Statewide Importance, or Unique Farmlands must have been used for irrigated agricultural production at some time during the four years prior to the land's classification.

It is also important to note that this distinction between active and inactive farmland is justified because the environmental impact concerns the conversion of actively-cultivated agricultural land to land that is temporarily used for oil and gas exploration. Unlike the conversion of land for residential or commercial development, the land that is converted for this purpose is not lost forever; the land can be farmed again in the future. Because it is a temporary loss in agricultural production, the mitigation efforts focus on replacing the active agricultural land lost with land that can grow the same or equivalent crops. (DEIR at p. 4.2-19). This comports with the requirement that mitigation measures bear a "rough proportionality" to the Project's actual adverse impacts. (See CEQA Guidelines, § 15126(a)(4)(A), (B) [citing *Nollan v. California Coastal Com'n* (1987) 483 U.S. 825, 837; *Dolan v. City of Tigard* (1994) 512 U.S. 374, 391;*Ehrlich v. City of Culver City* (1996) 12 Cal.4th 854, 866-877)].)

While comments have questioned the DEIR's methods of quantifying the amount of converted farmland during the next 25 years as a result of the Project, this is simply an estimation of potential Farmland that could be converted and does not limit the actual amount of farmland that will be mitigated over the life of the project. In other words, mitigation is not limited to a maximum acreage based on the overall estimate of land that may be converted; instead, specific mitigation acreage for each activity will be based on a 1:1 ratio and determined at the time future oil and gas exploration and extraction activities occur. The mitigation of active Farmland impacts at a ratio of 1:1 will reduce the impact below a level of significance.

Courts have supported application of a 1:1 mitigation ratio for farmland conversion. (See *Building Industry Assn. v. County of Stanislaus* (2010) 190 Cal.App.4th 582, 591-593 [upholding the county's Farmland Mitigation Program (FMP), which required projects converting agricultural land to non-agricultural use to "replace" agricultural land at a 1:1 ratio with agricultural land of equal quality located in the county]; *Citizens for Open Government v. City of Lodi (2012)* 205 Cal.App.4th 296, 324 [finding that conservation easements on 40 acres of farmland "would minimize and substantially lessen" the impact of the conversion of 40 acres of prime farmland]; see also *Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230, 236-238 [finding offsite mitigation to be feasible and noting that the Department of Conservation advocated for a 1:1 mitigation ratio and called this a "common and appropriate means of mitigating the loss of prime farmland"].)

The fact that Kern County has yet to adopt an agricultural land mitigation program is inconsequential because "the success or failure of mitigation efforts" do not depend on this program. (*Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 281.) A County-adopted mitigation program is one of several available mitigation options. Moreover, the mitigation will occur over the 25-year life span of the Project, a significant amount of time in which the County could adopt such a program. This same reasoning applies to the current lack of a mitigation bank in Kern County. (See *Endangered Habitats League v. County of Orange* (2005) 131 Cal. App. 4th 777, 793–794 [deferral is permissible where the agency commits itself to mitigation and lists alternative means of mitigating the impact which must be considered, analyzed, and possibly adopted in the future].) Finally, specific information about who will hold and manage future conservation easements used as mitigation for the Project is not legally required in the DEIR. (See *Riverwatch v. County of San Diego* (1999) 76 Cal. App. 4th 1428, 1147-1448 (*Riverwatch*) ["the fact the entire

extent and precise detail of the mitigation that may be required is not known does not undermine the Final EIR's conclusion that the impact can in fact be successfully mitigated.") In *Riverwatch*, it was appropriate to defer such analysis because there was "nothing in the record which suggests that the impact cannot be mitigated in the manner described in the Final EIR." (*Ibid.*) Here, there is no indication that mitigation at a ratio of 1:1 cannot occur by one of the four methods laid out in the EIR. To the contrary, substantial evidence supports the County's selection of the alternative mitigation methods, each of which could achieve the same mitigation goal of preserving agricultural land at a 1:1 ratio.

Ag-2: Rangeland

Some commenters suggest that the DEIR impermissibly failed to analyze the impacts of the Project on rangelands. The DEIR included discussion of agricultural impacts, inclusive of grazing and rangelands:

> The evaluation of possible impacts to agricultural resources included the review of the Kern County General Land Use Plan and zoning information, the MBGP, and the most current DOC, Division of Land Resource Protection, Important Farmland data, and Kern County's Williamson Act data. Agricultural land conversion associated with oil and gas exploration and production operational activities related to the Project were predicted based on the anticipated land disturbance associated with anticipated oil and gas development described in Appendix F, and compared to the significance thresholds. The methodology used to evaluate potential agricultural conversion is described in detail in Appendix H.

DEIR, p. 4.2-15.

The DEIR indicated that there are approximately 1,869,954 total acres of FMMP lands within the project area, of which 982,166 acres are grazing/rangeland. DEIR, p. 4.2-4; See also DEIR App. H - Farmland Conversion Study, pp. 3, 10 (Kern County has approximately 2,317 square miles of rangeland). To analyze impacts of oil and gas operations on agriculture, agricultural land types were grouped into categories of crop types that would be similarly impacted. DEIR App. H–Farmland Conversion Study, p. 10. The "uncultivated" crop type category included dairy farms, grazing range, and other agricultural production that is not dependent on cultivated land. Projected over the next 25 years, the Farmland Conversion Study relied on by the DEIR found that approximately 832 acres of uncultivated lands would be converted by the Project by 2040. DEIR App. H–Farmland Conversion Study, p. 21.

The DEIR also noted the cumulative impacts to rangeland. DEIR, p. 4.2-25. Specifically, the Agricultural and Forest Resources Analysis relied on the Kern County General Plan, which forecasted "a net loss of 55,000 acres of grazing lands in Kern County based on land use conversions consistent with existing land use plans, which would further reduce Kern County's agricultural lands." Ibid.

CEQA requires that an EIR serve as an informational document. Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal.3d 376, 391 ("[t]he legislature has made clear

that an EIR is 'an informational document' and that '[t]he purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment'"). The DEIR has provided sufficient information about potential impacts to rangeland from the Project.

CEQA does not require a lead agency to specifically include rangeland in its agricultural resources analysis or to mitigate for impacts to rangeland. In 1993, the Legislature tasked the Resources Agency with creating an appendix to the CEQA Guidelines that would propose methods to analyze significant effects on the environment from conversion of "agricultural land." Pub. Resources Code, § 21095. Pursuant to Public Resources Section § 21095, the Resources Agency produced a set of questions on agricultural resources in Appendix G that agencies must consider when approving a project. Under Appendix G, when considering the environmental effects of a project, an agency should evaluate whether the project would:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

d) Result in the loss of forest land or conversion of forest land to non-forest use?

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The definition of "Farmland" in subdivision (a) comports with CEQA's definition of "Agricultural land," which is limited to land that is defined by the U.S. Department of Agriculture land inventory and monitoring criteria as prime farmland, farmland of statewide importance, or unique farmland. See Pub. Resources Code, § 21060.1.

The Department of Conservation has adapted the definitions from the U.S. Department of Agriculture as follows:

- **Prime Farmland (P):** Irrigated land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been irrigated for production of irrigated crops at some time during the four years prior to the mapping date.

- **Farmland of Statewide Importance (S):** Irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been irrigated for production of irrigated crops at some time during the four years prior to the mapping date.

- **Unique Farmland (U):** Lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

Grazing land, a synonym for rangeland, is defined separately by the Department of Conservation as follows:

- **Grazing Land (G):** Land on which the existing vegetation is suited to the grazing of livestock. This category is used only in California and was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Thus, CEQA does not contain a mandate to consider whether a project will result in the conversion of rangeland. The lead agency must only consider the possible conversion of the statutorily defined "agricultural land." The DEIR has evaluated this impact. DEIR at pp. 4.2-16–4.2-19.

Some comments have cited *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503 (*Save Panoche Valley*), for the proposition that agencies are required to assess impacts to rangelands as part of the agricultural impact analysis. The case does not stand for this proposition. Rather, in *Save Panoche Valley* the court affirmed the adequacy of a mitigation measure included in the FEIR to reduce the impacts of canceling Williamson Act contracts covering 6,953 acres of land. Since many of these Williamson Act contracts protected rangeland, the mitigation measure in the EIR required the applicant "to create agricultural conservation easements that would either cover 4,563 acres of rangeland or 285 acres of high quality cropland." *Id.* at 528. The project applicant was also required to restore the land to its original state in 30 years. According to the court, "[t]hese mitigation measures adequately address the potential impacts on agricultural resources, including the impact on grazing land, and adequately satisfy the requirements set forth under the CEQA Guidelines." *Id.* at p. 529. *Save Panoche Valley* does not hold that such analysis or mitigation is mandated by CEQA anytime there are potential impacts to rangeland; rather the case held that the analysis and mitigation that was included in the FEIR to address Williamson Act contract cancelations was supported by substantial evidence.[73]

[73] The court also considered a separate mitigation measure that was proposed by the applicant: allowing sheep to graze on the land to offset any conversion impacts to grazing land. The court determined that this mitigation

Some comments have also cited *Twaine Harte Homeowners Assc. v. County of Tuolomne* (1982) 138 Cal.App.3d 664 (*Twaine Harte)*. This case considered the adequacy of an EIR prepared for a General Plan Amendment that included, among other things, a land use designation for "Rangeland" that allowed for low-density residential development. The court found that the General Plan designation was appropriate and the EIR adequately analyzed this issue. Accordingly, neither *Save Panoche Valley* nor *Twaine Harte* stands for the proposition that an agency must mitigate for impacts to rangelands.

Occasionally, impacts on grazing are relevant given the nature of the project and federal agency partner's participation. On Kern County and BLM's Alta East West Project, for example, grazing impacts were considered due to BLM's California Desert Conservation Area (CDCA) Plan. See Alta East Wind Project DEIR/EIS, § 4.7. However, the DEIR/EIS noted that "[t]he County's CEQA Implementation Document and Environmental Checklist does not provide specific significance criteria for livestock grazing; therefore, no significance determination has been made with respect to this resource." (*Id*. at p. 4.7-1) Similarly, impacts to grazing were analyzed in the DEIR for the Eastern Kern County Property Acquisition, which proposed to create an off-roading vehicle area on land included in the CDCA. See Eastern Kern County Property Acquisition DEIR, § 4.2.1. Here, however, the Project does not involve a federal agency partner and this type of analysis is not required.

Further, the mitigation measures required in the DEIR to protect biological resources will provide de facto protection for rangeland. Specifically, buffers placed around San Joaquin kit fox dens pursuant to MM 4.4-6 will also serve to protect rangeland since kit fox dens usually occur in rangeland areas. These protections will be occurring in the Western Subarea. See DEIR at p. 4.4-195 (describing San Joaquin kit fox habitat). Additionally, protection of the Eastern Subarea will occur due to buffer zones created by MM4.4-7 around American badger dens. See DEIR at p. 4.4-195 (describing American badger habitat). Of the 982,166 acres of grazing land contained in the Project Area, 585,011 acres are in the Western Subarea and 338,500 acres are in the Eastern Subarea. Only 58,655 are contained in the Central Subarea. See DEIR at p. 4.2-4.

The DEIR properly disclosed the project's potential impacts to agricultural resources, inclusive of grazing and rangelands. CEQA does not require more.

Air-1: Air Permitting, Indirect Sources, and Emission Estimates

Several comments state that oil and gas production operations are a large source of organic compound emissions in the County, suggest that the project's air quality impacts are insufficiently

measure was adequate, even if the project resulted in the land being unusable for cattle grazing. *Id.* at 529. The EIR specifically noted that this mitigation measure was proposed by the applicant, it was not required mitigation, and that any conversion of grazing land should not be analyzed since grazing land is not "Farmland" as defined by the FMMP. See Panoche Valley Solar Farm Project FEIR at p. C.3-17.

mitigated, that reliance on existing air quality regulations is inadequate mitigation, and that mitigation is improperly deferred. The comments further state that the DEIR does not provide adequate mitigation for emissions from new stationary sources and indirect sources of emissions that occur as a result of activities undertaken pursuant to the Project.

As explained in detail below, full mitigation of air quality impacts is achieved by mitigation measures imposed by the DEIR, as well as by compliance with a wide range of regulatory requirements.[74] The DEIR considers potential impacts from all new activities and equipment undertaken in accordance with the Project and adequately mitigates the potential impacts from all Project sources.[75]

Comments also state that certain of the individual air quality mitigation measures, such as compliance with applicable air quality regulations, are inadequate to fully mitigate Project emissions. The mitigation measures were designed to work together as a package to fully mitigate Project emissions, with each measure achieving a portion of the needed emissions mitigation. The quantities of offsetting emission reductions needed are the same as the emission increases described in the DEIR, so a separate calculation is not necessary.

Mitigation Measure 4.3-1 requires applicants to obtain an Authority to Construct (ATC) and Permit to Operate (PTO) for any facility or equipment requiring such a permit from the SJVAPCD. DEIR at 4.3-68. Thus, new stationary sources will be required to obtain permits from the SJVAPCD, and in so doing must comply with all of the applicable SJVAPCD requirements. As stated in the DEIR, this includes District Rule 2201 which requires that all emissions increases greater than 2 pounds per day from permitted equipment be offset at a ratio greater than 1:1. *See* DEIR at 4.3-68, 85, 92. Thus, operational emissions from permitted stationary sources will be offset or mitigated to below the SJVAPCD threshold of significance.

Indirect sources of emissions from the Project are fully accounted for in the air quality analysis. The analysis included all construction, truck, passenger, and other on- and off- road vehicle trips that would be generated by the project including, but not limited to, routine business travel, facility

[74] See GR 22 for more detailed responses regarding compliance with regulations as CEQA mitigation. The SJVAPCD's air quality nonattainment status for ozone and particulate matter, despite the adoption of numerous EPA, CARB and SJVAPCD emission control regulations, is a different issue than mitigating Project emissions to net zero, in part, through compliance with regulatory standards. Since the Project will consist of new oil and gas production activities that require conformity review before a new well is drilled, it is possible to require full mitigation of anticipated emission increases. The same is not true for all of the ongoing pollutant-emitting activities in the San Joaquin Valley

[75] The DEIR takes account of potential emission increases associated with activities of the Project's permitted sources and with non-permitted sources/activities, including oil and gas production facilities (permitted stationary sources), permit-exempt sources, and mobile sources. See, e.g., Tables 4.3-27 – 4.3-31; Table 4.3-42. Table 4.3-27 presents the annual total estimated emissions from both construction and operational activities (permitted, non-permitted, and permit exempt equipment) for the Project. While the DEIR recognizes that the San Joaquin Valley is in non-attainment for certain criteria pollutants, the significance threshold and non-attainment status are not the same measure. As described on pages 4.3-99 – 4.3-102 and 4.3-122, all emissions will be mitigated to net zero after application of emissions reductions and the Oil and Gas Emission Reduction Agreement (OG-ERA).

inspections, delivery of construction materials, and worker commutes. Although SJVAPCD Rule 9510 (Indirect Source Review) does not apply to the Project because oil and gas activities are exempt from that rule, all indirect sources of emissions were fully accounted for in the air quality analysis and will be mitigated to a level of insignificance. Mitigation Measure 4.3-3 sets engine standards and limits idling of off-road construction equipment, mitigating emissions from construction equipment. Similarly, Mitigation Measure 4.3-4 sets retrofit and other requirements for on-road heavy-duty diesel haul vehicles. In addition, emissions from indirect sources after application of MM 4.3-3 and 4.3-4 are included in calculating the total Project emissions and are thus required to be offset via the Oil and Gas Emission Reduction Agreement (OG-ERA) to be created in accordance with Mitigation Measure 4.3-8 (see discussion of the OG-ERA below). These mitigation measures, and the OG-VERA mentioned below combine to adequately mitigate for emissions impacts due to emissions from indirect (mobile) sources.

The OG-ERA in Mitigation Measure 4.3-8 requires applicants to pay an air emission mitigation fee, or alternatively to undertake direct emissions reductions to fully offset new emission increases not already required to be offset under SJVAPCD rules, including emissions from permitted equipment that is not subject to the emission offset requirement. The offset requirement for the OG-ERA is based on the total estimated emissions from the Project as calculated in the DEIR. This calculation includes emissions from construction and operation of new permitted facilities, construction and operation of permit-exempt equipment and small production settings, and construction activities related to wells including drilling, stimulation, rework, and abandonment. DEIR pp. 4.3-74 – 92. As stated above, the calculation also includes all mobile source emissions related to these Project activities.

The total estimated Project emissions from both construction and operational activities are provided in Table 4.3-27 and are used to calculate the total estimated per well emissions for preliminary consideration in the OG-ERA in Table 4.3-32. The requirement for each operator to pay for emission reductions through the OG-ERA or to undertake direct emissions reductions will generate emissions reductions at a level equal to expected Project actual emissions. In this way, compliance with the OG-ERA will result in a net zero emissions increase due to Project implementation as all incremental increases due to Project implementation will be mitigated either by offsets required under SJVAPCD Rule 2201 (or other SJVAPCD rules) or by emissions reductions under the OG-ERA.

The SJVAPCD had no objections to the proposed OG-ERA, and "are pleased to work with Kern County to carry the concept through to successful completion". SJVAPCD Comment Letter, September 11, 2015 (Comment 0001). District Rule 2201 requires offsets for permitted stationary sources to be real, excess, permanent, and enforceable. In addition, the SJVAPCD will assure that mitigation reductions used for increases from unpermitted equipment and activities are likewise real, excess, permanent, and enforceable, although these offsetting reductions are not subject to federal Clean Air Act offset requirements. Contrary to commenters' assertions, the DEIR need not state the precise amount of emissions reductions because it commits to mitigating all Project emissions, no matter the amount. Refer to GR-21 (speculation not required by CEQA); GR-16 (mitigation measures); and GR Air-2. As the DEIR explains, emission reductions funded by the OG-ERA

mitigation fees will offset the impacts from the new oil and gas activities resulting in a "net zero increase" to contributions of designated criteria air emissions in the entire air basin. DEIR at 4.3-102 – 103 (discussing quantification and validation that reductions can be achieved); 4.3-122 (Air Quality Mitigation Measures require no net increase in NOx, ROGs and PM10 emissions, which can be met by using solar PV or other available technologies, and thereby reducing what would be otherwise required as a fee under the OG-ERA). Additional mitigation is not necessary.

Although not all of the reductions achieved by the OG-ERA will occur exactly contemporaneously with Project emissions increases, the OG-ERA does not constitute deferred mitigation. Mitigation Measure 4.3-8 will ensure collection of mitigation fees to fund emission reductions at the actual pace of well development in the County. There may be a slight lag time between collection of the air emissions mitigation fee (i.e., prior to site plan approval) and the accomplishment of the emissions reductions funded by the fee, due to the time required to solicit and vet proposals for emission reduction projects, award the funds, and complete construction or implementation, on a county-wide annual basis. However, the emission reductions from implementing the OG-ERA are expected to match the emissions from drilling new wells on an annual basis.

Please see Global Response Air-2 for more information regarding the structure, feasibility, and legal basis for the OG-ERA, and GR Air-4, Air-5, and Air-6 regarding the Project Health Risk Assessments and air toxic emissions.

Air-2: Emission Reduction Agreement As Mitigation

A number of commenters questioned whether Mitigation Measure 4.3-8 provides sufficient mitigation for air quality impacts. MM 4.3-8 requires applicants to pay an air emission mitigation fee, or alternatively to undertake direct emissions reductions, to fully offset new emissions increases. Commenters variously stated that the mitigation is not enforceable, that it will not produce emission reductions necessary to offset Project impacts, or that it is impermissible deferred mitigation. In fact, MM 4.3-8 ensures that Project emissions of designated non-attainment pollutants are fully offset. The Oil and Gas Emission Reduction Agreement (OG-ERA) is an enforceable mitigation measure that will effectively "zero out" new project emissions of NOx, PM10 and ROGs by generating equivalent emissions reductions through equipment replacements and other measures funded by the mitigation fees. The OG-ERA is expected to be in place by the time the Board of Supervisors considers the proposed Project, otherwise each applicant will be required to enter into individual VERA agreements to provide mitigation needed for criteria air pollutant emissions.

The DEIR finds that the project will generate cumulatively significant emissions of oxides of nitrogen (NOx), reactive organic gases (ROGs), and particulate matter of 10 microns or less in diameter (PM10); therefore, feasible mitigation is required for Project approval. Mitigation Measures 4.3-1 through 4.3-4 will reduce emissions of these criteria pollutants. In addition, Rule 2201 of the SJVAPCD will require emissions increases attributed to certain sources (primarily, stationary sources) to be offset in conjunction with obtaining authority to construct permits. But the DEIR concludes that the Project's contribution to cumulative impacts will remain considerable even after compliance with these measures.

Mitigation Measure 4.3-8 will require applicants to fully offset the remaining emissions of these pollutants. The measure requires applicants to pay an air quality mitigation fee to the County that will be used to reduce NOx, ROG and PM10 emissions from other equipment and activities in the region. Alternatively, in lieu of paying the fee, an applicant may reduce emissions directly from other applicant sources by the amount necessary to fully offset the increases in designated pollutants. Air emission mitigation fees collected by the County will be managed jointly by the County and SJVAPCD pursuant to an emission reduction agreement between the two agencies.

MM 4.3-8 is enforceable. Fees required by the measure must be paid as a part of the site conformity review process. Similarly, an applicant proposing to make direct emission reductions in lieu of paying the fee will need to satisfy the County, based on validation of the emission reductions by the SJVAPCD, that the emission increases have been fully offset. If the applicant fails to either pay the fee or provide the necessary validation of emissions reductions, the proposed site plan will be disapproved.

MM 4.3-8 will generate real, quantifiable emissions reductions. SJVAPCD has significant experience administering air emission fees to achieve emissions reductions. The SJVAPCD has been administering fees from its indirect source rule since 2006. In addition, since 2008, SJVAPCD has entered into Voluntary Emission Reduction Agreements or Development Mitigation Contracts (collectively referred to here as VERAs) with a number of project proponents to provide CEQA mitigation for the air impacts from a variety of industrial, residential, and other projects. VERAs benefit air quality by achieving emission reductions in excess of Air District rules. Funds paid to the SJVAPCD through VERAs have been used in the Air District's existing Emission Reduction Incentive Program to fund emission reduction projects, achieving emission reductions on behalf of the projects. Since 2006, the SJVAPCD has issued grants totaling nearly $500 million resulting in more than 98,000 tons of lifetime emissions reductions.

For the proposed Project, the monies paid pursuant to the Oil and Gas Emission Reduction Agreement (OG-ERA) would be placed into a fund established by the Board of Supervisors, with an additional administrative fee collected by the SJVAPCD. Expenditure of the mitigation funds shall be for certified air quality reduction projects managed by the SJVAPCD in consultation with Kern County. DEIR at 4.3-100, as modified in response to SJVAPCD Comment 0001-5. The SJVAPCD will make the final determination of air quality reductions achieved; and selection of specific projects shall be determined by the SJVAPCD in consultation with Kern County. *Id*. The mitigation measure lists examples of the types of emission reduction strategies that would be considered for funding, although it is expected that other strategies may be more cost effective over time as new emission control technologies are developed. Based on the SJVAPCD's history of administering the Indirect Source Rule fees and VERAs, it is reasonable to expect that the funds administered through the OG-ERA would achieve effective emissions reductions to offset Project emissions increases.

Fee-based programs are acceptable mitigation measures, and can be the most effective means of addressing cumulative impacts. CEQA Guidelines § 15130 (a)(3) expressly recognizes a project's contribution to a cumulative impact may be found less than cumulatively considerable where the project is required to fund its fair share of a mitigation measure through contributing to a regional mitigation fund. Similarly, courts have found fee-based mitigation programs for cumulative impacts

based on fair-share infrastructure contributions by individual projects adequate mitigation under CEQA. See, e.g., *City of Marina v. Board of Trustees of California State University* (2006) 39 Cal. 4th 341, 364 and *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173, 1188. Courts have held that an agency's imposition of fair-share contributions to a mitigation fund are adequate if they "are part of a reasonable plan of actual mitigation that the relevant agency commits itself to implementing." *Id* 1187. Courts have also held that when a mitigation program is established, there is a presumption that the agency will comply with its own ordinances, and will spend fees it collects on the purposes for which they have been collected. *Save Our Peninsula Comm. v Monterey County Bd. Of Supervisors* (2001) 87 Cal.App.4th 99, 141, 104.

The Air District's authority to enter into VERAs (and by extension the OG-ERA) is well established. The Legislature has granted air pollution control districts the authority to adopt and implement regulations to reduce or mitigate emissions from indirect and area wide sources of air pollution, and to adopt a schedule of fees to be assessed on indirect sources of emissions. Health & Safety Code §§ 40716(a); 42311(g) and 40604. The SJVAPCD adopted Rules 9510 (indirect source review) and 3180 (fees for indirect source review) pursuant to these authorities. These rules and their adoption are discussed extensively in the DEIR at 4.3-48 to 4.3-49 and 4-99 to 4-100, and in Appendix L (San Joaquin Valley Air Pollution Control District Documents). The SJVAPCD has been implementing VERAs since 2008 and, as described in its annual report on the indirect source review program, has methodically implemented, analyzed and reported on the tangible results of the program, including the mitigation funds. DEIR, Appendix L.

The County's imposition of fees pursuant to VERAs has been found to be a valid regulatory fee and not subject to certain statutory limits and requirements that apply to other types of fees imposed as conditions of a development project, (*California Building Industry Assn. v. San Joaquin Valley Air Pollution Control Dist*. (2009) 178 Cal.App.4th 120, 130). The same analysis would apply to the OG-ERA imposed here. A regulatory fee is one charged for the associated costs of regulatory activities and does not exceed the reasonable cost of carrying out the purposes and provisions of the regulation. *California Assn. of Prof. Scientists v. Department of Fish & Game* (2000) 79 Cal.App.4th 935, 945. Regulatory fees are not subject to the limitations imposed by the Mitigation Fee Act, which requires, *inter alia*, a public agency to determine a reasonable relationship between the fee and the project, and limits the fee to the estimated reasonable cost of providing the required service or facility. Govt. Code § 6600 *et seq.* While there must be a reasonable relationship between the fee charged and the burden posed by the project, the agency is allowed to employ a flexible assessment of proportionality in setting the fees assessed pursuant to a regulatory program. *California Building Industry Assn. v. San Joaquin Valley Air Pollution Control Dist*. (2009) 178 Cal.App.4th 120, 132; see also *California Assn. of Prof. Scientists v. Department of Fish & Game* (2000) 79 Cal.App.4th 935, 948–949.

For the Project, the mitigation fee will be adjusted for depth of well and equipment configuration. It is expected to range from $8,000 to $18,603 per well, plus an administrative cost to the District. This is based in part on the historical range of cost effectiveness for funds collected through the Indirect Source Rule and VERA programs, which has ranged from $1,728 per ton of reductions as reported in the 5-year evaluation conducted in 2010, to $6,974 per ton as reported in the

SJVAPCD's 2014 Annual Report on the Indirect Source Review Program. In addition to the cost effectiveness reported by the SJVAPCD for fees collected through the Indirect Source Rule and VERAs, in setting the fee, the County has also considered the types of equipment and other emission reduction strategies available within the San Joaquin Air Basin, and the types of emission reduction strategies that can be funded through the monies expected under the new OG-ERA. The estimated amount to be generated every year in mitigation fees to fund emission reduction projects ranges from $14.4 million to $33.49 million (based on an estimate of 1,800 permits year). The total fees collected by the OG-ERA over 21 years (using the estimate of 1,800 permits per year) will range from $302.4 million to $703.3million. DEIR at 4.3-102. A fund of this magnitude offers economies of scale not previously available to the Air District. As such, it is expected that the fund will be able to advance larger projects requiring substantially more capital than was available in the past.

These funds would be used pursuant to specific requirements set forth in the agreement and set out by the County and the SJVAPCD. They would achieve reductions by targeting emissions sources that are currently legal and compliant with SJVAPCD rules, but whose emissions could be reduced via a funded project. For example, the existing SJVAPCD program funds the replacement of old, high-emitting diesel school buses with newer, lower emission school buses, but only buses serving public schools are eligible for the program. The County has the flexibility, with this OG-ERA, to allow for funding of replacement school buses for charter schools, private schools, and church schools.

The OG-ERA will mitigate impacts within the San Joaquin Valley Air Basin. This is appropriate in light of the regional nature of NOx, which contributes to regional ozone formation. In addition, as a party to the agreement, the County will have the ability, in consultation with the SJVAPCD, to set priorities for distribution of the funds. For example, the County may choose to allocate a set percentage for cities within the County.

The OG-ERA is not impermissible deferred mitigation. Mitigation Measure 4.3-8 will ensure collection of mitigation fees to fund emission reductions at the actual pace of well development in the County in coming years. There will be a lag time between collection of the air emissions mitigation fee (i.e., prior to site plan approval) and the accomplishment of the emissions reductions funded by the fee, due to the time required to solicit and vet proposals for emission reduction projects, award the funds, and complete construction or implementation. In some instances, such as where a well requires responsible agency permits subsequent to undergoing the conformity review, the well permit may be obtained and fees paid well before the well is drilled. Thus, emissions reductions may be achieved prior to commencement of drilling. However, for wells that are drilled immediately upon approval of the conformity review, the lag time will result in commencement of emitting activities for well development in advance of the offsetting emission reductions. For this reason (and because – as described at page 4.3-49 of the DEIR – the program will not ensure 100% offset of ROGs), the EIR identified the Project's contribution to cumulative air quality as cumulatively significant.

Lag time is expected to diminish in time with continuous program administration. However, even if there is some lag time for any particular well, the emissions from drilling a single well are relatively small as compared to emissions in the San Joaquin Valley Air Basin; on a county-wide annual basis,

the emission reductions from implementing the OG-ERA are expected to match the emissions from drilling new wells.

Additionally, any perceived lag in emissions mitigation from implementing OG-ERA projects should be considered in light of the conservative approach taken by the EIR with respect to emissions from drilling and operating future wells. The EIR uses 2012 oil and gas drilling and operations activity levels as the baseline for measuring impacts. Although the total number of active wells is expected in increase over time from the 2012 baseline activities, the EIR (and the OG-ERA), CEQA would have allowed the County to subtract the baseline activity levels from the total number of projected wells in order to determine the incremental increase attributed to the project. However, the EIR does not merely consider that increment; instead, it treats every future well drilled and operated as a new well for which emissions will be mitigated via the OG-ERA. In other words, emissions from well drilling and operations which would otherwise have been subtracted as baseline activities will be considered new impacts resulting from the project, and will be mitigated accordingly. This goes further than CEQA requires, and is a particularly conservative approach considering that oil well drilling and operation in the County is ongoing and has occurred for many years.

The County considered other approaches to avoid the lag time. For example, the County considered requiring full funding in advance for the number of wells projected to be drilled in the coming 25 years of Project implementation. However, this approach has several serious disadvantages.

First, it would result in severe inequities. The County cannot predict which companies will drill wells in the coming years, or even roughly approximate the proportion of wells that will be drilled by different companies ten or twenty years from now. If the mitigation measure required full funding in advance, there is a substantial risk that the cost of mitigation would not be borne by the companies responsible for the future emissions.

Second, while the emissions estimates in the EIR are based on regulatory programs in existence in 2015, the decades-long history of air quality regulation in California teaches that there will likely be continued, steady decline in emissions from equipment and activities associated with oil and gas development, including engines on drilling rigs, motor vehicle engines, etc. Therefore, fully funding the mitigation in advance would likely result in mitigation exceeding actual Project emissions, potentially by a wide margin. This would be contrary to decisions of the United States Supreme Court requiring that there be an essential nexus between a project and the mitigation or other exactions imposed by the government, and that mitigation be roughly proportional to the impact of the proposed development. See *Nolan v. California Coastal Commission*, 483 U.S. 825 (1987), and *Dolan v. City of Tigard*, 512 U.S. 374 (1994). These principles are incorporated into CEQA Guidelines Section 15126.4 (a)(4).

Finally, the County has a legitimate interest in ensuring that emissions from future oil and gas development pursuant to the Amended Zoning Ordinance are as low as feasible. If the mitigation measure required full funding in advance, companies would have no incentive in the future to continue advancing air emissions control technologies.

Following issuance of the DEIR, the Applicant submitted additional documentation to the County for consideration as part of the Final EIR. The submittal pertaining to the OG-ERA is addressed below, and the Applicant's technical report is included as an Attachment to the Final EIR.

Attachment 1: Air Emission Technical Proposal on Emission Calculation and Mitigation Measure Options

On August 14 and 24, 2015, the Applicant submitted a two-part technical report requesting certain changes to emissions calculations, and asking for emission reduction credits for certain emission reduction measures. The County's technical consultants completed an independent assessment of these requests, and the County also consulted with SJVAPCD regarding each of these requests. A summary of each request, and the staff decision as to the disposition of each request, is provided below:

1. The Applicants discovered two mathematical errors in the extensive air emission models that they reported caused emissions estimates to be overstated in the DEIR. These errors were confirmed by the County's experts and SJVAPCD staff, and resulted in an overstatement of emissions generated in the construction of new facilities, in the construction of permit-exempt equipment and small production settings, and from the operation of stationary permitted sources.

The errors consisted of: i) in the DEIR, permitted stationary equipment and permitted stationary source emissions are increased by 10% in order to account for the emissions from small oil and gas operators not subject to Title V permit requirements. The 10% factor was incorrectly applied in certain spreadsheets, leading to an overestimate of the forecast of additional equipment needed for the 2035 project build-out; and ii) The number of active wells per year is calculated as the number of new wells drilled, plus the number of wells reworked and placed in service, minus the number of abandoned wells. The number of abandoned wells in the Eastern Subarea was incorrectly applied in the DEIR.

The following tables summarize the difference between the emission estimates for these sources that were included in the DEIR, and the accurate emission values that are now included in this Final EIR to supersede the values in the DEIR.

Original Table:

Table-4.3-11b: Forecast of Additional Equipment Needed for 2035 Project Build-Out

	Kern County Baseline			Count			
Permitted Equipment	**Total Capacity**	**Units**	**Required Acreage for New Systems**	**Kern County**	**Western Subarea**	**Central Subarea**	**Eastern Subarea**
Boilers	122.22	MMBtu/Hr	0.05	6	3	0	3
Cogeneration	2,046.12	MW	21.95	54	20	0	34
Process Heaters	667.24	MMBtu/Hr	0.24	43	25	17	1
IC Engines	239,045.18	BHP*Hr	1.17	102	84	0	18
Steam Generators	38,120.94	MMBtu/Hr	30.07	262	173	0	89
Production Tanks	2,993,043.30	BBL Capacity	23.21	405	170	27	208
TEOR Systems	30,495.30	System	0.28	78	20	0	58
VOCDD (Flare)	45,555.21	MMBtu/Hr	1,63	40	15	12	13

Revised Table:

Table-4.3-11b: Forecast of Additional Equipment Needed for 2035 Project Build-Out

	Kern County Baseline			Count			
Permitted Equipment	**Total Capacity**	**Units**	**Required Acreage for New Systems**	**Kern County**	**Western Subarea**	**Central Subarea**	**Eastern Subarea**
Boilers	111	MMBtu/Hr	0.05	5	3	0	2
Cogeneration	1,860	MW	19.96	49	18	0	31
Process Heaters	607	MMBtu/Hr	0.22	39	23	15	1
IC Engines	217,314	BHP*Hr	1.06	93	77	0	16
Steam Generators	34,655	MMBtu/Hr	27.33	238	157	0	81
Production Tanks	2,720,948	BBL Capacity	21.10	368	155	24	189
TEOR Systems	27,723	System	0.26	70	18	0	52
VOCDD (Flare)	41,414	MMBtu/Hr	1.49	36	14	11	11

Original Table:

Table 4.3-12: Kern County Facility Construction Emissions during a Single Year (Tons/Year)

Equipment to be Built	Average Number of Equipment to be Built Annually	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Boiler	3	6	53	31	0	4	3
Process Heater	13	25	201	120	0	15	13
Internal Combustion Engine (RICE)	55	90	844	501	1	61	55
Steam Generators	155	279	2,406	1,441	2	177	157
Production Tanks	259	502	4,014	2,391	3	293	261
VOCDD (Flare)	19	38	300	179	0	22	20
TOTAL		**940**	**7,818**	**4,662**	**6**	**572**	**509**
SJVAPCD Construction Emissions Threshold		10	10	100	27	15	15

Revised Table:

Table 4.3-12: Kern County Facility Construction Emissions during a Single Year (Tons/Year)

Equipment to be Built	Average Number of Equipment to be Built Annually	ROG	NOx	CO	SO2	PM10	PM2.5
Boiler	0.3	0.5	4.4	2.6	0.0	0.3	0.3
Process Heater	2.0	4.0	31.7	18.8	0.0	2.3	2.1
Internal Combustion Engine (RICE)	4.9	8.0	75.2	44.7	0.1	5.5	4.9
Steam Generators	12.5	22.5	193.3	116.2	0.2	14.3	12.6
Production Tanks	19.3	37.4	298.8	178.5	0.2	21.9	19.5
VOCDD (Flare)	1.9	3.7	29.5	17.6	0.0	2.2	1.9
TOTAL		**76**	**633**	**378**	**0.5**	**46.5**	**41.2**
SJVAPCD Construction Emissions Threshold		10	10	100	27	15	15

Original Table:

Table 4.3-13: Total Kern County Facility Construction Emissions over the Project Period (2015 – 2035) (Tons/Year)

Equipment to be Built	Number of Equipment to be Built	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Boiler	72	116.9	1,103.7	649.0	0.9	79.0	71.5
Process Heater	273	527.9	4,227.4	2,513.0	3.5	307.9	275.0
Internal Combustion Engine (RICE)	1,145	1,894.9	17,727.2	10,512.5	14.6	1,286.6	1,152.3
Steam Generators	3,261	5,867.1	50,525.3	30,257.5	42.1	3,718.9	3,294.8
Production Tanks	5,442	10,538.8	84,287.0	50,210.8	69.6	6,153.2	5,484.5
VOCDD (Flare)	407	788.5	6,304.5	3,763.3	5.2	461.7	410.6
TOTAL		**19,734.1**	**164,175.2**	**97,905.9**	**136.0**	**12,007.3**	**10,688.8**

Revised Table:

Table 4.3-13: Total Kern County Facility Construction Emissions over the Project Period (2015 – 2035) (Tons/Year)

Equipment to be Built	Number of Equipment to be Built	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Boiler	6	9.7	92.00	54.1	0.1	6.6	6
Process Heater	43	83.1	665.70	394.40	0.5	48.2	43.2
Internal Combustion Engine (RICE)	102	168.80	1,579.30	937.70	1.3	114.80	102.70
Steam Generators	262	471.60	4,060.30	2,439.30	3.4	300.40	265.10
Production Tanks	405	784.70	6,273.90	3,748.20	5.2	460.10	408.70
VOCDD (Flare)	40	77.5	619.60	370.30	0.5	45.5	40.4
TOTAL		**1,595.40**	**13,290.80**	**7,944.00**	**11.00**	**975.60**	**866.10**

Original Table:

Table 4.3-14: Total Estimated Emissions from Construction of Permit Exempt Equipment and Small Production Settings

	Emissions (Tons/Year)					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
TOTAL	**47**	**391**	**233**	**0.32**	**29**	**25**
SJVAPCD Construction Emissions Threshold	10	10	100	27	15	15

Revised Table:

Table 4.3-14: Total Estimated Emissions from Construction of Permit Exempt Equipment and Small Production Settings

	Emissions (Tons/Year)					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
TOTAL	**4**	**32**	**19**	**0.03**	**2**	**2**
SJVAPCD Construction Emissions Threshold	10	10	100	27	15	15

Original Table:

Table 4.3-20: Estimated Change in Operational Emissions For Stationary Source Equipment

Change in Equip. Emissions	Change in Capacity	Capacity Units	Kern County Change in Emissions from Stationary Source Equipment					
			NO_x TPY	VOC TPY	CO TPY	SO_x TPY	PM_{10} TPY	$PM_{2.5}$ TPY
Boiler	587.77	MMBtu/Hr	0.84	0.09	0.15	0.01	0.19	0.19
Cogeneration	28,212.55	MW	841.01	198.43	1,175.38	83.62	229.30	229.30
Fugitive Emissions	38,199.00	Wells	0.00	152.93	0.00	0.00	4.67	4.67
Process Heater	2,431.72	MMBtu/Hr	2.78	0.55	0.82	0.14	0.85	0.85
IC Engine (RICE)	915,973.95	BHP*Hr	115.66	33.81	495.64	0.10	1.28	1.28
Steam Generators	214,084.08	MMBtu/Hr	283.03	138.78	161.13	108.56	372.67	372.67
Production Tanks	25,491,168.27	BBL Capacity	0.74	379.62	4.05	1.33	0.08	0.08
TEOR Wells	319,648.57	TEOR Wells	9.36	830.42	7.28	13.69	0.94	0.94
VOCDD (Flare)	161,850.76	MMBtu/Hr	35.30	39.59	131.33	6.49	6.83	6.83
Total Emissions Title-v O&G Sources			1,288.72	1,774.22	1,975.77	213.94	616.81	616.81
Total Emissions Small O&G Sources (+10%)			128.87	177.42	197.58	21.39	61.68	61.68
Total Emissions All O&G Sources (TPY)			1,417.59	1,951.65	2,173.34	235.33	678.49	678.49
SJVAPCD Operational Emissions Threshold (TPY)			10	10	100	27	15	15
Total Emissions All O&G Sources (TPD)			3.87	5.33	5.94	0.64	1.85	1.85

Revised Table:

Table 4.3-20: Estimated Change in Operational Emissions For Stationary Source Equipment

Change in Equip. Emissions	Change in Capacity	Capacity Units	Kern County Change in Emissions from Stationary Source Equipment					
			NO_x TPY	VOC TPY	CO TPY	SO_x TPY	PM_{10} TPY	$PM_{2.5}$ TPY
Boiler	45	MMBtu/Hr	0.73	0.08	0.13	0.00	0.16	0.16
Cogeneration	1,583	MW	535.37	130.84	747.84	50.38	148.10	148.10
Fugitive Emissions	26,101	Wells	0.00	128.61	0.00	0.00	2.76	2.76
Process Heater	211	MMBtu/Hr	2.71	0.49	0.82	0.11	0.78	0.78
IC Engine (RICE)	77,956	BHP*Hr	114.10	32.91	480.16	0.08	1.13	1.13
Steam Generators	15,489	MMBtu/Hr	234.79	108.68	97.72	94.51	271.87	271.87
Production Tanks	1,604,898	BBL Capacity	0.74	327.60	4.05	1.33	0.08	0.08
TEOR Wells	19,061	TEOR Wells	9.31	830.38	7.02	13.69	0.93	0.93
VOCDD (Flare)	14,273	MMBtu/Hr	34.32	37.09	126.02	6.46	6.67	6.67
Total Emissions Title-v O&G Sources			932.08	1596.68	1463.76	166.57	432.48	432.48
Total Emissions Small O&G Sources (+10%)			93.21	159.67	146.38	16.66	43.25	43.25
Total Emissions All O&G Sources (TPY)			1025.29	1756.34	1610.14	183.23	475.73	475.73
SJVAPCD Operational Emissions Threshold (TPY)			10	10	100	27	15	15
Total Emissions All O&G Sources (TPD)			2.80	4.80	4.40	0.50	1.30	1.30

The County has determined that these emission estimation corrections are minor, did not result in any underestimate of air emissions in the DEIR, and do not warrant any modifications to the per well emission estimates and mitigation requirements for 2.48 tons per well included in the DEIR.

2. The Applicants provided additional field data showing actual operations of well construction equipment, and requested that this actual data be used in lieu of a more conservative default value for estimating the duration and "load" of construction equipment. In particular, the 'load factor' used in the OFFROAD model to calculate emissions from the 'Oil Drilling' category of equipment was reduced from the original value of 0.5025 to the new proposed value of 0.4. The Applicant report concludes that with the proper load factor, construction emissions are lower than the estimates included in the DEIR. Use of this actual, as opposed to modeled, load factor was determined to be reasonable and appropriate by the County's experts and SJVAPCD staff. Table 4.3-15 summarizes the difference between the emission estimates using the load factors included in the DEIR, and the accurate emission values that are now included in this Final EIR to supersede the values in the DEIR:

Original Table

Table 4.3-15: Estimated Annual Emissions Associated with Drilling of Wells in 2012 and 2035

Year	Subarea	Well Count	Criteria Emissions (tons per year)						Emission Factors (lbs. per year per well)					
			NO_X	VOC	CO	SO_X	PM_{10}	$PM_{2.5}$	NO_X	VOC	CO	SO_X	PM_{10}	$PM_{2.5}$
2012	Western	2,549	6,345.35	1,067.97	4,369.40	6.25	381.34	248.92	4,978.70	837.95	3,428.32	4.90	299.21	195.31
	Central	47	468.30	155.63	357.55	0.43	24.54	16.01	19,927.84	6,622.71	15,215.01	18.43	1,044.06	681.29
	Eastern	796	1,563.05	103.48	1,133.80	1.45	99.63	63.65	3,927.25	260.00	2,848.73	3.63	250.33	159.93
	TOTALS	3,392	8,376.70	1,327.09	5,860.75	8.13	505.51	328.58	4,939.09	782.48	3,455.63	4.79	298.06	193.74
2035	Western	2,623	1,908.99	894.68	4,279.01	6.44	188.04	68.12	1,455.57	682.18	3,262.68	4.91	143.38	51.94
	Central	140	688.94	430.90	1,052.13	1.28	39.22	16.56	9,841.97	6,155.77	15,030.48	18.35	560.29	236.54
	Eastern	1,320	664.17	87.58	1,851.62	2.41	78.63	25.89	1,006.31	132.69	2,805.49	3.65	119.14	39.23
	TOTALS	4,083	3,262.09	1,413.16	7,182.77	10.14	305.89	110.57	1,597.89	692.22	3,518.38	4.97	149.84	54.16

Revised Table

Table 4.3-15: Estimated Annual Emissions Associated with Drilling of Wells in 2012 and 2035

Year	Subarea	Well Count	Criteria Emissions (tons per year)						Emission Factors (lbs. per year per well)					
			NO_X	**VOC**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**NO_X**	**VOC**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
2012	Western	2,549	6,345.35	1,067.97	4,369.40	6.25	381.34	248.92	4,978.70	837.95	3,428.32	4.90	299.21	195.31
	Central	47	468.30	155.63	357.55	0.43	24.54	16.01	19,927.84	6,622.71	15,215.01	18.43	1,044.06	681.29
	Eastern	796	1,563.05	103.48	1,133.80	1.45	99.63	63.65	3,927.25	260.00	2,848.73	3.63	250.33	159.93
	TOTALS	3,392	8,376.70	1,327.09	5,860.75	8.13	505.51	328.58	4,939.09	782.48	3,455.63	4.79	298.06	193.74
2035	Western	2,623	1892.96	893.33	4230.87	6.39	187.63	67.74	1443.35	681.15	3225.98	4.87	143.06	51.65

Table 4.3-15: Estimated Annual Emissions Associated with Drilling of Wells in 2012 and 2035

Year	Subarea	Well Count	Criteria Emissions (tons per year)						Emission Factors (lbs. per year per well)					
			NO_X	VOC	CO	SO_X	PM_{10}	$PM_{2.5}$	NO_X	VOC	CO	SO_X	PM_{10}	$PM_{2.5}$
	Central	140	688.08	430.83	1049.56	1.28	39.20	16.54	9829.75	6154.74	14993.78	18.31	559.97	236.25
	Eastern	1,320	656.10	86.90	1827.40	2.38	78.43	25.70	994.09	131.66	2768.78	3.61	118.83	38.94
	TOTALS	4,083	3237.14	1411.06	7107.84	10.05	305.25	109.98	1585.67	691.19	3481.67	4.92	149.52	53.87

The County has determined that these emission estimation corrections are minor, did not result in any underestimate of air emissions in the Draft EIR, and do not warrant any modifications to the per well emission estimates and mitigation requirements included in the Draft EIR.

As a consequence of the changes introduced by correction 1 and correction 2 above, the following tables in the DEIR will be revised accordingly:

Original Table:

Table 4.3-27: Total Estimated Emissions from the Project in Tons per Year

Year	NO_X	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2012	21,834	10,864	16,307	413	2,593	1,899
2015	22,763	11,362	17,674	426	2,720	1,944
2016	22,281	11,551	17,823	437	2,747	1,953
2017	21,862	11,718	18,000	449	2,778	1,966
2018	20,732	11,841	18,181	460	2,769	1,940
2019	19,871	11,972	18,369	472	2,775	1,931
2020	18,916	12,131	18,568	483	2,789	1,930
2021	18,582	12,287	18,777	494	2,818	1,945
2022	17,520	12,415	18,994	506	2,821	1,936
2023	17,208	12,566	19,176	517	2,848	1,948
2024	16,980	12,735	19,359	528	2,881	1,968
2025	16,855	12,875	19,543	540	2,918	1,989
2026	16,162	13,004	19,738	551	2,931	1,991
2027	16,106	13,156	19,921	563	2,977	2,016
2028	16,022	13,318	20,105	574	3,019	2,043
2029	16,027	13,447	20,278	585	3,062	2,073
2030	16,134	13,595	20,463	597	3,113	2,108
2031	16,241	13,741	20,648	608	3,163	2,143
2032	16,345	13,898	20,827	619	3,211	2,178
2033	16,457	14,026	21,019	631	3,261	2,213
2034	16,555	14,163	21,192	642	3,308	2,248
2035	16,658	14,300	21,373	653	3,358	2,283

Revised Table:

Table 4.3-27: Total Estimated Emissions from the Project in Tons per Year

Year	NO_X	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2012	14289	9957	11809	406	2041	1408
2015	13677	8588	11820	416	1791	1328
2016	13259	8797	11968	425	1814	1333
2017	12926	8991	12135	434	1842	1343
2018	11988	9147	12303	443	1839	1322
2019	11188	9298	12474	451	1841	1310
2020	10317	9473	12653	460	1853	1306
2021	10038	9650	12834	469	1879	1317
2022	9048	9796	13022	478	1879	1305
2023	8804	9964	13184	487	1904	1314
2024	8601	10143	13349	496	1931	1328
2025	8496	10300	13513	505	1962	1343
2026	7812	10442	13689	514	1968	1338
2027	7769	10605	13852	522	2007	1356
2028	7691	10772	14014	531	2041	1374
2029	7694	10915	14166	540	2076	1396
2030	7783	11071	14329	549	2118	1422
2031	7872	11224	14491	558	2159	1447
2032	7957	11384	14647	567	2197	1472
2033	8050	11522	14816	576	2238	1498
2034	8131	11667	14964	584	2276	1523
2035	8215	11809	15121	593	2316	1548

Original Table:

Table 4.3-28: Total Estimated Emissions from the Project Non-Permitted Equipment and Activities in Tons per Year

Year	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2012	12,154	5,657	8,769	12	1,209	578
2015	13,015	6,063	10,033	14	1,304	591
2016	12,466	6,159	10,078	14	1,299	567
2017	11,980	6,233	10,152	15	1,297	548
2018	10,782	6,263	10,230	15	1,256	490
2019	9,853	6,301	10,314	15	1,229	448
2020	8,831	6,367	10,409	15	1,211	415
2021	8,430	6,431	10,514	15	1,208	398
2022	7,300	6,466	10,628	15	1,178	356
2023	6,920	6,523	10,706	16	1,173	336
2024	6,625	6,600	10,786	16	1,174	324
2025	6,433	6,646	10,866	16	1,179	313
2026	5,671	6,683	10,958	16	1,160	282
2027	5,548	6,742	11,038	16	1,173	275
2028	5,397	6,810	11,118	16	1,183	269
2029	5,334	6,847	11,188	16	1,193	267
2030	5,374	6,902	11,270	17	1,212	270
2031	5,414	6,954	11,351	17	1,230	273
2032	5,450	7,019	11,426	17	1,245	275
2033	5,494	7,054	11,515	17	1,264	278
2034	5,525	7,099	11,584	17	1,278	281
2035	5,561	7,142	11,662	17	1,296	283

Revised Table:

Table 4.3-28: Total Estimated Emissions from the Project Non-Permitted Equipment and Activities in Tons per Year

Year	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2012	11794	5614	8555	12	1182	555
2015	11133	4162	8489	12	910	452
2016	10666	4287	8561	13	910	434
2017	10284	4398	8651	13	915	421
2018	9297	4470	8742	13	889	378
2019	8448	4537	8837	13	869	343
2020	7529	4628	8939	13	858	316
2021	7201	4722	9043	13	861	305
2022	6162	4784	9155	14	839	270
2023	5869	4869	9240	14	841	257
2024	5618	4964	9328	14	846	248
2025	5463	5038	9416	14	854	240
2026	4731	5096	9515	14	837	212
2027	4639	5175	9601	14	854	208
2028	4512	5259	9687	14	866	204
2029	4467	5318	9762	15	878	203
2030	4507	5390	9848	15	897	206
2031	4547	5460	9934	15	915	208
2032	4583	5536	10013	15	931	211
2033	4628	5591	10105	15	949	214
2034	4659	5651	10177	15	964	216
2035	4695	5710	10257	15	982	219

Original Table:

Table 4.3-29: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities in Tons per Year

Year	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2015	11,511	1,967	8,607	12	760	457
2016	11,050	2,103	8,702	12	764	439
2017	10,670	2,236	8,811	13	771	427
2018	9,679	2,324	8,917	13	745	383
2019	8,830	2,407	9,023	13	726	348
2020	7,907	2,506	9,132	13	717	321
2021	7,586	2,620	9,241	13	724	311
2022	6,541	2,696	9,357	13	703	276
2023	6,248	2,794	9,446	14	707	262
2024	5,993	2,897	9,538	14	714	253
2025	5,836	2,989	9,628	14	723	245
2026	5,102	3,060	9,729	14	709	218
2027	5,010	3,151	9,817	14	722	213
2028	4,881	3,242	9,904	14	734	209
2029	4,835	3,319	9,981	14	749	208
2030	4,875	3,402	10,068	15	768	211
2031	4,915	3,482	10,155	15	787	214
2032	4,952	3,564	10,235	15	804	217
2033	4,997	3,635	10,328	15	823	220
2034	5,028	3,706	10,401	15	840	222
2035	5,064	3,775	10,481	15	858	225

Revised Table:

Table 4.3-29: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities in Tons per Year

Year	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2015	11064	1919	8320	12	731	430
2016	10607	2055	8415	12	735	413
2017	10231	2189	8524	12	742	401
2018	9251	2277	8630	12	716	358
2019	8407	2360	8736	13	698	323
2020	7495	2460	8844	13	689	296
2021	7176	2574	8953	13	696	286
2022	6143	2650	9069	13	676	251
2023	5852	2749	9159	13	679	238
2024	5601	2852	9250	13	687	229
2025	5447	2944	9340	14	696	221
2026	4714	3014	9441	14	682	194
2027	4623	3106	9529	14	695	189
2028	4496	3196	9616	14	708	185
2029	4451	3273	9693	14	722	184
2030	4491	3356	9780	14	741	187
2031	4531	3437	9866	14	760	190
2032	4568	3519	9946	15	777	193
2033	4612	3590	10039	15	796	196
2034	4644	3660	10112	15	813	198
2035	4680	3729	10192	15	831	201

Original Table:

Table 4.3-30: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year

Year	New Projected Wells	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2015	3,966	2.90	0.50	2.17	0.003	0.19	0.12
2016	3,970	2.78	0.53	2.19	0.003	0.19	0.11
2017	3,976	2.68	0.56	2.22	0.003	0.19	0.11
2018	3,982	2.43	0.58	2.24	0.003	0.19	0.10
2019	3,988	2.21	0.60	2.26	0.003	0.18	0.09
2020	3,994	1.98	0.63	2.29	0.003	0.18	0.08
2021	4,000	1.90	0.66	2.31	0.003	0.18	0.08
2022	4,006	1.63	0.67	2.34	0.003	0.18	0.07
2023	4,012	1.56	0.70	2.35	0.003	0.18	0.07
2024	4,018	1.49	0.72	2.37	0.003	0.18	0.06
2025	4,024	1.45	0.74	2.39	0.003	0.18	0.06
2026	4,030	1.27	0.76	2.41	0.003	0.18	0.05
2027	4,036	1.24	0.78	2.43	0.004	0.18	0.05
2028	4,042	1.21	0.80	2.45	0.004	0.18	0.05
2029	4,048	1.19	0.82	2.47	0.004	0.18	0.05
2030	4,054	1.20	0.84	2.48	0.004	0.19	0.05
2031	4,060	1.21	0.86	2.50	0.004	0.19	0.05
2032	4,066	1.22	0.88	2.52	0.004	0.20	0.05
2033	4,071	1.23	0.89	2.54	0.004	0.20	0.05
2034	4,077	1.23	0.91	2.55	0.004	0.21	0.05
2035	4,083	1.24	0.92	2.57	0.004	0.21	0.06
Average Annual Incremental Emissions per Well		**1.68**	**0.73**	**2.38**	**0.003**	**0.19**	**0.07**

Revised Table:

Table 4.3-30: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year

Year	New Projected Wells	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2015	3966	2.79	0.48	2.10	0.003	0.18	0.11
2016	3970	2.67	0.52	2.12	0.003	0.19	0.10
2017	3976	2.57	0.55	2.14	0.003	0.19	0.10
2018	3982	2.32	0.57	2.17	0.003	0.18	0.09
2019	3988	2.11	0.59	2.19	0.003	0.18	0.08
2020	3994	1.88	0.62	2.21	0.003	0.17	0.07
2021	4000	1.79	0.64	2.24	0.003	0.17	0.07
2022	4006	1.53	0.66	2.26	0.003	0.17	0.06
2023	4012	1.46	0.69	2.28	0.003	0.17	0.06
2024	4018	1.39	0.71	2.30	0.003	0.17	0.06
2025	4024	1.35	0.73	2.32	0.003	0.17	0.05
2026	4030	1.17	0.75	2.34	0.003	0.17	0.05
2027	4036	1.15	0.77	2.36	0.003	0.17	0.05
2028	4042	1.11	0.79	2.38	0.003	0.18	0.05
2029	4048	1.10	0.81	2.39	0.003	0.18	0.05
2030	4054	1.11	0.83	2.41	0.004	0.18	0.05
2031	4060	1.12	0.85	2.43	0.004	0.19	0.05
2032	4066	1.12	0.87	2.45	0.004	0.19	0.05
2033	4071	1.13	0.88	2.47	0.004	0.20	0.05
2034	4077	1.14	0.90	2.48	0.004	0.20	0.05
2035	4083	1.15	0.91	2.50	0.004	0.20	0.05
Average Annual Incremental Emissions per Well		**1.58**	**0.72**	**2.31**	**0.003**	**0.18**	**0.06**

Original Table:

Table 4.3-31: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year

Year	New authorized wells	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2015	3,647	10,585	1,808	7,914	11	699	420
2016	3,647	10,151	1,932	7,994	11	702	404
2017	3,647	9,787	2,051	8,082	12	707	391
2018	3,647	8,864	2,128	8,167	12	682	351
2019	3,647	8,075	2,201	8,252	12	664	318
2020	3,647	7,220	2,288	8,338	12	655	293
2021	3,647	6,917	2,389	8,426	12	660	283
2022	3,647	5,955	2,454	8,518	12	640	251
2023	3,647	5,679	2,540	8,587	12	643	238
2024	3,647	5,439	2,630	8,657	13	648	230
2025	3,647	5,290	2,709	8,726	13	655	222
2026	3,647	4,617	2,769	8,804	13	642	197
2027	3,647	4,527	2,848	8,871	13	653	192
2028	3,647	4,404	2,925	8,936	13	663	189
2029	3,647	4,356	2,990	8,992	13	674	188
2030	3,647	4,386	3,060	9,057	13	691	190
2031	3,647	4,415	3,128	9,122	13	707	192
2032	3,647	4,442	3,197	9,180	13	721	195
2033	3,647	4,476	3,256	9,252	13	737	197
2034	3,647	4,498	3,315	9,304	14	751	199
2035	3,647	4,523	3,372	9,362	14	766	201
Average Project Annual Incremental Emissions		**6,124**	**2,666**	**8,692**	**13**	**684**	**254**

Revised Table:

Table 4.3-31: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year

Year	New authorized wells	NOx	ROG	CO	SO_2	PM_{10}	$PM_{2.5}$
2015	3,647	10174	1765	7650	11	672	396
2016	3,647	9744	1888	7730	11	675	380
2017	3,647	9385	2007	7818	11	681	368
2018	3,647	8473	2085	7904	11	656	328
2019	3,647	7688	2158	7989	12	638	295
2020	3,647	6844	2246	8076	12	629	270
2021	3,647	6543	2347	8163	12	634	260
2022	3,647	5592	2412	8256	12	615	229
2023	3,647	5320	2499	8325	12	618	216
2024	3,647	5084	2588	8396	12	623	208
2025	3,647	4936	2668	8465	12	631	201
2026	3,647	4266	2728	8544	12	617	175
2027	3,647	4178	2807	8610	13	628	171
2028	3,647	4057	2884	8676	13	638	167
2029	3,647	4010	2949	8732	13	650	166
2030	3,647	4040	3019	8798	13	667	168
2031	3,647	4070	3087	8862	13	683	171
2032	3,647	4097	3156	8921	13	697	173
2033	3,647	4132	3216	8993	13	713	175
2034	3,647	4154	3274	9045	13	727	178
2035	3,647	4180	3331	9104	13	742	180
Average Project Annual Incremental Emissions		**5760**	**2625**	**8431**	**12**	**659**	**232**

Original Table:

Table 4.3-32: Total Estimated per Well Emissions for Preliminary Considerations in OG-ERA

Year	New Projected Wells	NO_x	ROG	PM_{10}	Per well Projected Emissions	Maximum Authorized Wells	Projected Emissions Scaled to 3,647 Wells
2015	3,966	2.9	0.5	0.19	3.59	3,647	3.30
2016	3,970	2.78	0.53	0.19	3.50	3,647	3.22
2017	3,976	2.68	0.56	0.19	3.43	3,647	3.15
2018	3,982	2.43	0.58	0.19	3.20	3,647	2.93
2019	3,988	2.21	0.6	0.18	2.99	3,647	2.73
2020	3,994	1.98	0.63	0.18	2.79	3,647	2.55
2021	4,000	1.9	0.66	0.18	2.74	3,647	2.50
2022	4,006	1.63	0.67	0.18	2.48	3,647	2.26
2023	4,012	1.56	0.7	0.18	2.44	3,647	2.22
2024	4,018	1.49	0.72	0.18	2.39	3,647	2.17
2025	4,024	1.45	0.74	0.18	2.37	3,647	2.15
2026	4,030	1.27	0.76	0.18	2.21	3,647	2.00
2027	4,036	1.24	0.78	0.18	2.20	3,647	1.99
2028	4,042	1.21	0.8	0.18	2.19	3,647	1.98
2029	4,048	1.19	0.82	0.18	2.19	3,647	1.97
2030	4,054	1.2	0.84	0.19	2.23	3,647	2.01
2031	4,060	1.21	0.86	0.19	2.26	3,647	2.03
2032	4,066	1.22	0.88	0.2	2.30	3,647	2.06
2033	4,071	1.23	0.89	0.2	2.32	3,647	2.08
2034	4,077	1.23	0.91	0.21	2.35	3,647	2.10
2035	4,083	1.24	0.92	0.21	2.37	3,647	2.12

Revised Table:

Table 4.3-32: Total Estimated per Well Emissions for Preliminary Considerations in OG-ERA

Year	New Projected Wells	NO_x	ROG	PM_{10}	Per well Projected Emissions	Maximum Authorized Wells	Projected Emissions Scaled to 3,647 Wells
2015	3966	2.79	0.48	0.18	3.46	3647	12611
2016	3970	2.67	0.52	0.19	3.37	3647	12307
2017	3976	2.57	0.55	0.19	3.31	3647	12073
2018	3982	2.32	0.57	0.18	3.07	3647	11214
2019	3988	2.11	0.59	0.18	2.87	3647	10485
2020	3994	1.88	0.62	0.17	2.66	3647	9719
2021	4000	1.79	0.64	0.17	2.61	3647	9524
2022	4006	1.53	0.66	0.17	2.36	3647	8620
2023	4012	1.46	0.69	0.17	2.31	3647	8436
2024	4018	1.39	0.71	0.17	2.27	3647	8296
2025	4024	1.35	0.73	0.17	2.26	3647	8235
2026	4030	1.17	0.75	0.17	2.09	3647	7611
2027	4036	1.15	0.77	0.17	2.09	3647	7613
2028	4042	1.11	0.79	0.18	2.08	3647	7579
2029	4048	1.10	0.81	0.18	2.09	3647	7609
2030	4054	1.11	0.83	0.18	2.12	3647	7726
2031	4060	1.12	0.85	0.19	2.15	3647	7841
2032	4066	1.12	0.87	0.19	2.18	3647	7951
2033	4071	1.13	0.88	0.20	2.21	3647	8061
2034	4077	1.14	0.90	0.20	2.24	3647	8155
2035	4083	1.15	0.91	0.20	2.26	3647	8253
Average		**1.58**	**0.72**	**0.18**	**2.48**		**9044**

The County has determined that these emission estimation corrections are minor, did not result in any underestimate of air emissions in the DEIR, and do not warrant any modifications to the mitigation requirements included in the DEIR.

3. Applicants requested that a portion of the emission reduction offsets that are required for stationary sources under District permit rules also be counted as emission reductions under the OG-

ERA included in MM 4.3-5. Specifically, Applicants requested that since stationary source permit requirements require greater than 1:1 offsets (including 1:1.5 – or 50% more emission reductions than required to fully offset new emissions), that emissions reductions greater than 1:1 be credited under the OG-ERA.

The SJVAPCD administers the stationary source permit program as well as other programs designed to assure that the region meets applicable ambient air quality standards. The SJVAPCD has advised the County that the offset ratios required under the stationary source permit program are critical to the region's attainment of air quality standards, and that the "no net increase" OG-ERA requirement must be met through additional emission reductions not required for stationary source permits. The County agrees with the SJVAPCD, and has declined this Applicant request.

4. Applicants requested that the OG-ERA recognize that operation of well construction equipment as an ongoing annual operation, and that the emission reduction fee paid under the OG-ERA should count toward multiple years of operation for the same fleet of construction vehicles. The SJVAPCD has advised the County that the emission reduction fee included in the EIR was for a single ton of emission reduction, and not a ton of reduction for each of multiple years. The SJVAPCD further advised that its methodology for operational emissions, which allowed for multiple-year emission reductions under some circumstances, could be considered as part of the OG-ERA development and implementation process. The County agrees with the SJVAPCD and declines to accept the specific alternate OG-ERA multi-year emission credit calculation methodology proposed by Applicant, but agrees that an appropriate multi-year emission credit methodology can and should be included in the OG-ERA to enforce and assure compliance with MM 4.3-5.

5. Applicant requested recognition of three emission reduction mitigation measure options that could be used to comply with the emission reductions required under MM 4.3-5, including: (1) voluntary early replacement of engines with low emission engine technology (Tier 4f engines), (2) increasing carpooling and vanpooling for oil and gas employees above levels required by applicable regulations, and (3) paving roads. The first two measures would reduce NOx as well as other pollutants such as particulate matter (PM), while the third measure will achieve direct PM reductions. The SJVAPCD agrees that all of the measures are appropriate for inclusion in the OG-ERA provided that there are also appropriate enforcement mechanisms to assure implementation and actual emission reductions. The SJVAPCD's top priority for "no net increase" emission agreements remains NOx reductions, but PM reduction measures also have value and can be included in the OG-ERA with appropriate conditions (which may include a limitation on reliance on this measure to assure the ongoing prioritization of PM reduction measures). The County agrees with the SJVAPCD's assessment, including inclusion of these three measures in the OG-ERA with appropriate enforcement and prioritization conditions.

6. Finally, Applicant identified but did not include quantified emission estimates for other potential emission reduction measures for potential future investigation and possible inclusion in the OG-ERA. The SJVAPCD has concluded that all available and effective emission reduction technologies and practices should be considered for potential inclusion in the OG-ERA. The County agrees with the SJVAPCD, and agrees that these measures should be considered as part of the OG-ERA process. The report is included in Volume IV of Chapter 7.

Air-3: Sufficiency of Health Risk Assessment (July 2015)

Appendix M - the Health Risk Assessment (HRA) has been updated to incorporate comments received from the San Joaquin Valley Air Pollution Control District (SJVAPCD) on the DEIR prepared for the proposed Amendment to Title 19 – Kern County Zoning Ordinance – Chapter 19.98 for Oil and Gas Local Permitting. See the new single well HRA now included as Appendix M-1. This new analysis is discussed in detail in Global Response Air-6. This Global Response focuses on comments concerning the adequacy of the original HRA, Appendix M to the DEIR.

An HRA is Not Required for Each Well

Various commenters said that the risk analysis in the EIR is inadequate to support issuance of individual well permits, that a separate Health Risk Assessment (HRA) is required for each well, that the HRA should have evaluated more exposure pathways as in the CCST Report, and that bioaccumulation and endocrine disruption should have been considered. These statements are incorrect.

Health Risk Assessments (HRAs) are used to estimate whether current or future chemical or air emission exposures will pose health risks to a broad population, such as a city or community. In the DEIR, an HRA was prepared to assess the potential impacts from emissions of toxic air contaminants for well construction, drilling, completion, and use of oil and gas processing equipment that could occur in the County under the Project. The HRA assessed the potential health risks of drilling wells at three different locations in Kern County, in order to capture various terrains, wind speed, wind direction, and other dispersion characteristics within the County. In this way, the HRA in the DEIR is a "model" HRA which accurately evaluates the worst case potential health risk for oil and gas operations at any location in the County. Although this HRA is not specific to each different well drilling site or oil and gas processing site that could be approved under the Project, the processes that will occur at these sites and the emissions of air toxics resulting from those processes are quite similar. As a result, the HRA analysis is representative of the potential health risks from the Project.

The HRA was performed following the Office of Environmental Health Hazard Assessment (OEHHA), Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, March 2015).

The latest version of the Guidance Manual updates the previous version (OEHHA, 2003), and reflects advances in the field of risk assessment along with new more conservative consideration given to infants and children and their associated inhalation rates. The new guidelines are significantly more stringent (health conservative) than the 2003 predecessor. Results using the March 2015 OEHHA Guidelines result in calculated risk of more than 300% or 600% (3-6 times) higher than previous calculations using the previous guidelines. The Guidelines do not require analysis of bioaccumulation and endocrine disreuption.

As recommended by the 2015 OEHHA guidelines, the California Air Resources Board (CARB) Hotspots Analysis and Reporting Program, Version 2 (HARP2) was used to perform a refined health risk assessment for potential future drilling and operational emissions. HARP2 includes three

modules: a dispersion model, an exposure/dose module and a risk module. The dispersion model incorporates the United States Environmental Protection Agency (USEPA's) AERMOD model and the risk model includes the latest changes made by the State of California to the Risk Assessment inputs. The HARP2 risk model (as of March 2015) has a 30-year residential exposure built into the program. Traditionally, it was assumed that someone lived in the same house for 70 years. For more information about the HARP2 Model please reference Global Response Air-7.

The HRA completed for this DEIR and FEIR was based on very conservative assumptions; one of which was to assume that all receptor locations are sensitive receptors. For the purposes of this analysis, each receptor site was assumed to be occupied by a pregnant woman and her young children.

The HRA process consists of four steps:

1. Emissions Estimation
2. Exposure Assessment
3. Dose-Response Assessment
4. Risk Characterization

Emissions Estimation

Emissions estimation involves identifying and estimating the amount and type of toxic emissions likely to occur from Project activities. To accomplish this, the HRA identified emissions of potential toxic substances from each source related to the Project for both construction and operational activities. For construction, the HRA assessed seven phases of drilling: land preparation, drilling survey, well drilling, well completion, well flowline, pump unit, and electrical. Using a conservative approach, the HRA assumed that all seven phases of construction would occur simultaneously, even though these activities generally occur sequentially. Emissions from well drilling were estimated for wells of 2,000, 5,000, and 10,000 feet because wells of different depths require drill rigs with different horsepower ratings and deeper wells require more days of drilling, both factors which influence emissions. For example, a 10,000 foot well requires 3 drill rigs of 1,040 HP each drilling for 23 days, while a 2,000 foot well requires 3 drill rigs of 440 HP each drilling for 4 days.

Emissions from operational activities were evaluated separately based on emissions sources used for oil processing and natural gas combustion. The oil processing scenario assumed that emission sources would consist of: two 1,000 Bbl above-ground tanks; one 3,000 Bbl above-ground tank; one 10 MMBtu/hour flare; one truck loading rack; fugitive emissions from valves, flanges, and one underground sump; and thermally enhanced oil recovery (TEOR) equipment. The natural gas combustion scenario assumed that emission sources would consist of: one new 100 MMBtu/hour flare; one 8 MMBtu/hour process Heater; one 10 MMBtu/hour boiler; one 85 MMBtu/hour steam generator; and one 33 MW cogeneration plant.

The analysis also assumes that all emissions (construction and operational) occur on a shared fence line between a drill site and a neighboring landowner (rather than in the middle of a well pad or spread out throughout a well pad), further adding to the conservative nature of the assessment.

Exposure Assessment

Exposure assessment determines the amount, duration, and pattern of human exposure to the chemical or air emission. When emissions are released from a source, various factors such as terrain, wind speed, and wind direction affect how the emissions move and the concentration of those emissions in different areas. This subsequently affects the concentration that an individual in a particular location is exposed to. Thus, this step takes the emissions estimates from step 1 and uses modeling to predict how individuals will be exposed to emissions from the Project and at what concentrations. The HRA looked at three different locations in Kern County in order to capture the differences in various parts of the County that affect how emissions disperse as they leave a source.

Dose-Response Assessment

The dose-response assessment describes the quantitative relationship between an individual's exposure to a substance (the dose, here Project emissions) and the incidence of an adverse health impact (the response). This step estimates how much of the chemical/air emission it would take to cause varying degrees of health effects that could lead to illnesses (e.g., what are the health effects at different levels of exposure?). This analysis also attempts to identify levels of exposure to toxic emissions at which no or very low levels of adverse health effects occur.

Risk Quantification

The goal of risk characterization is to assess the risk of cancer and other illnesses in the general population due to toxic emissions from the Project. The HRA in the DEIR achieves this goal by identifying how far away from the shared property boundary (oil company and private residence) that a sensitive receptor must be located in order for the calculated cancer risk to that receptor to fall under the SJVAPCD cancer risk threshold of 10 in 1 million. These buffer distances are in Table 4.3-34 in the DEIR, replicated below.

Table 4.3-34: Potential health risk from well construction, drilling and completion emissions

Well Depth (feet)	Year	Maximum distance from well site and project boundary to 10 in one million calculated risk
Western Subarea		
10,000	2015	367 feet
10,000	2020	232 feet
10,000	2029	82 feet
5000	2015	116 feet

Table 4.3-34: Potential health risk from well construction, drilling and completion emissions

Well Depth (feet)	Year	Maximum distance from well site and project boundary to 10 in one million calculated risk
5000	2029	NA
2000	2015	NA
2000	2029/2035	NA
Central Subarea		
10,000	2015	367 feet
10,000	2020	232 feet
10,000	2029	82 feet
5000	2015	116 feet
5000	2029	NA
2000	2015	NA
2000	2029/2035	NA
Eastern Subarea		
10,000	2015	296 feet
10,000	2019	183 feet
10,000	2029	NA
5000	2015	NA
5000	2029	NA
2000	2015	NA
2000	2029/2035	NA

Table 4.3-34 shows the minimum setback/buffer distance from the well site to the sensitive receptor for wells drilled to the specified depth in each subarea for the specified year. Thus, Table 4.3-34 shows that, in 2015, a sensitive receptor in the Western or Central Subareas would need to be 367 feet away from a shared property line where a 10,000 foot well is being drilled in order for the cancer risk to individuals on that property to be below 10 in 1 million. If the sensitive receptor is beyond 367 feet from the shared property line, the risk to individuals on the property falls below the threshold. The necessary buffer distances decrease over time (as further emission controls set in) and for shallower wells (as those produce fewer emissions over fewer days, as explained above).

The 10 in 1 million cancer risk threshold means that, out of one million people exposed to the emissions from the Project continuously over 70 years (an assumed lifetime), only 10 people would contract cancer. Although emissions from drilling are more substantial than emissions from operations, they are also of much shorter duration, 23 days at the most for a 10,000 foot well. Thus, it is unlikely that any individual would be exposed to Project emissions for the duration assumed in the cancer risk analysis (24 hours per day for 70 years). In addition, even though operational emissions would be constant, they occur at much lower levels than drilling emissions.

The DEIR requires in MM 4.3-5 that operators meet the minimum setback distances in Table 4.3-34 in order to ensure that no sensitive receptors are exposed to cancer risk above the threshold. These setback requirements adequately protect sensitive receptors from Project emissions by ensuring that they are far enough away from Project emissions to fall below the SJVAPCD cancer risk threshold. The conservative nature of the HRA analysis and the implementation of MM 4.3-5 will assure that no sensitive receptors will be exposed to hazardous air pollutant emissions that would result in a health risk exceeding the threshold risk levels set by the SJVAPCD.

The HRA Considers All Sources of Potential Toxic Risk

Several commenters claim that the HRA only partially addresses the potential health impacts of oil and gas production. In fact, the HRA considered multiple potential exposure pathways including inhalation, skin contact, mother's milk. In the new HRA, crops were also included per SJVAPCD direction. Appendix M, p. 9; Appendix M-1, p. 3. The list of equipment used in the original HRA (Appendix M to the DEIR) and the new single-well HRA (Appendix M-1) is too long to repeat here, but is included as Appendix 2 to new Appendix M-1. The "Scope of Work" provided to Environmental Compliance Solutions with regard to the HRA is not germane to the EIR, as all necessary assumptions, calculations and background information are described in the HRA Appendices (M and M-1). With regard to the emissions assumptions, CEQA does not require the use of "worst case" or "high end" emissions estimates and similar data. Due to the conservative nature of the analysis (considering all emissions from new wells to be emission increases) and the conservative nature of the factors built into the OEHHA Guidelines and the HARP model, the HRAs in this EIR provide a reasonable estimate of the health risk to sensitive receptors from project activities.

A commenter stated that the HRA analysis failed to consider emissions from all types of well construction and operational activities. The HRAs did evaluate emissions from all project activities related to well construction and operation. Individual items of permitted stationary equipment that is not sited at each well, such as processing equipment, was not included in the analysis because it is not sited at each well and must undergo equipment-specific risk analysis during the SJVAPCD permitting process.

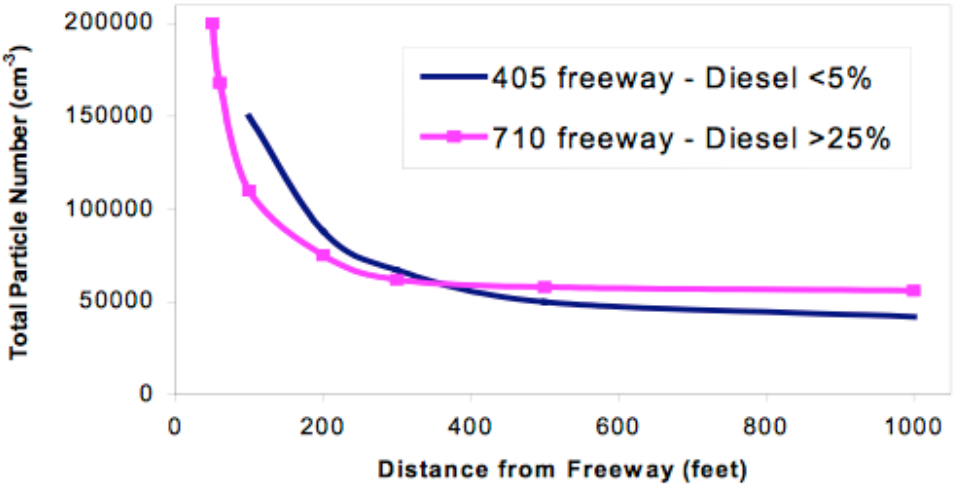
Rebuttal to CCST Risk Assertions/Setback not far enough

Numerous commenters asserted that risk from or that the setback distances in the DEIR are not far enough. Some commenters stated that the setback distances are also inconsistent with CARB recommended minimum setback distances between sources of diesel PM and sensitive populations (500 feet minimum). The commenter did not identify its source for "CARB Recommended Minimum Setback Distances." A 2005 CARB document titled "Air Quality And Land Use Handbook: A Community Health Perspective" includes suggested setback distances of 500 feet or 1000 feet for new sensitive receptors to be located near existing industrial and transportation facilities such as freeways, distribution centers, railyards and refineries. With the recommendations, CARB stated: "These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues." Since the CARB recommendations were made for the siting of sensitive

receptors near large, relatively continuous sources of diesel particulate emissions, they are not germane to the question of appropriate setback distances for diesel emissions from well construction that will typically last for 66 days or less.

As shown in the figure below[76], DPM concentrations drop off quickly with distance from high-volume freeways. This helps to explain why the risk from the Project drops below threshold levels within a moderately short distance from the well pad. As shown in the table, once a sensitive receptor is any appreciable distance from the source (approximately 300 feet), total concentration of DPM, and thus risk, drop off significantly and remain mostly steady even at further distances.

Figure 1-1
Decrease In Concentration of Freeway Diesel PM Emissions With Distance



Locations Modeled

Commenters said that the HRA should consider potential risk at more than three sites in the County. Given the number of wells drilled in Kern County each year, requiring preparation of an HRA for each well would be impractical for the operators, the County, and the SJVAPCD. The County determined that an HRA evaluating the possible health risk at a representative location in each of the three subareas would provide an adequate estimate of the potential risk countywide.

In its comments on the DEIR (Comment Letter 0001), the SJVAPCD did not take issue with this approach. However, the SJVAPCD did suggest moving two of the three locations somewhat, and asked for modeling at a fourth location intended to have higher impacts due to the terrain. See Appendix M-1, pages 2, 3.

[76] This figure is from page 9 of ARB's "Air Quality And Land Use Handbook: A Community Health Perspective", April 2005. http://www.arb.ca.gov/ch/handbook.pdf

Comments concerning the OEHHA Guidance and the HARP Model are addressed in GR Air-7.

Air-4: Air Quality Methodology and Emissions Estimates

Numerous commenters have asked for substantiation for various assumptions in the Air Quality analysis in the DEIR. They claim that because the assumptions and the calculation methods are unsupported, the estimated emissions from Project activities must necessarily be higher and more significant than those addressed in the DEIR. These comments are assertions without substantiation. No commenter provides any evidence that actual emissions from the Project are higher than projected in the DEIR.

In addition, this response explains various assumptions that underlie the analysis in the air quality chapter and provides substantial evidence for both factual assumptions and calculation methodologies used in the analysis. Because all of the assumptions are supported by substantial evidence, the estimated emissions in the DEIR are adequate under CEQA.

- Well Depth in Future Years. Commenters claim that the assumption that depth distribution of wells will remain stable from 2012 to 2035 has no justification. Despite the commenters assertions that as more accessible (i.e., shallower) oil and gas resources are exhausted wells will have to be drilled deeper, this is not the case. Analysis of the data contained in the DOGGR Technical Report "California Oil and Gas Wells Volume-I, Central California" at the "Field-Area-Pool" level, shows that for 576 oil and gas pools with reported depth, the average pool depth is approximately 4,900 feet. More than 90% of the oil and gas pools have a depth of 10,000 feet or less. Within Kern County, the average depth of active oil and gas wells is about 2,220 feet with a standard deviation of 1,973 feet. Statistically, 99.7% of a population is expected to be within 3 standard deviations of the average value. Therefore, it may be predicted with a high degree of certainty that 99.7% of the oil and gas wells drilled in Kern County will have a maximum depth of about 8,100 feet (at 3 standard deviations). It is reasonable to conclude that the emissions resulting from the drilling of a 10,000 foot well are conservative and representative of the maximum emissions that might result from the drilling of an oil and gas well in Kern County. Given that most oil and gas pools are located at a depth less than 10,000 feet and almost all the wells within Kern County also have a depth less than 10,000 feet it is reasonable to conclude that most future wells will also have a depth of 10,000 feet or less.
- Number of Idle Wells. Commenters also claim that the assumption that the number of idle wells will remain stable over time is not appropriate. In Kern County idle wells are regulated by the California Division of Oil, Gas and Geothermal Resources (DOGGR). Beginning in1976, DOGGR initiated a well abandonment and well adoption program to reduce the number of orphaned and idle wells. The DOGGR program has resulted in the abandonment of approximately 1,300 wells at a cost of about $23 million. DOGGR has also

initiated a well adoption program which is designed to further reduce the number of idle wells. Given that the total number of idle wells has remained relatively constant, even though the total number of wells has increased, we believe the existing regulations and the DOGGR programs have proven effective in limiting the population of idle wells

Over the years the price of crude oil has varied significantly. When crude oil prices are high, idle wells may be placed into service. Conversely, when the crude oil prices decline, wells may be idled or abandoned. Despite, these changes, historic trends show that idle well counts remain relatively constant. Historic idle well counts obtained from the idle well lists maintained by DOGGR (summarized below), show that between 1999 and 2014, the change in the average number of idle wells was about 44 wells.

Kern County Idle Wells			
DOGGR Report Year	**Total Idle Wells Reported**	**Change in Wells/Year**	**Percent Change**
1999	12,867	0	0.00
2000	12,581	-286	-2.27
2001	12,726	145	1.14
2002	12,057	-669	-5.55
2003	11,253	-804	-7.14
2004	11,767	514	4.37
2005	11,542	-225	-1.95
2006	11,518	-24	-0.21
2007	11,065	-453	-4.09
2008	11,057	-8	-0.07
2009	10,963	-94	-0.86
2011	11,294	331	2.93
2012	11,826	532	4.50
2013	11,864	38	0.32
2014	12,214	350	2.87
Average	11,773	-44	-0.40

The spreadsheets are available at the DOGGR FTP site
ftp://ftp.consrv.ca.gov/pub/oil/Idle_Well_Inventory/

Based on the DOGGR data spanning approximately 15 years, it is reasonable to conclude that the future change in idle well counts will follow a similar pattern.

In addition, one commenter mentioned a spreadsheet showing the number of idling wells to be constant over time. Although the total number of idle wells is relatively constant over time, the particular wells that are idle change. The air quality calculations assume that 2% of

the idle wells are reworked each year and are included in the well "rework" counts. Another 2% are abandoned each year and are included in the well abandonment counts. In other words the constant value includes a 4% allowance each year which is accounted for as an increase in well "rework counts" and an increase in well "abandonment counts".

- Depth of Wells. The air quality analysis considers a well of 10,000 as a representative well in Kern County. As commentators rightly assert, some wells in Kern County are shallower than 10,000 feet while some, particularly in the Central subarea, are deeper than 10,000 feet. A well of 10,000 feet was chosen for the analysis to represent the vast majority of wells in the Project area and accurately represents Project emissions (overestimating emissions for some wells but underestimating for others and thus balancing out throughout the Project area). According to DOGGR data, only 3% of wells drilled in Kern County in 2012 exceeded this depth. It is reasonable to conclude that the emissions resulting from the drilling of a 10,000 foot well are conservative and representative of the maximum emissions that might result from the drilling of an oil and gas well in Kern County.
- NOx Emissions. Some commenters state that NOx emissions are underestimated in the DEIR based on an exhibit entitled "On the Underestimation of NOx from Oil Well Drilling in Kern County, CA" by Dr, Ron Sahu. Dr. Sahu's article pertains to a selected sample of projects and not specifically to the air quality analysis conducted in the DEIR. He states that because the article shows that there are inaccuracies in NOx reporting, the air quality analysis in the DEIR must suffer the same fate. However, there are numerous issues with Dr. Sahu's report that make it ill suited to compare to the air quality analysis in the DEIR.

First, the report cited examples of the different levels of activities and emission rates used for the sample of projects but did not provide evidence that these different inputs used in the emissions inventory for NOx are incorrect. The title "On the Underestimation of NOx from Oil Well Drilling in Kern County, CA" implies that there was an underestimation of emissions. The document failed to prove that there was an underestimation of emissions.

For example, the report states: "It is also worth comparing the NOx emission factors against the relevant CA emission standards. For example, for the largest engines, size 750 hp (560 kW) and greater, the NOx standard for engines manufactured after 2006-2010 is 3.5 grams/kW-hr or 2.61 grams/hp-hr.3 Yet, the vast majority of the NOx emission factors used for these sized engines is significantly lower at around 1.5 grams/hp-hr. Why that is so or what makes these engines able to meet the lower (and unenforceable) assumed emission factor is not explained by DOGGR." First, the emission rate of 3.5 grams/kW-hr is for carbon monoxide and not for NOx. Second, Dr. Sahu assumes that the emission rate of 1.5 gram/hp-hr was for the year 2006-2010. The California Air Resources Offroad Model provides emission rates for 750 hp engines of 1.36 gram/hp-hr for the year 2013. As such, an emission rate of 1.5 gram/hp-hr is plausible if the equipment selected had a model 2013 engine year or newer.

In addition, the article contains a very small sample size from which to draw conclusions. Dr. Sahu's concludes that there is a significant underestimation of NOx emissions associated with oil and gas well drilling activities in Kern County. This conclusion is based on a review of 5 projects and summary information for four additional projects. As such, a total of 9 projects submitted to DOGGR were reviewed. As stated on page 2 of Dr. Sahu's document, "For example, in just 2013 and 2014 respectively, 2586 and 2207 permits were issued for well drilling by the State of California, Department of Conservation, Division of Oil, Gas and Geothermal Resources (hereafter "DOGGR") field office in District 4, with jurisdiction over Kern County." A total of 4,793 permits were issued in District 4 for 2013-2014. A sampling size of 9 of the 4,793 permits that were issued indicates that Dr. Sahu's study covered 0.2% of the permits that were issued. This small sampling of projects should not be used to implicate the 99.8% of the other projects are inaccurate even if Dr. Sahu's claims on these few permits are valid.

Dr. Sahu is also concerned about how construction equipment emission rates used in the environmental analyses can be verified with the actual equipment used in the field. The DEIR imposes MM 4.3-4, which requires the use of offroad engines that meet Tier 3 emission standards. The use of Tier 3 emission standards is readily verifiable through inspection of the engine year during the implementation of the Mitigation Monitoring Plan as well as an online search through the CARB's Diesel Off-road On-line Reporting System (DOORS).

- VOC Emissions Factors. The fraction of VOC contained in the hydrocarbon vapors released from components differs because overall gravity of the crude oil differs in the each subarea. For example, about 40% of the oil produced in the Western subarea is light oil; around 96% of the oil produced in the central subarea is light oil; and only about 3% of the oil produced in the Eastern subarea is light oil. The fraction of light oil and heavy oil production within a given subarea was used to calculate weighted average VOC emission factors, from the component counts in light oil and heavy oil service respectively.

The component counts for wells recommended in the Gulfwide Offshore Activities Data System (GOADS 2014) were used in the calculations for three reasons. First, the counts are typical of the component counts seen on well-heads used by the petroleum industry in Kern County. Secondly, the information was published by the Department of Interior and the report is readily available to the public. Finally, the report also includes estimates of the weight fraction of VOC contained in the fugitive emissions from light oil and heavy oil.

With respect to the leak fractions used in the calculation, the leak fractions correspond to the allowable leak fractions specified in SJVAPCD Rule 4409.

- Activity Assumptions for Drilling. The information listed in the spreadsheet summarizes actual data compiled during the drilling of 10 wells having an average depth of 10,000 feet. The information serves as a starting point for evaluating similar types of activities (i.e. line items in the spread sheet). The

duration of some drilling activities (or tasks) vary with well depth. Others do not. Depending on the nature of the task, each line item (i.e. task) listed in the spreadsheet was adjusted as needed on a case-by-case basis. For example, use of a portable crane for "rig-up" and "rig-down" was assumed to require two days to complete regardless of well depth. On the other hand, the number of days required for the operation of rig engines and mud-pumps depends on well depth. These days were adjusted accordingly. For example, the drilling of a well having a depth of 1,000 feet requires about 3 days; while the drilling of a well having a depth of 15,000 feet requires about 66 days.

With respect to the hours of operation used in the calculations, the use of a 22 hour per day operating schedule is very conservative (90% run time). It may overestimate emissions, since rig equipment could be idle for more than 2 hours per day, to complete required maintenance or due to equipment breakdown. Rig sizes used in the calculations also vary with depth. The size of the rig was determined by grouping the 2012 US Drilling Rig fleet into rated depth categories corresponding to 5K, 10K, 15K, 20K and 25K feet. Within each depth category the horsepower rating of the rig engines and the mud-pumps were averaged to obtain a representative configuration for a rig rated to drill to the given depth. The horsepower and equipment configuration for that depth rating was then used in the calculation of the emissions resulting from the drilling of a well to the given depth.

- Use of Ten Wells Drilled in 2010-2011. The analysis is not based solely on information obtained from the drilling of 10 wells. The data collected from the 10 wells was used to compile a list of equipment and activities for calculating emissions from offroad and onroad equipment. The data was combined with actual geographic information (well site locations) to calculate emissions from well construction and related operational activities. Detailed information on the equipment and operating parameters were compiled during each phase of the well construction activities. The information was subject to a peer review by other industry members, and members of the drilling industry and it was concluded that the list of equipment and operating parameters was broad enough to capture equipment and activities required for well construction in Kern County. Historic production records and trends were evaluated for more than 50,000 wells and the analysis includes consideration of the existing and forecast emissions from most of the oil and gas production equipment permitted by the SJVAPCD in Kern County.
- Well Projections, Well Count Numbers for Various Well Activities, Information on Well Drilling, Rework, and Abandonment. Please see GR 8 for future well projections. Well abandonment counts were estimated to be about 2% of the number of active wells per year. The number is based on industry expectations. Hydraulic stimulation counts were derived from historic data obtained from Frac-Focus. Future counts were estimated from historic trends. Commenters have not supplied any data to suggest that these assumptions are inaccurate. The Frac-Focus database contains the most comprehensive information available on the

hydraulic stimulation of wells located in Kern County. Given the fact that information on the hydraulic stimulation of wells is proprietary, the data contained in the Frac-Focus database proved to be the best information available for determining the number of hydraulically stimulated wells in Kern County. In addition, data derived from a voluntary source such as Frac-Focus is not necessarily inaccurate merely because it is provided on a voluntary basis. "There is no merit to [the assertion that] information in the record . . . should be discounted or ignored because it was provided by real party in interest." *SPRAWDELF v. San Francisco Bay Conservation and Development Comm'n* (2014) 226 Cal. App. 4th 905, 921 (the agency could reject applicant-provided evidence it found not credible or accept information as accurate and relevant); *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal. App. 4th 656, 684 (agency may rely on study provided by applicant). An agency may accept applicant-provided information "as accurate and relevant." *Id.*; *see also* Pub. Res. Code § 21160.

Other data was provided by the DOGGR District-4 Office and includes detailed information on each well included within a given category. At the time that the preliminary data was provided, the data was the most comprehensive information available and the only information available at a level of detail (well level data) needed to evaluate baseline drilling, rework and abandonment activities. DOGGR has yet to release its final 2012 Annual Report. There are only minor differences between drilling counts obtained from the well-level information provided by DOGGR, and the total (OG+UIC) drilling counts contained in the weekly summaries (which include all oil and gas production wells in addition to wells used pursuant to the underground injection control program).

- Use of Equipment List for Well Maintenance for Well Abandonment. Even though well maintenance and well abandonment are conducted for different purposes, the equipment and activities are similar. With respect to maintenance, small rigs are used for hoisting rods and down-hole pumps out of the wells so that they can be replaced as part of routine maintenance conducted on the well. Similarly, small rigs are used to hoist rods and electric submersible pumps from wells so that the wells can be filled with "mud" and cement per DOGGR requirements for abandonment. In both cases activities are conducted using the same types of rigs and only require a few days to complete.

- Number of Days to Complete Work Based on Well Depth. The equation used for estimating well depth was derived using a curve fitted equation generated by Golden Software "Grapher, Version 10". The data used in the analysis was obtained from a compilation of DOGGR well records, provided by "IHS", a company that specializes in providing data to a variety of industries including the petroleum industry. The data used in the analysis was obtained directly from the detailed well records maintained by the DOGGR in their well record database. The number of days required to drill a well to a given depth was determined by subtracting the "rig spud date" from the "rig release" date. The analysis includes

the evaluation of the wells drilled between the years 2000 through 2012. Outlying data was rejected as recommended in ASTM Standard E 178-02 "Standard Practice for Dealing With Outlying Observations". The number of wells drilled to a given depth were grouped into 1,000 foot intervals between 1,000 feet to 24,000 feet. The data was then input to the "Grapher 10" program and curve fitted to generate the equation used for estimating well depth. The preliminary data on well drilling, rework and abandonment is freely available to the public and may be obtained from the DOGGR District-4 office upon request.

- Lower Emission Factors in 2035. The air quality analysis utilizes lower emission factors in 2035 because assumes that new regulatory controls will come into effect**.**
- Fugitive VOC Emissions. Emissions of volatile organic compounds (VOC) from the operation of oil and gas production wells were accounted for as follows. The VOC emissions from the operation of downstream equipment associated with production from oil and gas wells is accounted for on the SJVAPCD permits authorizing the use of the equipment. These emissions are included in the emissions that were calculated for permitted equipment. The fugitive VOC emissions from the well-head components (valves, flanges, connectors, etc.) were calculated for all wells (active and idle wells). The emissions were calculated from typical well head component counts using EPA and SJVAPCD approved calculation procedures. Fugitive VOC emissions for each year were calculated from the running total well count of all active and all idle wells for the given year.
- Toxic Emissions will be Zero After Mitigation. One commenter claims that the analysis assumes that all air toxics emissions will be zero after mitigation. This commenter refers to a draft table which is not part of the air quality analysis in the DEIR. In addition, the analysis in the DEIR shows that toxic emissions from Project activities will be less than significant (0) with mitigation. MM 4.3-5 will result in less than significant impacts due to toxic emissions. Please also see GR Air-3 and GR Air-6 for a discussion of the HRAs prepared for the Project.

Several of these assumptions are discussed in the DEIR itself while others merely form the basis for the analysis in the DEIR. CEQA does not require the entirety of the analysis to be presented in the DEIR itself. The information supporting the analysis in the DEIR was available for viewing by request to the County and as evidenced by the fact that numerous commenters made comments on various draft charts and spreadsheets used in the air quality analysis for the DEIR, this information was made available to commenters for their review. If the air quality chapter in the DEIR were to contain every assumption, justification, and calculation methodology necessary to estimate project emissions it would be convoluted, excessively long, and too complex to be understood by the common reader. This would be in clear violation of CEQA's mandate that EIRs be written so that "decisionmakers and the public can rapidly understand the documents." CEQA Guidelines § 15140; *see also* Pub. Res. Code § 21003(b) (EIRs should be organized and written in a manner that will make them "meaningful and useful to decision-makers and to the public."); *San Joaquin Raptor*

Rescue Ctr. v. County of Merced (2007) 149 Cal. App. 4th 645, 659 (an EIR should be written in a way that readers are not forced "to sift through obscure minutiae or appendices" to find important components of the analysis).

Because all of the assumptions in the air quality analysis are supported with substantial evidence, the analysis accurately estimates Project emissions and is adequate under CEQA.

Air-5: Cumulative Analysis: Health Risk Assessment

Multiple commenters suggested that the Health Risk Assessment in Appendix M of the DEIR was not adequate because it did not address the cumulative risk from drilling and operating multiple wells in close proximity to a sensitive receptor. For the reasons outlined below, the HR in the DEIR in Appendix M and the revised HRA in Appendix M-1 together are sufficient to show that impacts to sensitive receptors will be mitigated to less than significant with implementation of MM 4.3-5.

As explained in GR Air-3 and GR Air-7, the HRA conducted for the DEIR provides a conservative analysis. For example, the HRA included the following conservative assumptions:

- All receptor locations, including the closest receptor, were assumed to be sensitive receptors;
- All phases of construction were assumed to occur simultaneously;
- All equipment was assumed to operate simultaneously;
- All emissions were assumed to occur on a shared fence line with the nearest receptor; and
- Certain co-located equipment was assumed to be present for each wellhead.

The HRA conducted for the DEIR also uses the HARP2 model which, as explained in GR Air-7, results in significantly more conservative estimates of risk.

Even with these conservative assumptions and models, the HRA for the DEIR found that in no case did the proposed Project exceed, or even approach, the 20 in one million risk threshold established by San Joaquin Valley Air Pollution Control District. In addition, the lower 10 in one million threshold utilized in the original HRA was only exceeded by drilling a 10,000 foot well in the Western Subarea in the early years of the Project. Thus, MM 4.3-5 was implemented to require a setback of 367 feet from sensitive receptors. This mitigation measure and the conservative nature of the HRA analysis will assure that no sensitive receptors will be exposed to hazardous air pollutant emissions that would result in a health risk exceeding applicable thresholds.

As explained in GR Air-6, a revised HRA was conducted for the FEIR in response to comments from the SJVAPCD. The results of the revised HRA with SJVAPCD's suggested assumptions, including making the analysis more conservative by assuming that wells are drilled to 15,000 feet rather than 10,000 feet, resulted in a very low risk level requiring no setback. The revised HRA analysis in the FEIR confirms the conservative nature of the HRA performed for the DEIR. Despite the results of the revised HRA, the EIR will maintain the setbacks established in MM 4.3-5.

As explained in both HRAs, the major risk driver from the Project is diesel particulate matter from well drilling activities which accounts for nearly 99% of the toxic risk from the Project. Operational activities add negligibly to the risk outcome and thus, a sensitive receptor near several operational wells would not be subject to hardly any incremental risk. Instead, it would require a receptor to be near multiple wells all being drilled at the same time to appreciably increase risk in a way to approach the risk threshold.

The conservative nature of both HRAs, the implementation of MM 4.3-5, and the risk profile for the Project being driven by DPM from well drilling activities suggest that the DEIR adequately protects a sensitive receptor in close proximity to multiple wells.

Air-6: Revised Health Risk Assessment: SJVAPCD Methodology

Several commenters stated that the HRA was deficient. In particular the SJVACPD requested that the HRA be remodeled to ensure that it is consistent with their regulatory risk policy which was recently updated. After discussions with the SJVAPCD, new single well HRA modeling was conducted based on the District's suggested methodology. The changes in the methodology are summarized below.

1) Diesel Exhaust. The SJVAPCD asked that diesel exhaust be modeled as particulate matter of 10 microns or less (PM10) rather than PM2.5, which was previously modeled in the HRA in Appendix M of the DEIR. The SJVAPCD understands and confirmed that this overstates emissions and risk as PM10 includes road dust and other fugitive dust which is not considered to be toxic by the State of California.

2) Receptor Grid. The receptor grid spacing has been adjusted per the District's request. The prior HRA had used grid spacing at every 25m facing out up to 250m away from the source of emissions. The HRA in Appendix M-1 includes further distances up to 2,000m in a grid system as follows: 25m spacing on facility boundary, 25m spacing from facility boundary to 100m, 50m spacing from 100 – 250m, 100m spacing from 250 – 500m, 250m spacing from 500 – 1,000m, and 500m spacing from 1,000 – 2,000m.

3) Terrain Characteristics. The HRA in the DEIR used three scenarios for terrain characteristics: (1) Midway Sunset Oilfield, (2) Kern River Oilfield, and (3) North Shafter Oilfield. As requested by the SJVAPCD, the HRA in Appendix M-1 includes one additional modeling location in the Western Subarea which is known as "Derby Acres." An additional HRA is included in Revised Appendix M-1 which includes an analysis of Derby Acres. This location has very complex terrain. The selected location is at the bottom of a "bowl type" formation which allows for minimal air dispersion and thus likely represents a worst-case risk scenario. The SJVAPCD also moved one of the previously modeled locations to a site about one mile away and moved another location about eight miles away. The location of the Central Subarea location in Shafter did not change.

4) Meteorological Data. The prior HRA modeling used meteorological data only from the Bakersfield meteorological station (station ID 23155) rather than multiple meteorological

data sites. This is because the Bakersfield station data is the only dataset set up to work exactly with the HARP model. In addition to the Bakersfield data that was previously used, for the HRA in Appendix M-1 additional meteorological data was used from the Arvin, Fellows and Missouri Triangle stations.

5) Dispersion Modeling Inputs (AERMOD).

    a. The prior HRA modeled drilling rigs as volume sources. The HRA in Appendix M-1 modeled drilling rigs as point sources at the SJVAPCD's request.

    b. Flare emission factor updates were also provided by the APCD and used in these calculations.

6) HARP 2 Inputs.

    c. SJVAPCD utilizes a 70-year residential exposure assumption in HRAs prepared in the District as compared to the State of California's HARP2 computer risk program which assumes a 30-year residential exposure. The HRA in Appendix M-1 assumes that residents stay in the same home for 70 years while the prior HRA used the 30-year assumption.

    d. SJVAPCD requested that the possibility of home-grown food exposure be included in the analysis. Although this is not part of the State of California guidelines, it was included as a potential route of exposure to chemicals in the HRA in Appendix M-1.

7) The prior HRA conservatively assumed that all emissions (construction and operational) occurred on a shared fence line between a drill site and a neighboring landowner (rather than in the middle of a well pad or spread out throughout a well pad) as is more likely. The District requested that the drilling rig emission sources not be contained on such a small area of land and that they also be separated from the drilling mud sump location. This was resolved in the HRA in Appendix M-1 by measuring to the highest concentration of risk from either source so their location relative to each other is not a risk determinant.

8) CEQA Threshold. Finally, SJVAPCD requested that the analysis results be compared to the SJAPCD CEQA Significance for Toxic Air Contaminants of 20 in one million (20 x 10-6) rather than the 10 in one million threshold utilized in the DEIR. The HRA in Appendix M-1 also includes comparisons to the 10 in one million threshold for informational purposes.

The aforementioned changes have been made and are included in the HRA in Appendix M-1 to the DEIR.

The basis for the analysis did not change from the HRA that is in Appendix M of the DEIR (please see GR Air-3 for more information on that analysis). For example, both HRAs evaluated potential calculated cancer risk as well as other potential illnesses due to both short-term (acute) and long-term exposure (chronic health risk) from toxic emissions associated with well construction, drilling, and completion as well as oil and gas processing equipment.

None of the equipment assumptions for well drilling or operational activities changed. Typical well construction phasing and equipment lists were provided as part of our scope of work; along with emission calculations from all well drilling equipment. The list of equipment used for both HRAs is available in GR Air-3. All well construction emissions were assumed to occur simultaneously for worst case, conservative assumptions. Both the HRA completed for the DEIR in Appendix M and the revised HRA in Appendix M-1 were based on very conservative assumptions; **one of which was to assume that all receptor locations are sensitive receptors.** Sensitive Receptors are defined as "[p]eople that have an increased sensitivity to air pollution or environmental contaminants are considered to be sensitive receptors. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s). The location of the nearest sensitive receptors to a project site is needed to assess toxic impacts on public health." SJVAPCD "Guidance for Assessing and Mitigating Air Quality Impacts", April 2012, p. 9. In addition, both HRAs assume that a pregnant woman and her small children reside at the nearest residential location.

Both HRAs followed the OEHHA Guidelines as amended in March 2015. The latest version of the Guidance Manual updates the previous version (OEHHA, 2003), and reflects advances in the field of risk assessment along with new more conservative consideration given to infants and children and their associated inhalation rates. The new guidelines are significantly more stringent than the 2003 predecessor and this is the document that was used for the DEIR. Results using the March 2015 OEHHA Guidelines result in calculated risk of more than 300% to 600% (3-6 times) higher than calculations using the previous guidelines.

As recommended by the 2015 OEHHA guidelines, the California Air Resources Board (CARB) Hotspots Analysis and Reporting Program, Version 2 (HARP2) was used to perform a refined health risk assessment for potential future drilling and operational emissions. HARP2 includes three modules: a dispersion model, an exposure/dose module and a risk module. The dispersion model incorporates the United States Environmental Protection Agency (USEPA's) AERMOD model and the risk model includes the latest changes made by the State of California to the Risk Assessment inputs. For more information about the HARP2 Model please reference Global Response Air-7.

The State of California's HARP2 risk model (as of March 2015) has a 30-year residential exposure built into the program. Traditionally, it was assumed that someone lived in the same house for 70 years. SJVAPCD has decided to continue to require the assumption that one lives in the same home for 70 years (per the old model). This change, along with the other state changes mentioned above, have the potential to result in calculated risk significantly higher than those calculated using the model prior to March 2015. In response to this change, the SJVAPCD also changed their risk threshold from 10 in one million to 20 in one million on June 30, 2015. *See* SJVAPCD APR – 1906, "Framework for Performing Health Risk Assessments", dated June 30, 2015.[77] The staff report for the update to SJVAPCD's threshold states that it is revising the District's HRA threshold to 20 in one million due to the changes in OEHHA's March 2015 guidance document. SJVAPCD Draft

[77] Available at: http://www.valleyair.org/policies_per/Policies/apr-1906.pdf.

Staff Report, "Proposed Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document", dated September 23, 2014.[78] For more information on the risk threshold in the EIR, please reference Response 0049-9.

The HRA analysis in Appendix M-1 was completed for wells with depths of 10,000 and 15,000 feet. The prior HRA modeled wells at 10,000 feet and less. Based on the current wells in Kern County it is reasonable to assume that less than 5% of wells in the County are deeper than 15,000 feet and even this assumption is likely conservative. Wells were not modeled below 10,000 due to lack of impacts, as discussed below.

As shown in Table 7-4 below, results for the HRA contained in Appendix M-1 indicate that none of the modeled scenarios resulted in risk greater than 20 in one million. The only scenario which resulted in a risk greater than 10 in one million was drilling a 15,000 foot well in the hilly Western - Derby Acres location (a location where a well would be unlikely to be drilled). Risk decreases to below 10 in one million at 182 feet from the well drilling equipment at this location. This set back distance is below the 210 foot noise set back requirement contained in the DEIR in MM 4.12-2 and below the 367 foot setback in the DEIR in MM 4.3-5.

Table 7-4: Potential Health Risk from Well Construction, Drilling, and Completion Emissions

Well Depth (feet)	Year	Maximum distance from well site and project boundary to 10 in one million calculated risk	Maximum distance from well site and project boundary to 20 in one million calculated risk
Western Subarea – Derby Acres			
15,000	2017	182 feet	NA
10,000	2015	NA	NA
Western Subarea – Midway Sunset			
15,000	2017	NA	NA
10,000	2015	NA	NA
Central Subarea			
15,000	2017	NA	NA
10,000	2015	NA	NA
Eastern Subarea			
15,000	2017	NA	NA
10,000	2015	NA	NA

As shown in Table 7-5 below, the Subareas had risk levels ranging from 2-4 in one million for a 10,000 foot well scenario.

[78] Available at: http://www.valleyair.org/Workshops/postings/2014/10-09-14_OEHHA/Draft-Staff-Report-9-23-14.pdf.

Table 7-5: Potential Health Risk Levels from Well Construction, Drilling, and Completion Emissions

Well Depth (feet)	Year	Risk Level by Subarea			
		Western Subarea – Derby Acres	Western Subarea – Midway Sunset	Central Subarea	Eastern Subarea
10,000	2015	4.6	2.8	2.1	1.6
15,000	2017	13.1	7.6	2.8	4.4

The County and its experts have reviewed both this Revised HRA (available in Appendix M-1) and the Cumulative HRA (available in Appendix M-2 and discussed further in GR Air-5), and concluded that no changes to the setback distances included in MM 4.3-5 are necessary as these are greater than warranted based on the analyses and conclusions included in these revised HRAs. The greater setback distances included in MM 4-3-5 provide an extra margin of safety to protect the public health of nearby homes, schools, and other sensitive receptors under both single-well and multiple-well exposure scenarios.

Air-7: HARP Model

As explained in more detail below, the assumptions used for the Health Risk Assessments (HRAs) completed for this EIR were based on conservative assumptions and are consistent with the state and SJVAPCD required model. Appendices M and M-1 contain the HRA for the DEIR and the HRA that were completed in response to comments. Please also see global responses GR-Air-3 and GR-Air-6 for a further explanation of the HRA process for both the DEIR and FEIR.

HRA Overview

The overall goal of an HRA is to establish potential risk criteria for residences, workers and other sensitive receptors. Sensitive receptors are people that have an increased sensitivity to air pollution. Sensitive Receptors are defined as "[p]eople that have an increased sensitivity to air pollution or environmental contaminants are considered to be sensitive receptors. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s). The location of the nearest sensitive receptors to a project site is needed to assess toxic impacts on public health." SJVAPCD "Guidance for Assessing and Mitigating Air Quality Impacts", April 2012, p. 9. In addition, both HRAs assume that a pregnant woman and her small children reside at the nearest residential location.

In general, as described in the DEIR under Impact 4.3-3 (beginning on page 4.3-103) an HRA is conducted by taking the following approach: identifying the hazardous constituents of concern and developing an emissions inventory; performing air dispersion modeling to identify how the identified emissions may potentially be transported through the atmosphere; developing benchmarks for the cancer and non-cancer dose response to these constituents; and developing a probability-

based risk factor based on the abovementioned steps. An HRA considers all of the following to establish a conservative, probability-based finding:

- Cancer potency factor
- Age sensitivity factor
- Daily breathing rate
- Frequency of time at home
- Length of exposure

HARP 2 Overview

California's Office of Environmental Health Hazard Assessment (OEHHA) is tasked with determining the relative toxicity of numerous chemicals and compounds. In conjunction with the California Air Resources Board (ARB), OEHHA also develops guidelines for how an HRA must be conducted. California facilities have been required to assess potential health risks from toxic air contaminant emissions since 1987. OEHHA released the first HRA guidelines in 2003.

California also produces the software that is required to be used to complete HRAs. The software consists of two tools: an air dispersion modeling tool known as AERMOD, and a Risk Assessment Calculator known as the Hot Spots Assessment Reporting Program (HARP).

AERMOD predicts where specific emission concentrations will be deposited based on specific meteorological and terrain conditions in the project area. AERMOD replaces the previous air dispersion modeling tool, which was known as ISCST.

The HARP model has been required since 2003. HARP assigns risk values to the concentrations of each toxic air pollutant based on how toxic OEHHA has deemed each chemical to be at varying levels of exposure. HARP was updated (and renamed HARP2) in March 2015 to reflect OEHHA's most recent changes to toxic risk assumptions.

HARP2 is equipped with three modules: the Emissions Inventory Module (EIM), the Air Dispersion Modeling and Risk Tool (ADMRT), and the Risk Assessment Standalone Tool (RAST). HARP2 allows the results to be plotted on a map so that distances to receptors and risk isopleths can be created.

HARP2 reflects advances in the field of risk assessment. HARP2 also includes new and more conservative considerations for infants and children, including their associated inhalation rates. For example, under HARP2 children under the age of 2 are assumed to breathe considerably more air than was previously assumed. HARP2 also has a 30-year residential exposure built into the program. Traditionally, it was assumed that someone lived in the same house for 70 years. These and similar changes in HARP2 mean that HRAs conducted subsequent to March 2015 are significantly more conservative with regard to estimates of risk probability rates, and in fact almost tripled such rates from the previous HARP version. On average, a risk number is about 300% higher under HARP2. In other words, a 3 in one million risk in 2014 under HARP would become an

almost 10 in one million risk in 2015 under HARP2. Also see the discussion in GR Air-6 regarding modeling changes requested by the SJVAPCD for the updated HRAs included in the FEIR.

Significance Thresholds for this Project

Local air districts, in conjunction with OEHHA, establish thresholds of significance for toxic air contaminant risk levels. The risk level established by the San Joaquin Valley Air Pollution Control District (SJVAPCD) is 20 in one million. Projects in excess of this threshold are considered to pose a significant adverse environmental impact under CEQA. The DEIR utilized a threshold of 10 in one million in the HRA in Appendix M. This resulted in the setbacks required by MM 4.3-5. The revised HRA completed in response to comments (found in Appendix M-1) utilized the 20 in one million threshold established by the District but also compare their results to the 10 in one million threshold for informational purposes.

The HRA conducted for the DEIR followed the OEHHA guidelines as amended in March 2015 and utilized the newly released HARP2 program. As explained above, HARP2 already results in significantly higher theoretical risk estimates than those resulting from use of the previous HARP guidelines. In addition, one of the key assumptions in the HRAs completed for this EIR was that any potential emissions receptor location is a sensitive receptor. Individuals who may be more sensitive to toxic exposure (such as pregnant women or young children) were assumed to be the individuals who would be present in the closest residential and/or school location to the emissions source. Furthermore, the HRA also assumed that all equipment would be operating simultaneously (which is not realistic, but utilized to create the most conservative analysis possible). Even with these conservative assumptions and the use of HARP2, in no case does the proposed Project exceed, or even approach, the 20 in one million threshold established by SJVAPCD.

Air-8: Well Stimulation Emissions

Some commenters suggested that the Health Risk Assessments (HRAs) completed for this EIR should include a discussion of well stimulation treatment activities (WST), including considering the health risks posed by chemicals used for WST.

WST primarily involves adding chemicals to water and injecting them into the subsurface area. Adding chemicals to water used as part of a down-well process generally does not cause air emissions. Instead, the chemicals are underground in the wells in which they are injected. To the extent WST does cause emissions, the vast majority result from large diesel-fired drill rigs or workover rigs (the latter are used for well re-work activities on existing wells). As explained in Appendices M and M-1 emissions from large diesel-fired drill rigs were accounted for in the HRAs. Thus, the HRAs completed for the Project considered all relevant sources of health risks for the Project. Any health risks from emissions other than diesel particulate matter are insubstantial and as the HRA is conservative and over-estimates potential risks, it adequately represents the risks from Project implementation. Please also see GR Air-3 and Air-6 for more information about the conservative nature of the HRA analysis.

Air-9: CCST: Air Emissions

Commenters noted the recent CCST study on well stimulation treatment activities in California and questioned whether the emissions analysis and Health Risk Assessments (HRAs) for the EIR are consistent with CCST's findings and recommendations.

For instance, commenters stated that CCST found that most of the hydraulic fracturing in the San Joaquin Basin occurs at depths of less than 1,000 feet. The commenters therefore questioned whether wells within the Project Area would be at a depth (<2,000 ft.) that would trigger the setbacks established in the EIR. The HRAs assumed that most wells would be drilled at a depth of well over 2,000 feet (each well was assumed to be 15,000 feet deep and to include an associated drilling mud sump) to ensure that the impacts and HRA analysis were conservative. Deeper wells pose higher risks because they require more days of equipment operation to reach the stated depths and therefore have higher emissions. The fact that most wells within the San Joaquin Basin may actually be drilled at depths that are less than 2,000 feet further demonstrates that the EIR's analysis is conservative because the analysis assumes greater emissions than will actually occur.. Also, as noted in the DEIR, 97% of all wells drilled in Kern County are less than 10,000 feet deep, confirming that use of a 15,000 foot depth in the HRA is conservative.. DEIR, pp. 4.3-104, 105. For more information about the setbacks used in the HRAs and throughout this EIR, please see GR Air-10.

Commenters also pointed to CCST's finding that residents near active oil and gas wells may have a higher risk of being exposed to harmful chemicals, and as a result could have a higher risk of developing health problems. Commenters note that CCST found that significant exposures could occur as far as two miles from an active well. In the analysis performed for this Project, emissions were assumed to occur from the drilling of 42 oil wells at distances of ½ mile, one mile, and two miles away from a sensitive receptor. The analysis assumed that the closest sensitive receptor would be a school (and therefore also assumes some of the most sensitive individuals, small children, are present). In addition to the conservative depth assumptions noted above, the analysis in this EIR assumed that well re-work utilizing a workover rig would be required annually for each well. In practice, re-work is performed less frequently. Even with these conservative assumptions, the HRA conducted for the DEIR (Appendix M) results in calculated potential cancer risks of less than 5 in one million. This is significantly below the SJVAPCD CEQA risk threshold standard of 20 in one million (please also see GR Air-7, regarding the HARP2 model used for the HRAs, and GR Air-6, discussing the HRA methodology changes from the DEIR made at the request of the SJVAPCD). Therefore, the Project-specific analysis for this EIR demonstrates that risk levels are acceptable for nearby residents.

The analysis used in the original HRA followed all requirements of the most recent OEHHA Risk Assessment Guidelines and SJVAPCD risk assessment guidelines, and used CARB's HARP model as directed by the state. The new risk assessment in the FEIR (Appendix M-1) also followed these directives, with additional refinements requested by the SJVAPCD. (See GR Air-6 for more discussion of the revised HRA.) If these guidelines and models are updated to incorporate any new toxicity or exposure information that was used in the CCST study, any future HRAs will use that methodology.

Diesel particulate matter is responsible for most of the health risk from well construction and operation. It is noted that airborne concentrations of diesel particulate matter (and hence potential risk from exposure) decrease significantly within a very short distance from the source. This finding (which is consistent among many scientific studies) is the basis for certain conclusions in the California Air Resources Board's April 2005 publication – *Air Quality and Land Use Handbook: A Community Health Perspective*.[79] This document serves as the basis for CARB's recommendations on siting sensitive receptors within certain distances from diesel sources such as freeways. The report states that "California freeway studies show about a 70% drop off in particulate pollution levels at 500 feet [away from the source]."[80] The report also states that "measured concentrations of vehicle-related air pollutants, including ultra-fine particles, decreases dramatically within approximately 300 feet of [major] freeways."[81] Most of the emissions at a well site are due to the operation of heavy drilling and processing equipment. Therefore, the associated risks from exposure to those emissions, including diesel particulate matter, would be expected to drop-off significantly within 300 feet of a well, and be substantially lower for residences located as far as two miles away from the well site. For more information about sufficiency of the HRAs, please also see GR Air-3.

Air-10: HRA Setbacks and Other Setbacks in EIR

It has been noted that several mitigation measures in the DEIR require setbacks from sensitive receptors. A question has arisen as to how these differing setback measures interact. A setback is a requirement that provides a minimum buffer distance between a regulated activity and a sensitive receptor. Sensitive Receptors are defined as "[p]eople that have an increased sensitivity to air pollution or environmental contaminants are considered to be sensitive receptors. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s). The location of the nearest sensitive receptors to a project site is needed to assess toxic impacts on public health." SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts, April 2012, p. 9.

These uses are generally considered to be more sensitive to air pollution or noise impacts than others due to the types of population groups or activities. Acknowledging that oil and gas activities due to Project implementation may have an adverse impact on such receptors, the DEIR provides for setback requirements from sensitive receptors for both air quality and noise impacts. For both air quality and noise, the impacts are greater during construction activities so setbacks during construction are greater than during operations.

Construction Activity Setbacks Protective of Health Risks and Noise Impacts

Mitigation Measure 4.3-5 on page 4.3-110 – 112 of the DEIR requires that the Site Plan for a proposed activity include a Site Vicinity Figure showing the location of any sensitive receptor(s)

[79] http://www.arb.ca.gov/ch/handbook.pdf.
[80] *Id.* at p. 6.
[81] *Id.* at p. 9.

located within 3,000 feet of the construction site. When there are no such receptors, no mitigation is required.

However, if sensitive receptors are present with 3,000 feet of the site, the HRA setback requirements for construction activities are triggered as follows:

Well Depth (Feet)	**Minimum Setback distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet) During Construction**
Western Subarea	
10,000	367
5,000	116
2,000	NA
Central Subarea	
10,000	367
5,000	116
2,000	NA
Eastern Subarea	
10,000	296
5,000	NA
2,000	NA

If the Applicant can demonstrate to the San Joaquin Valley Air Pollution Control District that alternative measures achieve a level of risk less than the threshold level of risk, the setbacks may not be required. Such measures include: preparation of a risk assessment showing that a lesser setback is required under District protocols; placing engines away from sensitive receptors; utilizing directional drilling to locate the rig farther from sensitive receptors; using late-model low-emission diesel products, alternative cleaner fuels, retrofit technology, add-on devices, and other emission reducing equipment; utilizing electricity line power when available; limiting idling to 15 minutes; using automatic rigs; and assisting and paying to relocate residents to an area hotel during well construction, drilling, and completion activities.

Mitigation Measure 4.12-1 establishes a similar regime to address the exposure of sensitive receptors to noise in excess of established standards during construction. As in Mitigation Measure 4.3-5, the Site Plan Application must include a Site Vicinity Figure showing the location of any sensitive receptors within 3,000 feet of the construction site. If no sensitive receptors are present, then no mitigation is required. However, if sensitive human noise receptors occur in the potential impact area identified in the Site Vicinity Figure, then the Applicant is required to provide information showing the type of equipment being used and the noise contours with levels not exceeding 65 dBA at the nearest exterior wall of the sensitive receptor or more than 1 dBA higher than the ambient noise levels if such levels are in excess of 65 dBA. If the resulting noise levels cannot meet these standards, then further mitigation is required including placement of a temporary sound attenuation wall; construction of a temporary berm; implementation of a quiet mode drilling plan or other sound

reduction technology or practices documented in a report to the County; arranging the voluntary, temporary relocation of the sensitive receptor during the construction period; and the use of the following setback distances:

Construction Noise Setbacks

Activity	Setback Distance (feet)
Drilling (Well Advancement)	1550
Drilling (Pull Out Of Well/Borehole)	820
Large-Scale Exploratory Drilling[1]	3270
Well Workover	930
Hydraulic Fracturing	1090

The most stringent of these setbacks apply. For example, if the construction HRA setback is 296 feet but the applicable noise setback is 3270 feet, then the required setback is 3290 feet.

Operational Activity Setback Requirements

The Draft EIR explains that there is no offsite health risk from operational emissions, hence there is no setback requirement for operational air emissions.

The Draft EIR also explains that operational noise impacts do require a setback to protect sensitive receptors from significant adverse noise impacts. The current County ordinance provides for a setback distance of 100 feet, but the noise analysis in the Draft EIR shows that a 190 foot setback is appropriate. In response to comments, the Noise analysis was recalculaed and a revised Noise Appendix was prepared as discussed in GR Noise 1. The setback distance required to protect sensitive receptors from operational noise impacts increased from 190 feet to 210 feet. Mitigation Measure 4.12-2 has been revised to require that new oil and gas well shall be a minimum of 210 feet from the closest sensitive receptor.

Conclusion

Setback distances represent the distances necessary to achieve full mitigation. When multiple setback distances apply, the Applicant is required to comply with the most rigorous. For example, during construction, if the Applicant is required to locate the well site 367 feet away from the nearest sensitive receptor under Mitigation Measure 4.3-5 and is required to locate the well 190 feet away from the nearest sensitive receptor under Mitigation Measure 4.12-2, the Applicant will be required to comply with the larger setback requirement. Complying with the larger setback requirement ensures that mitigation is achieved for both impacts.

Air-11: Emissions from Sumps, Ponds, and Pits

Some commenters questioned the DEIR's analysis with regard to potential impacts, including air emissions and health risks, from the use of sumps, pits and ponds. As explained in more detail below, the DEIR relied on the best and most relevant data for the analysis of this particular issue.

What are Sumps, Pits & Ponds?

As an initial matter, it is helpful to explain the terms "sump" "pit" and "pond" as used in this EIR. The terms were often used interchangeably and incorrectly by commenters, and they are not currently specifically defined in applicable regulations. However, for purpose of this EIR, the terms "sump" and "pit" are one in the same, and refer to an excavated depression in the ground which collects crude oil, produced water, or solids, such as drilling muds or cuttings, in oil producing fields. The terms "drilling sump" and "drilling pit" are utilized interchangeably in this EIR to refer to the collection of drilling fluids and cuttings (collectively known as "drilling muds"), which are produced during drilling operations. The term "operation sumps" is used to refer to sumps that are utilized to store fluids and solids, which are produced during the life of the operational well as well as potential workover activities. (DEIR at 3-47).

By contrast, the terms "evaporation and percolation ponds," or "perc ponds" refers to a type of storage for produced water, where it is allowed to percolate into the soil and / or evaporate into the air. A percolation pond is used to dispose of water associated with hydrocarbon production by percolation into the soil. A natural or artificial evaporation pond is a pond with a large surface area that is designed to efficiently evaporate water by exposure to sunlight. (DEIR at 3-47)

The primary difference between sumps and pits on the one hand and ponds on the other is that sumps and pits are co-located with wellhead sites. Ponds, on the other hand, are typically centralized facilities which collect fluids from multiple operators at a location that is not related to the location of drilling operations. *See also* Comment on DEIR No. 83-25 ("CVRWQCB staff uses the term 'pond' for an unlined impoundment for disposal of produced water via evaporation and percolation … CVRWQCB staff uses the words 'drilling mud pits' for an unlined impoundment used by the industry to contain drilling fluid and cuttings while drilling a well.")

The Analysis of Sumps, Pits & Ponds in the Health Risk Assessment

Some commenters stated that because the Health Risk Assessment took into consideration the use of sumps and pits in its analysis (commenters refer only to sumps but, as noted above, this EIR uses the terms sumps and pits interchangeably), it should have also taken into consideration the use of ponds. As explained above, ponds are not necessarily co-located with wellheads or drilling sites. As a result, they are not relevant to the HRA analysis, which is primarily used to determine the appropriate setback for activities considered part of the Project. The Health Risk Assessment (Appendix M) included potential fugitive toxic emissions from both a drilling mud sump during drilling operations and a 30' x 30' ground level sump that was assumed to exist as part of on-going oil and gas processing operations. Emissions from such a sump were very conservatively assumed to have a continuous volatile organic compound (VOC) release rate of 0.01 pounds per hour. Those VOCs were further assumed to contain potentially toxic components typically found in crude oil. The compounds modeled from the sump were: ethylbenzene, benzene, xylene, tolune, cyclohexane, and nhexane. This hydrocarbon sump would be expected to have significantly higher emissions than a produced water disposal ponds. Pond facilities are not considered to be within the scope of the Project, and would be subject to separate permitting (and perhaps HRA analysis) if and when any new pond facilities are proposed in the Project Area. (*See* DEIR at Attachment A to Chapter 3, which notes that drilling pits and sumps will be subject to conformity review, but does not reference ponds).

The Analysis and Need to Forecast with Regard to the Number of Sumps, Pits and Ponds

Some commenters argued that the DEIR improperly did not include an estimate as to how many pits and sumps would be required to meet the wastewater disposal demand of the wells within the Project, or an analysis of impacts related to that number. The analysis in the DEIR with regard to impacts from sumps was, contrary to commenters' assertions, actually overestimated. For example, as explained above the HRA assumed that there would be one co-located sump for every well drilled (and accounted for assumptions about leaks from such sumps), and established the setbacks accordingly. In practice, multiple well-heads will usually share a sump or pit, meaning the HRA was actually conservative in terms of the presumed number of sumps going forward. This is compounded by the fact that in recent years the use of drilling sumps has been reduced in the Project Area because well field operators increasingly utilize closed-loop drilling systems that avoid mud or fluid discharges to land during the well drilling process. Furthermore, at least with respect to produced water from well stimulation treatment operations, DOGGR's final SB 4 regulations prohibit disposal or storage of produced water in sumps or pits. 14 Cal. Code Regs. § 1786. Therefore, the overall number of such sumps and pits is expected to decrease in the future.

The Analysis of Sumps, Pits & Ponds for Purposes of Potential Air Quality Impacts

Some commenters noted that sumps, pits and ponds were not accounted for in the analysis of certain impacts, including air quality. It is correct that sumps, pits and ponds were not included directly. However, air emissions are either accounted for indirectly, or are negligible.

Emissions from sumps and pits co-located with well sites are captured in the 10% allowance included in the emissions estimate for permit exempt equipment. *See, e.g.* DEIR at 4.3-85, -88. Percolation ponds are not included in the 10% allowance, but air emissions from the produced water in such ponds is negligible (because there are not many light end constituents that are volatile), and would be expected to be less than pits, as noted above. In addition, percolation pond facilities are not within the scope of the Project. (*See* DEIR at Attachment A to Chapter 3.)

For additional information about the permitting and potential water quality impacts from sumps, pits and ponds, please refer to Global Response Water-1.

Air-12: Lifecycle

Several comments state that the EIR should have considered the "life cycle" of Project activities or the petroleum products that will be produced as a result of the oil and gas operations resulting from the Project. For example, commenters state that the EIR should analyze upstream operations (such as the generation of electricity required to carry out Project activities) or downstream processes and actions (such as the ultimate combustion of oil and gas resources produced as part of Project activities). As explained in more detail below, the EIR does not consider such "life cycle" issues because they are not properly considered impacts of the Project, and CEQA does not require "life cycle" analysis.

The EIR properly analyzes the potential environmental impacts from the Project, including future oil and gas activities carried out in accordance with the Amended Zoning Ordinance. This includes considering impacts from all phases of construction and operation of an oil and gas well, such as pre-drilling and site preparation, drilling and well completion, testing and production, well stimulation treatments, and well plugging and abandonment. The EIR also analyzes the effects of construction and operation of ancillary equipment and activities required to support oil and gas development and production, such as roads connecting the drill sites, pipelines gathering oil from the wells, etc. These ancillary activities are directly tied to the oil and gas development, and the development cannot occur without them, and so they are part of the Project.

The comments urge the County to undertake an environmental analysis of highly speculative effects of a long chain of independent transactions by many parties outside of Kern County and even outside of California. CEQA only requires a good faith effort to reasonably disclose impacts resulting from the project and in the vicinity of the project, and cautions against attempting to assess speculative or uncertain impacts. *See* CEQA Guidelines § 15145.

CEQA does not require a "cradle to grave" analysis of purported impacts that are so remote from the project that they cannot reasonably be linked to the approval at issue. The California Supreme Court has expressly rejected the argument that CEQA requires a detailed analysis of "life cycle" impacts that, no matter how attenuated from an actual project, could be associated with the project in some way. In *Save the Plastic Bag Coalition v. City of Manhattan Beach* (2011) 52 Cal. 4th 155, 173-174

(*Manhattan Beach*) the California Supreme Court clarified that CEQA does not require an exhaustive analysis of all conceivable impacts a project may have in areas outside its geographic boundaries.[82] Rather, broad environmental impacts without direct impact on the local agency's geographical area may be evaluated at "a reasonably high level of generality." Less detail would be required where those effects are more indirect than effects felt within the project area, or where it would be difficult to predict them with any accuracy.

The Court cautioned against reliance on "life cycle" studies associated with a particular product, such as plastic or paper bags. Stressing that courts must apply "common sense" when determining how far afield a lead agency must look to review a project's supposed impacts, the Supreme Court held:

> "When . . . increased use of the product is an indirect and uncertain consequence, and especially when the scale of the project is such that the increase is plainly insignificant, the product 'life cycle' must be kept in proper perspective and not allowed to swamp the evaluation of actual impacts attributable to the project at hand."[83]

Where impacts are indirectly related to the project under review, are uncertain and are difficult to predict, the lead agency is not required to guess at the significance of such impacts, particularly where those impacts would occur far from the site of the project itself.[84] The court concluded that the environmental effects discernible from the life cycles of plastic and paper bags would not be significantly impacted by a plastic bag ban in the City of Manhattan Beach.

Similarly, when the California Resources Agency amended the CEQA Guidelines in 2009, the agency deleted previous guideline references to "life cycle" analyses of energy-related emissions in assessing a project's energy impacts pursuant to Appendix F. Section II.C.1 of Appendix F was amended to state that environmental impacts "may include …[t]he project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project~~'s life cycle~~ including construction, operation, maintenance and/or removal."[85] In its *Final Statement of Reasons* explaining the rationale behind the 2009 amendments, the California Resources Agency noted that no existing regulatory definition of life cycle exists, and that such an analysis would not be

---

[82] See also *Save the Plastic Bag Coalition v. County of Marin* (2013) 218 Cal.App.4th 209, 222-223; *Muzzy Ranch Co. v. Solano County Airport Land Use Commission* (2007) 41 Cal.4th 372, 388; *Napa Citizens for Honest Govt. v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 369. See also, *City of Riverside v. City of Los Angeles,* 2011 WL 3527504 (Cal.App.4th Dist., 2011) (nonpublished) (holding that an EIR need only consider the impacts to those areas "in the vicinity of the project," meaning those areas immediately around or adjacent to the project -- not distant areas several miles beyond the geographic boundaries of the project).

[83] *Manhattan Beach, supra,* at p. 175.

[84] *Id.*, at 175. Subsequent cases have confirmed this same rule of law applies even where the lead agency has determined that the project at issue qualifies for a categorical exemption from CEQA. (*Save the Plastic Bag Coalition v. County of Marin* 218 Cal.App.4th 209, 222-223 (2013); *Save the Plastic Bag Coalition v. City and County of San Francisco* 222 Cal.App.4th 863, 880-881 (2014).).

[85] *Adopted and Transmitted Text of SB97 CEQA Guideline Amendments,* Section II.C.1 (available at: http://resources.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf, last accessed September 19, 2015).

consistent with CEQA if it would require an analysis of emissions impacts beyond those that could be considered indirect effects of a project. The Resources Agency also explained that in many industries, products may be manufactured for many different uses as a result of general market demand, regardless of whether one particular project proceeds.[86] These concepts apply equally to "upstream" life cycle activities—such as the manufacturing of the metal to build the drilling rig—as to "downstream" life cycle activities, such as refining or end use consumption of the extracted hydrocarbons.

Here, if the Amended Zoning Ordinance were not adopted, oil and gas production would continue under the existing ordinance. The Amended Zoning Ordinance simply creates a process for review and adds protections for public health, safety and the environment for an activity that has occurred for 100 years and will continue for the foreseeable future. Therefore, the Project does not in any way cause oil and gas development, let alone downstream "life cycle" activities such as refining and consumption.

Even if oil and gas production were curtailed in Kern County, the attendant downstream activities and consumption of refined petroleum products would still occur here and elsewhere, regardless of whether extraction took place in Kern County or somewhere else. This is because downstream activities and end-use consumption in Kern County are not a function of local oil and gas production. Rather, those activities are part of the larger regional, national and even international framework of energy production and consumption. Kern County's and California's energy demands will not decrease simply because less oil and gas is produced locally, nor will they increase if local production increases.

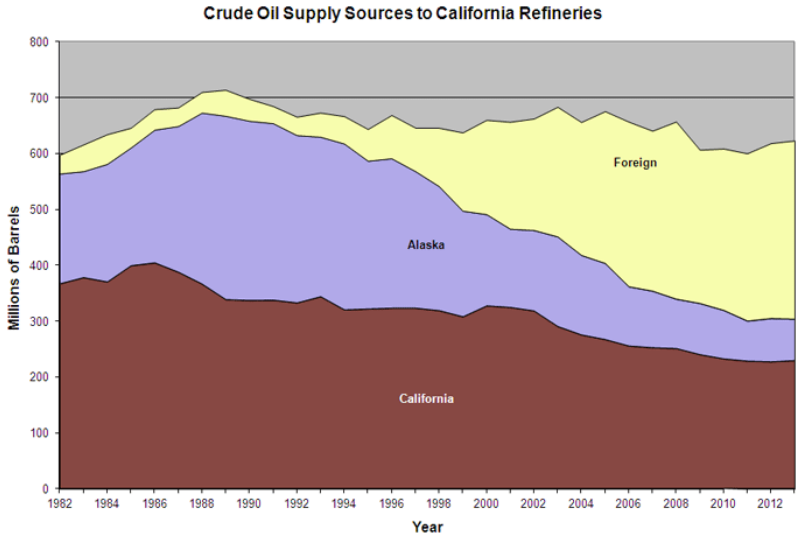
Section 5.6 of the DEIR discusses the potential energy impacts of the proposed Project as required by Appendix F of the CEQA Guidelines. As that section describes, California is the U.S. state that imports the greatest amount of energy from other states and countries. Consumption of overall energy in California outweighs in-state production by about three-to-one.[87] As shown on Table 5-2 of the DEIR, 90% of California's natural gas demands, and about 64% of refinery crude, come from out-of-state. Even while consumption generally continues to decline, California continues to import the majority of its crude oil. If less oil and gas is produced in Kern County, Californians will simply import more oil and gas.

Information from the California Energy Commission (CEC) and the U.S. Energy Information Administration (EIA) demonstrate that California's oil production has generally declined over the

[86] Cal. Natural Resources Agency, *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97* (Dec. 2009) at pp. 71-72. On August 11, 2015, the Resources Agency released new proposed amendments to the CEQA Guidelines. The proposed changes, while not yet final, underscore that "lifecycle" analysis is not a required part of CEQA review. Proposed revisions to CEQA Guidelines section 15126.2, subdivision (b), are designed to "place reasonable limits on the analysis [and signal] that a full 'lifecycle' analysis that would account for energy used in building materials and consumer products will generally not be required." Cal. Natural Resources Agency, *Proposed Updates to the CEQA Guidelines – Preliminary Discussion Draft,* (Aug. 2015) at pp. 77-78.

[87] DEIR at p. 5-9.

past 30 years.[88] The data also shows that less than half of the crude oil refined in California is produced in California.[89] The remainder is supplied from other parts of the U.S. and Canada, and by tanker from Alaska and foreign countries. In 2013, the most recent year for which data are available, 51 percent of the crude oil used in California came from foreign sources, and 12 percent of the crude oil came from Alaska. Clearly, the demand for crude oil and consumption of petroleum products in California is not a function of California production; if California crude oil is not produced, crude and refined products will be supplied by another source outside the state. Conversely, if California produces more crude oil, California refineries may simply displace some out-of-state oil in favor of California-produced oil. While the proportions of California oil and non-California oil refined in the state may shift, California will still be dependent on out-of-state oil supplies to meet its energy needs, even as it reduces its energy consumption. This out-of-state oil is likely to be refined in California,[90] and will certainly be consumed in California.



Source: Energy Almanac, "Oil Supply Sources to California Refineries," California Energy Commission, 2014. Available at energyalmanac.ca.gov/petroleum/statistics/crude_oil_receipts.html, last accessed January 23, 2015.

In-state production reduces the amount of crude oil that the state must import from Alaska, South America, the Middle East, and other oil producing regions, and reduces the transportation energy use, health and safety hazards, and potential environmental consequences associated with crude oil

[88] Source: http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPCA1&f=M
[89] Source: Energy Almanac. Crude Oil Supply Sources to California Refineries. [online]: http://energyalmanac.ca.gov/petroleum/statistics/crude_oil_receipts.html. Accessed January 23, 2015.
[90] See, e.g., the Alon Bakersfield Refinery Crude Flex Project (SCH# 2013091062), which entails modifications to a Kern County refinery to increase the refinery's flexibility for receiving and processing a variety of crude oils - including crude coming by train from out of state - and to expand the existing crude terminal operations.

production in less regulated locations outside of the state. However, refining and consumption of petroleum and petroleum products within Kern County and California will occur regardless of whether the hydrocarbons were extracted pursuant to the Amended Zoning Ordinance. Because petroleum refining and use of diesel and gasoline will take place even without this Project, environmental impacts, including emissions, from these activities cannot be considered indirect effects of the Project.

Any potential impacts from the production, transport and usage of oil and gas on a statewide and nationwide scale will not be affected by, much less caused by, the proposed Project, and CEQA does not require that the County speculate about those impacts. CEQA should not to be interpreted "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in [the statute] or in the [CEQA] guidelines."[91] The California Supreme Court has likewise cautioned that CEQA "must not be subverted into an instrument for the oppression and delay of social, economic, or recreational development or advancement."[92]

Moreover, the analysis requested by the commenters would require the County to examine the impacts of downstream activities and end use consumption that may take place outside of the Project Area and even outside of California. Analysis of these remote activities is plainly beyond the scope of CEQA. The Legislature intended CEQA to require analysis of a project's environmental impacts within the State of California. For instance, Public Resources Code section 21000 states:

> The Legislature finds and declares as follows: (a) The maintenance of a quality environment *for the people of this state* now and in the future is a matter of statewide concern. . . . (c) There is a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of *the people of the state*, including their enjoyment of *the natural resources of the state*. . . . [and] (g) It is the intent of the Legislature that all agencies of the state government which regulate activities or private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment *for every Californian*. (Emphasis added.)

Nothing in CEQA requires the far-reaching analysis urged by commenters here. Instead, CEQA specifically requires that analysis be focused on impacts within a relatively localized project area. CEQA Guidelines section 15125, which addresses the environmental setting, states: "An EIR must include a description of the physical environmental conditions in the vicinity of the project . . . from both a local and regional perspective." Here, the EIR considers local impacts on a well-by-well basis, as described in Global Response GR-2, and also considers the Project's oil and gas activities regionally. The Project will occur exclusively within Kern County. Likewise, direct and indirect

[91] Pub. Resources Code § 21083.1.
[92] *Laurel Heights Improvement Association v. Regents of University of California*, 6 Cal.4th 1112, 1132 (1993) and *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal.3d 553, 576 (1990).

project impacts will occur within Kern County, with a few discrete exceptions (*e.g.*, regional air quality impacts within the San Joaquin Valley Air Basin that have been fully evaluated in the EIR). Accordingly, the scope of CEQA review does not extend beyond the borders of California (over which the Legislature of this State has no jurisdiction), or to activities that are not directly or indirectly caused by a project, as is the case here. Any analysis of such impacts would be speculative and beyond the reasonable, good faith disclosure standard established by CEQA.[93]

Additionally, comments that urge a cradle to grave life cycle analysis disregard the many environmental analyses that have been conducted for independent projects and activities relating to oil and gas transportation, refining, wholesale and retail distribution of petroleum products, and end use of fuels in all manner of transportation, power supply, heating, and more. In fact, these activities and uses often are subjected to extensive environmental review, which would affect the scope of CEQA review, if any were required.[94]

Similarly, beyond environmental review of individual projects, local, regional and state programs addressing transportation, land use planning, and energy consumption have typically undergone environmental review as well. The wide variety of programs that may account for end-use of petroleum products include regional transportation plans, such as those adopted under SB 375; the transportation elements of city and county general plans; and various sustainable communities initiatives and programs.

We recognize that one Attorney General Opinion from 1975 opined that "CEQA applies to the whole of the project including those parts occurring beyond the boundaries of the state." (58 Ops. Cal. Atty. Gen. 614 (September 26, 1975).) The facts and circumstances under which the 1975 Opinion was issued make it inapplicable to the analysis of this Project. The 1975 Opinion dealt with a proposal by several California and Utah cities to build a coal-burning electricity generating plant in the State of Utah. Fuel and water for construction and operation of the plant would be obtained entirely from sources outside of California and transmission facilities -- all of which were part of the project -- were to be constructed in Utah, Nevada and California. Thus, the scope of the project was very broad, spanning across several states. It consisted of California municipalities constructing major power generating facilities and transmission lines outside California in order to serve California demand. The Attorney General was concerned that if California municipalities could escape CEQA review in such circumstances, it would encourage the export of California's pollution-generating activities to neighboring states.

Here, by contrast, the Project Area is entirely within the state of California, and the County has prepared this EIR. The Project does not include ancillary developments in other areas within the State of California or neighboring states. Oil and gas activities in Kern County that occur pursuant to

[93] CEQA Guidelines §§ 15064(d)(3), 15088(c), 15144, 15145, 15151, 15204(a); *Save Tara v. City of West Hollywood*, 45 Cal.4th 116, 133 (2008); *Save Round Valley Alliance v. County of Inyo*, 157 Cal.App.4th 1437, 1450-1454 (2007).

[94] See CEQA Guidelines § 15162 for independent projects inside California, and § 15277 for independent projects outside California.

the Amended Zoning Ordinance may displace some imported crude oil; however, that possibility does not expand the scope of the Project or the Project Area to other states. Therefore, contrary to the commenters' assertions, out-of-state environmental impacts, including GHG emissions, are not directly attributable to the Project.

In sum, the impacts of downstream activities, such as the ultimate end use of the refined products, are independent of the oil and gas production activities undertaken pursuant to the Amended Zoning Ordinance. Conducting a far-reaching analysis of those impacts is not required under CEQA.

Bio-1: Mitigation Measures, Mitigation Criteria and Ratios

Several comments state that the mitigation measures are insufficient to reduce Impacts Bio 4.4-1 through 4.4-6 to less than significant. These comments assert variously that the mitigation has been improperly deferred because it is uncertain specifically which or how much conservation lands will be provided. Some comments assert that the mitigation measures lack necessary performance standards. Other comments assert that the mitigation ratios for conservation lands are inadequate because they require one acre of mitigation for each acre of land disturbed in most areas, and only 0.5 acre of mitigation for each acre of land disturbance in Tier 1 areas that have already experienced 70% or greater land disturbance.

When reviewing the adequacy of mitigation, the evidence in the record must be considered as a whole.[95] The question is not whether each individual measure meets some standard of perfection, but whether the set of mitigation measures as a whole is sufficient to support the lead agency's conclusion that feasible mitigation has been incorporated to reduce impacts to less than significant. When considered as a whole, the mitigation measures for biological resources comprise a comprehensive approach that emphasizes avoidance of impacts and mitigation of the remaining impacts through conservation of species and habitats in a manner that has the greatest likelihood of success.

The suite of mitigation measures starts with pre-disturbance surveys. Pre-disturbance surveys are required by Mitigation Measures 4.4-1 (special status wildlife), 4.4-5 (bats), 4.4-8 (golden eagle nests), 4.4-10 (active birds' nests), 4.4-11 (blunt-nosed leopard lizard), 4.4-12 (protected and sensitive plant species), and 4.4-17 (sensitive natural communities, including waters and wetlands). The mitigation measures specify that surveys must be completed by qualified biologists in accordance with approved protocols. Surveys must be conducted at times that will provide relevant information regarding the presence of sensitive species at the site. Usually, this will be shortly before commencement of ground disturbance so as to facilitate avoidance. In light of the Draft EIR's extensive analysis of potential impacts to biological resources, pre-disturbance surveys

[95] *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376, 408.

performed pursuant to site plan review are not likely to reveal any unanticipated impacts; rather, they will likely just reveal whether the impacts discussed in the EIR might occur at that location.[96]

Where pre-disturbance surveys reveal the presence of sensitive species or habitats, the mitigation measures stress avoidance. In addition to general directives to avoid sensitive species, the mitigation measures establish species-specific buffer distances (see e.g., Mitigation Measures 4.4-4, 4.4-5, 4.4-6, 4.4-7, 4.4-8, 4.4-9, and 4.4-10), exclusion fencing (Mitigation Measure 4.4-3), and other species-specific exclusion or avoidance strategies. In some limited cases, and only with strict oversight, sensitive wildlife can be discouraged or removed from the site, e.g., through closure of unoccupied burrows. See Mitigation Measures 4.4-4, 4.4-5, 4.4-6, and 4.4-7.

The avoidance and minimization requirements in the mitigation measures are modelled after measures typically required by the USFWS or CDFW to reduce potential effects to ESA and CESA-listed species, as found in management plans or recovery plans adopted by those agencies, or in take authorizations previously approved by them. With their incorporation as conditions of the Project, these measures would be applied to all oil and gas activities under the purview of the County, including entities that do not typically undertake Section 7 or Section 10 consultation for ESA-listed species or Section 2081 for CESA-listed species. This extension and standardization of these measures will, in some cases, provide more protection for special status species than would occur under the No Action alternative.

Where complete avoidance is not possible, Mitigation Measures 4.4-2, 4.4-11 and 4.4-12 prohibit take without authorization from the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. Similarly, if wetlands and riparian areas cannot be completely avoided, Mitigation Measure 4.4-18 prohibits disturbance without authorization by appropriate federal or state agencies. These regulatory programs provide meaningful additional oversight and protections for biological resources. The mitigation measures in the Draft EIR reflect the measures needed to reduce impacts to less than significant under CEQA. The California Department of Fish and Wildlife may determine that additional requirements must be met to comply with the CESA or the other permitting programs that agency administers. The same is true of the U.S. Fish and Wildlife Service when administering the ESA, or the Army Corps of Engineers administering Section 404 of the Clean Water Act. In this way, the survey, avoidance and compensation measures in the Draft EIR may be augmented by measures imposed by these other agencies. A requirement to comply with such regulatory programs can properly be included as part of the mitigation measures, and is not considered improper deferral of mitigation.[97]

To address habitat loss, Mitigation Measure 4.4-16 requires compensation "at a 1.0 to 1.0 ratio (one acre of new disturbance shall require one acre of mitigation)" in most cases. Some comments criticize this compensation ratio as too low, and they point to examples of other project approvals in

[96] See *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 234 Call.App.4th 214,

[97] *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Call.App.4th 899, 945=946; *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) 234 Call.App.4th 214, 243.

which higher compensation ratios have been required. For this Project, however, the County has determined that a ratio of 1.0 to 1.0 will adequately mitigate the impact to less than significant. As noted above, the suite of mitigation measures emphasize avoidance, and compensation lands are required only where impacts cannot be completely avoided. Just as important, it is expected that much of the mitigation lands provided under Mitigation Measure 4.4-16 will be part of large scale conservation plans, such as the Lokern HCP or Elk Hills HCP, or will utilize a mitigation bank or other similar entity that is protecting habitat of regional importance for special status species. The regional HCPs and mitigation banks are usually centered on lands that have been identified in recovery goals established for special status species (i.e. recovery goals established in the Recovery Plan for Upland Species of the San Joaquin Valley, USFWS, 1998). As discussed in the Draft EIR at pp. 4.4-9, 4.4-131 to -132, and 168, the Recovery Plan seeks to protect land in large blocks to minimize edge effects, increase the likelihood that ecosystem functions will remain intact, and facilitate management. The Plan also seeks to connect blocks of conservation lands, allowing organisms greater movement between blocks. This further enhances the value of the conservation lands because habitat connectivity and wildlife movement corridors are important to biodiversity conservation, maintaining the gene pool, and reducing extinction risk. Thus, large blocks of conservation land provided at a 1:0 to 1.0 ratio can effectively mitigate habitat loss, whereas small, isolated parcels of mitigation lands may be less effective mitigation, requiring greater compensation ratios.

The comments correctly point out that in some cases Mitigation Measure 4.4-16 will require only one-half acre of compensation lands for each acre of land disturbance. They allege that the mitigation is inadequate as a result. However, a 0.5 to 1.0 compensation ratio is appropriate where the quality of the land being disturbed is already substantially degraded. The reduced compensation ratio of 0.5 to1.0 will apply only in Tier 1 areas where existing disturbance is already 70% or greater. As discussed in the Draft EIR at page 4.4-135, research suggests that "elements of the wildlife community remain relatively intact up to 70% disturbance in oilfield development, with some special status species persisting provided that at least 30% of the natural landscape is left intact". For this reason, Mitigation Measure 4.4-16 conservatively requires a full acre of compensation land for each acre disturbed, even if the land to be affected is already disturbed up to 69%. But if the land has already been disturbed 70% or more, its habitat value is already substantially compromised, and a requirement to compensate for this loss with a full acre of high quality habitat would be contrary to the requirement that CEQA mitigation be roughly proportional to the impacts addressed by the mitigation.[98] In these cases, in Tier 1 areas, a lower compensation ratio of 0.5 to 1.0 is appropriate. Mitigation need not be 1:1 to be adequate, as long as the remaining unmitigated impact is no longer significant.[99]

---

[98] See *Nollan v. California Coastal Commission* (1987) 483 U.S. 825 (a requirement to dedicate an easement as a condition of approving development permit would be "out and out extortion" without an essential nexus between the dedication required and the burden imposed by the proposed development), and *Dolan v. City of Tigard* (1994) 512 U.S. 374 (an adjudicative exaction requiring dedication of private property must also be "'roughly proportional' … both in nature and extent to the impact of the proposed development").

[99] *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1233.

The measures in the Draft EIR do not improperly defer mitigation. "Essentially, the rule prohibiting deferred mitigation prohibits loose or open-ended or performance criteria. Deferred mitigation measures must ensure that the applicant will be required to find some way to reduce impacts to less than significant levels. If the measures are loose or open-ended, such that they afford the applicant a means of avoiding mitigation during project implementation, it would be unreasonable to conclude that implementing the measures will reduce impacts to less than significant levels."[100]

The Draft EIR provides for sequential application of definite measures with specific, enforceable standards. At each step, concrete actions are required. If the action in a mitigation measure is sufficient to avoid significant impacts, then it is not necessary to continue to the next step. If, however, it is not feasible to avoid potentially significant impacts to species or loss of habitat, then compensation for land disturbance will address the remaining impacts and ensure they will not be significant. This sequential approach has been found acceptable under CEQA.[101]

Some comments assert that to be adequate CEQA mitigation, a specific number of acres of mitigation lands must be put under conservation easement or other protection at the commencement of Project implementation. It is not known now how many acres of land ultimately will be protected under Mitigation Measure 4.4-16, but that does not make the mitigation measure deficient. CEQA does not require certainty that a specific number of acres of habitat will be protected. Rather, CEQA requires substantial evidence supporting the conclusion that the mitigation as a whole will reduce the impacts to less than significance. Mitigation Measure 4.4-16 contributes to the overall showing of substantial evidence by ensuring that the actual number of acres protected will compensate for the actual number of acres of habitat disturbed. The Draft EIR discloses that the actual number of future wells drilled and other facilities installed will likely be less than projected. Similarly, the actual amount of land disturbance likely will be less than estimated. But regardless how precisely the actual impacts match the projections, Mitigation Measure 4.4-16 assures that compensation lands will be provided based on the actual disturbance. See Draft EIR p. 4.4-175, and p. 4.4-214. Thus, even if Mitigation Measure 4.4-16 is considered to have some aspects of deferred mitigation, it is nonetheless sufficient under CEQA because it articulates a specific performance criterion (i.e., the compensation ratio), and the Amended Ordinance requires a demonstration of compliance with the performance standard in conjunction with the site review process.

Revisions and clarifications have also been made to Biological Resources mitigation measures in this Final EIR, in response to comments filed by the California Department of Fish and Wildlife and other parties. These revised mitigation measures clarify, and in some cases include more stringent provisions than, those included in the Draft EIR. Please refer to Section 7.1.4 for the list of revised Biological Resource mitigation measures.

[100] *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App.4th 899, 945.
[101] *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App.4th 899.

Bio-2: Valley Floor HCP, LoKern and Elk Hills HCP

Some commenters requested further information regarding the relationship between this Environmental Impact Report (EIR) and future actions anticipated to be taken by CDFW for oil and gas activities in Kern County. As explained in the Draft EIR, future discretionary approvals associated with the Proposed Project include California Department of Fish and Wildlife (CDFW, Department) incidental take permits (ITPs). (Draft EIR, p. 1-2.) For this reason, the Draft EIR identifies CDFW as a responsible agency for the purposes of the California Environmental Quality Act (CEQA) (Draft EIR, p. 3-3.) As a responsible agency, the County has and will continue to consult with, and provide all relevant notices to, CDFW. (See, e.g., Pub. Resources Code, §§ 21080.3, subd. (a), 21080.4, subd. (a), 21153, subd. (a).)

The Draft EIR explains that it "provides project-level CEQA coverage for CDFW permits and approvals, including ITPs and habitat conservation plans (HCPs) and natural community plans, for oil and gas activities in Kern County." (Draft EIR, p. 3-3.). The Project area of the Draft EIR includes the central and western portions of Kern County, as displayed in Figure 1.

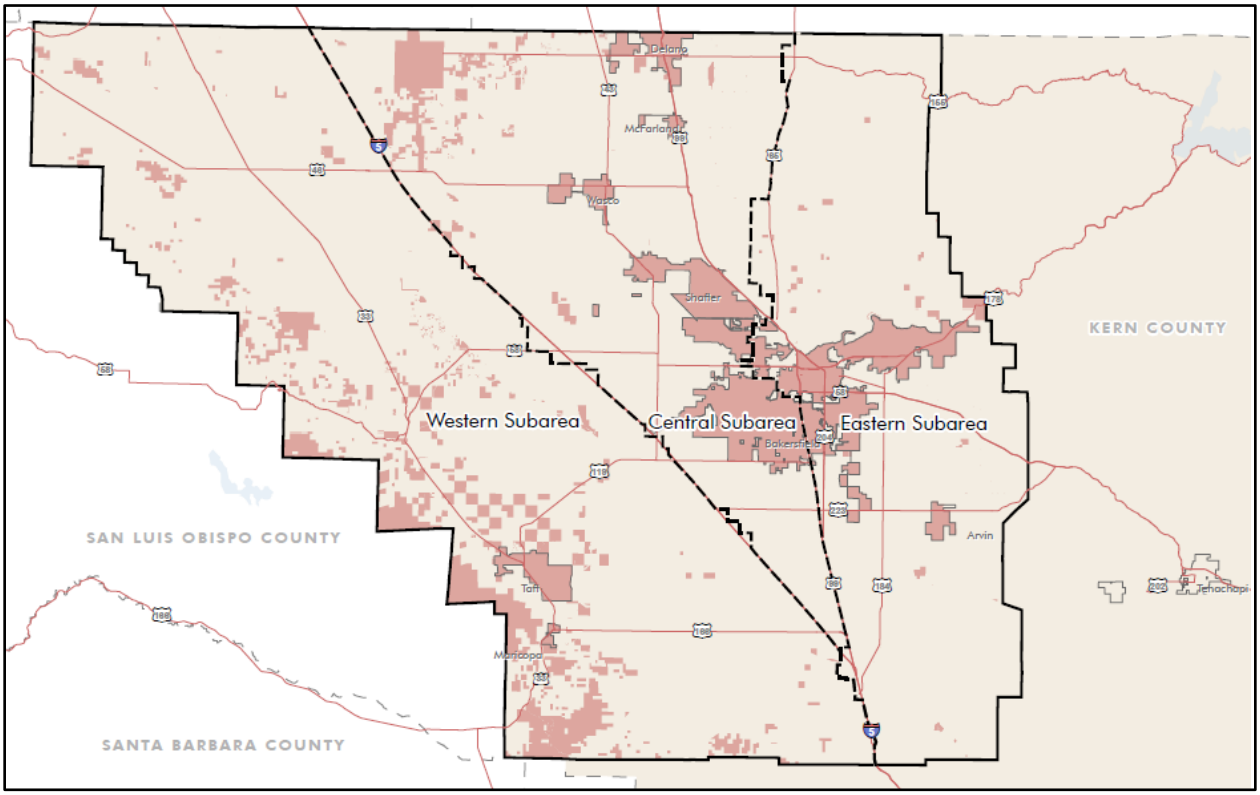


Figure 1. Kern County Oil and Gas EIR Project Area

The Draft EIR's coverage extends to permits and plan approval applications currently pending before CDFW, including, for example, CDFW approvals for the draft Lokern and Elk Hills HCPs. (*Ibid*). The Draft EIR may also be used by CDFW for future decisions relating to oil and gas development in the Project Area, including for example ITP or Lake and Streambed Alteration Agreements, subject to CDFW's determination as to whether supplemental or subsequent

environmental review is necessary. The Draft EIR also identifies mitigation for impacts to species covered in the draft Lokern and Elk Hills HCPs, though the intention is that the conservation measures identified in the draft Lokern and Elk Hills HCPs will substitute for the mitigation measures in the draft EIR once the two HCPS are approved. The draft Lokern and Elk Hills HCPs are described in Section 4.4, Biological Resources, in the Draft EIR.

In addition, the County has prepared the Draft Valley Floor HCP to obtain Section 10(a)(1)(B) and Section 2081(b) ITPs for the incidental take of certain federally listed species, certain state listed species, and certain other species of concern related to oil and gas, water district, urban development, and public infrastructure activities. The Valley Floor HCP also includes land uses unrelated to oil and gas activities analyzed in the Draft EIR, and therefore is subject to a separate and independent environmental review process.

These three draft HCPs (Valley Floor, Lokern, and Elk Hills) are described further below. While the current provisions of these three HCPs are described in the present tense, all three may be subject to change before final approval and implementation.

Covered Lands

Each of the three draft HCPs would establishes a separate Permit Area within which certain activities would be covered (i.e., Permitted Activities) as established within each individual HCP. In locations where the Permit Area of the draft HCPs overlap, project applicants would only utilize one of the HCP programs, as needed, for special-status species permitting compliance. For example, Chevron would utilize the Lokern HCP to cover permitted activities within the Lokern HCP Permit Area, but may utilize the Valley Floor HCP to cover permitted activities outside of the Lokern HCP Permit Area.

The Valley Floor HCP Program Area encompasses approximately 3,100 square miles, and generally includes most of the San Joaquin Valley Floor in Kern County up to an elevation of 2,000 feet above mean sea level (amsl). On the west side, the Valley Floor HCP area extends to the San Luis Obispo County line; and therefore some portions of the Valley Floor HCP area are at elevations greater than 2,000 feet amsl. The Valley Floor HCP conservation strategy does not provide incidental take coverage for the Kern Water Bank HCP Permit Area, Coles Levee Ecosystem Preserve, or CRC's Elk Hills HCP Permit Area, all of which are located inside the Valley Floor HCP Permit Area. However, as currently proposed the Valley Floor HCP conservation strategy would provide overlapping incidental take coverage for the Lokern HCP Permit Area. The lands covered by the Valley Floor HCP are collectively referenced here as the Valley Floor Permit Area as shown on Figure 2 below.

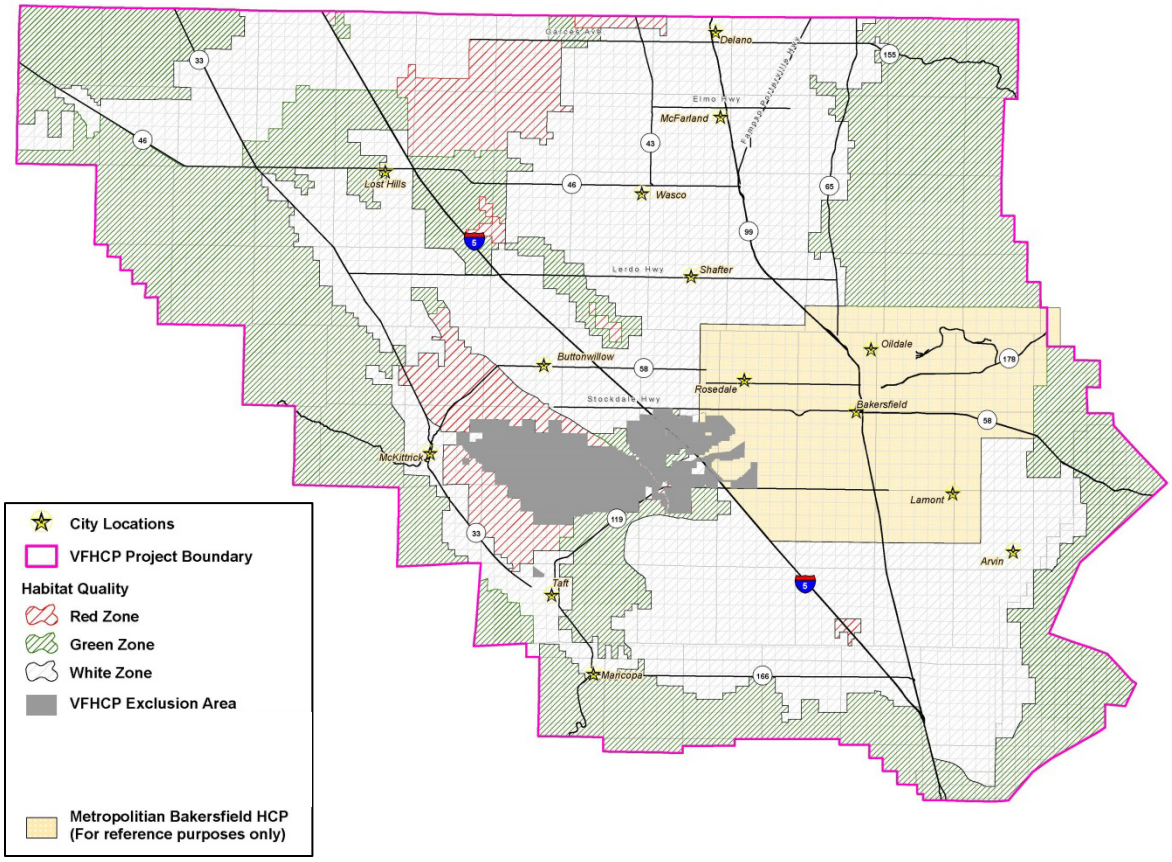


Figure 2. Valley Floor HCP Permit Area

The Lokern HCP addresses activities within the following lands in Kern County, California: (1) the Chevron Lokern Lands (i.e., lands owned by Chevron in the Lokern area in western Kern County); (2) the Lokern Contiguous Area, which is in the Lokern area contiguous to the Chevron Lokern Lands; and (3) the Four Fields, which are oil and gas properties throughout Kern County in which Chevron has now or may have in the future the necessary interests (e.g., fee ownership, lease, mineral interest, right-of-way, etc.) to engage in the activities addressed in the Lokern HCP. These lands, which are a subset of the Valley Floor Permit Area, are collectively referenced here as the Chevron Permit Area as shown on Figure 3 below.

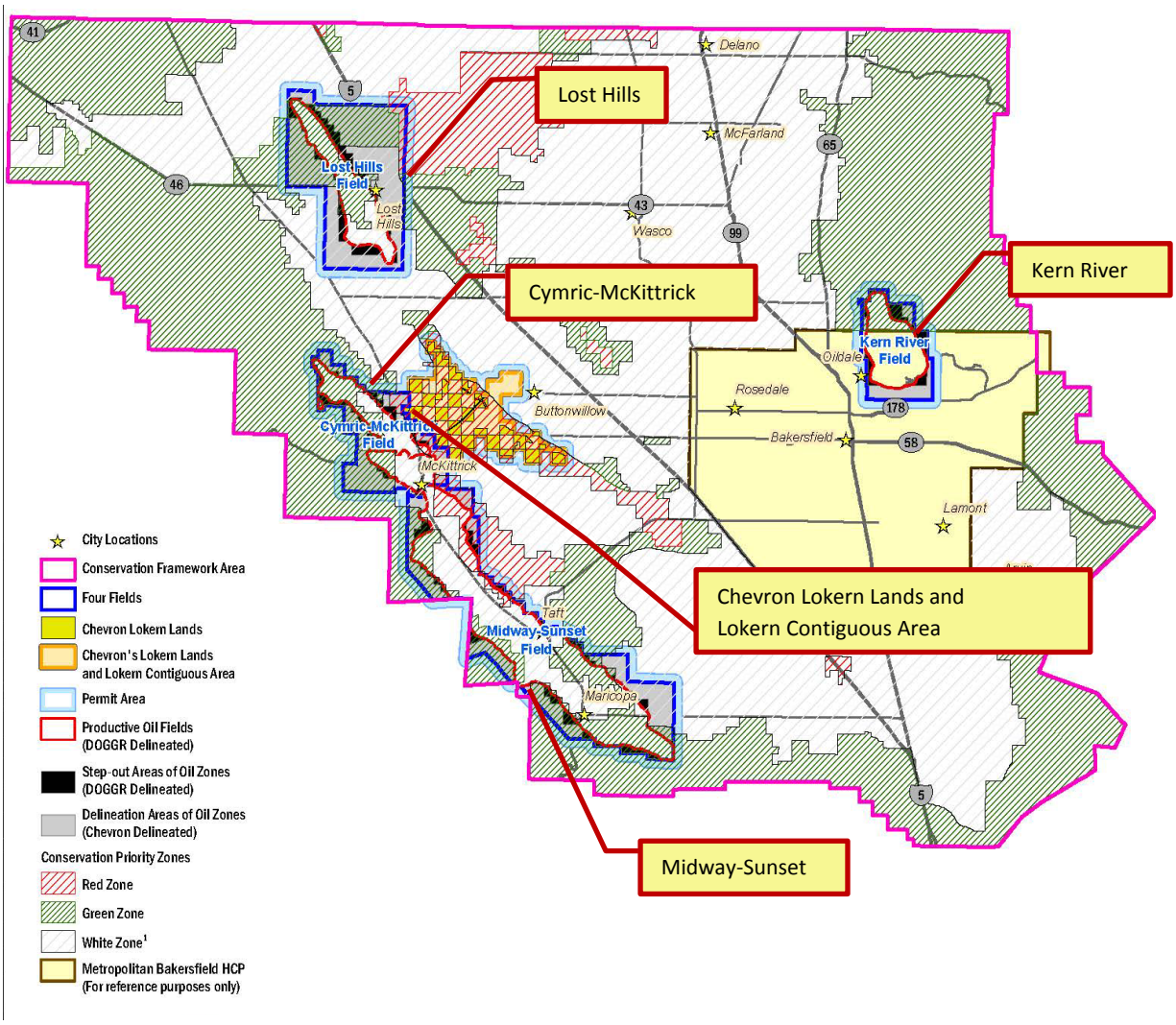


Figure 3. Chevron Permit Area of the Lokern HCP

The Elk Hills HCP covers continued operation at the Elk Hills Oil Field (EHOF) beyond the terms of the 1995 Biological Opinion and associated state Memorandum of Understanding (MOU) approved by CDFW under the California Endangered Species Act (CESA). As required by the 1995 Biological Opinion, CRC established a 7,075 acre Conservation Area (now totaling 7,878 acres) and executed a management agreement with the USFWS and CDFW. The Elk Hills HCP encompasses the entire EHOF (approximately 47,884 acres), lands located within a contiguous 2-mile wide buffer area to accommodate existing and limited new facility rights-of-way, and existing and future conservation lands located within a Target Acquisition Area inside the 2-mile buffer and a second Target Acquisition Area located outside the 2-mile buffer (Figure 4).

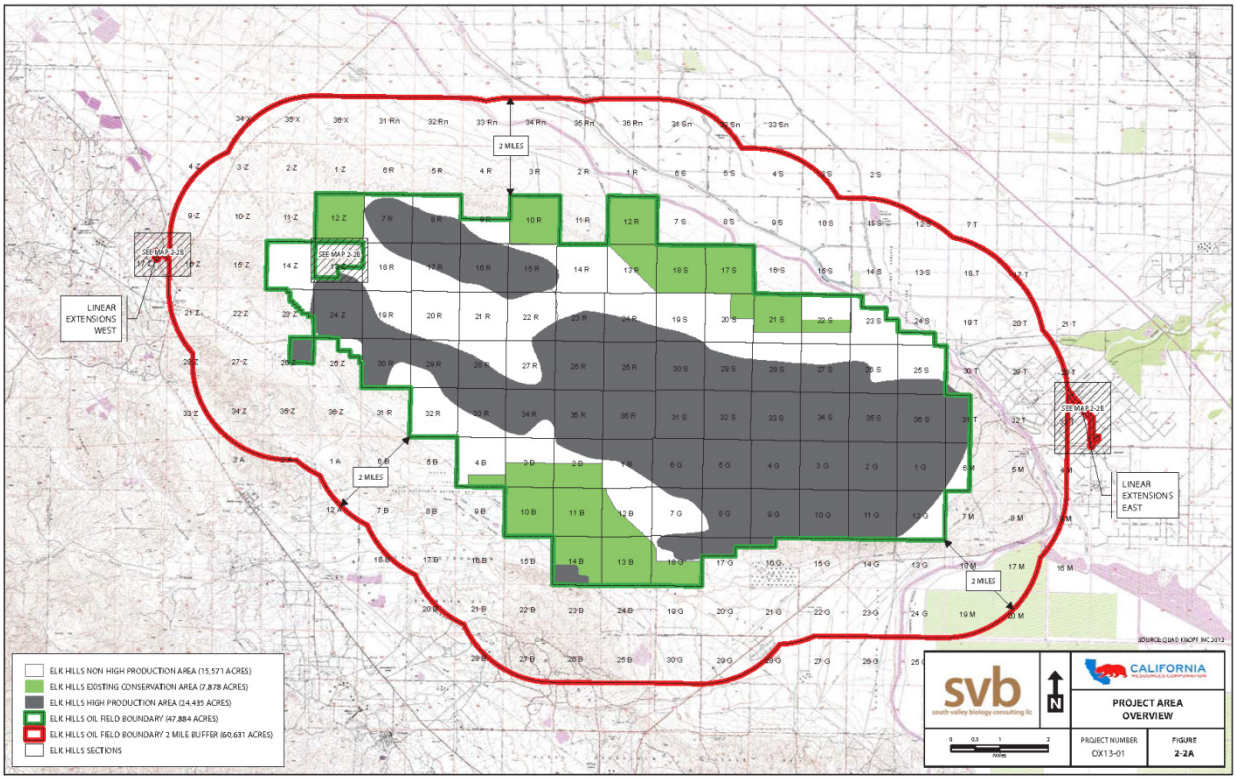


Figure 4. Elk Hills Permit Area

In summary, the Valley Floor, Lokern, and Elk Hills HCPs are included within the Draft EIR project area. The focus of each HCP is the preservation of special-status species that are unique to each geography, but support the overall goal of habitat conservation throughout Kern County. All three HCPs address oil and gas activities in Kern County, with the Valley Floor HCP addressing other activities such as water districts, urban development, and public infrastructure activities.

Covered Species

Each of the three draft HCPs provide incidental take coverage (Section 10(a)(1)(B) and Section 2081(b) ITPs) for a specific set of special-status species found in their respective Permit Area. Many of the efforts for special-status species recovery occurring in the southern San Joaquin Valley, including the three HCPs discussed here, have a basis in the conservation strategies presented in the Recovery Plan for Upland Species of the San Joaquin Valley, California published by the U.S. Fish and Wildlife Service (USFWS) in 1998 (the SJV Recovery Plan). The SJV Recovery Plan includes conservation goals for both federally listed species and other species of regional concern, many of which have a special status designation provided by the USFWS and CDFW. The SJV Recovery Plan area includes the land in which the permit areas of all three HCPs are located and its surroundings and covers 34 species of plants and animals that occur in the southern San Joaquin Valley. The SJV Recovery Plan presents both an ecosystem approach to recovery and a community-level strategy for recovery (USFWS 1998). There are several HCP-covered species that are not included in the SJV recovery plan, which focuses on upland species that are endemic to the San Joaquin Valley.

About half of the species addressed in the SJV Recovery Plan are covered species of the Valley Floor HCP. The Valley Floor HCP is consistent with the conservation goals of the SJV Recovery Plan and it contributes key element(s) in achieving several goals of the SJV Recovery Plan. The Valley Floor HCP addresses the conservation needs of the Federally and state listed wildlife and plant species found in the Kern County Valley Floor area (Table 7-6).

The Lokern HCP also covers many of the species addressed in the SJV Recovery Plan. However, since the Permit Area of the Lokern HCP is a small subset of the Valley Floor HCP Permit Area, the list of species that are covered is more limited. Additionally, the reduced list of species that are covered is based on the habitat suitability of land available for conservation and the ability to compensate for those species though the provisions of the Lokern HCP.

The covered species for the Elk Hills HCP is based on the 1995 Biological Opinion, as a result, a limited number of federally listed species are covered by the Elk Hills HCP. The overall monitoring program as described in the Elk Hills HCP is based on the monitoring programs developed under the prior permits and agreements, but with some minor changes to reflect improved species monitoring, adjustments to the biological goals and objectives, and changes to the species that are covered for protection. Similar to the Lokern HCP, the smaller list of species that are covered is related to the habitat suitability of land available for conservation and the ability to compensate for those species. Elk Hills Oil Field intends to update its ITP application to seek coverage for species identified subsequent to the 1995 Biological Opinion. Table 7-6 reflects the coverage requested in the pending application.

Table 7-6: Summary of Covered Species

Scientific/Common Name	Status			Hcp Covered Species		
	Federal	State	CNPS	Valley Floor	Lokern	Elk Hills
Wildlife						
Gambelia sila - Blunt-nosed leopard lizard	FE	CE, FPS	--	Y	Y	
Phrynosoma blainvillii - Coast horned lizard *	--	SSC	--	Y	Y	
Masticophis flagellum ruddocki - San Joaquin whipsnake *	--	SSC	--	Y		
Toxostoma lecontei - Le Conte's thrasher	MBTA	SSC	--	Y	Y	
Sorex ornatus relictus - Buena Vista Lake shrew	FE	SSC	--	Y		
Ammospermophilus nelsoni - San Joaquin antelope squirrel	--	CT	--	Y	Y	Y
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	CE	--	Y	Y	Y
Dipodomys nitratoides brevinasus - Short-nosed kangaroo rat	--	SSC	--	Y	Y	
Dipodomys ingens - Giant kangaroo rat	FE	CE	--	Y	Y	Y
Vulpes macrotis mutica - San Joaquin kit fox	FE	CT	--	Y	Y	Y

Table 7-6: Summary of Covered Species

Scientific/Common Name	Status			Hcp Covered Species		
	Federal	State	CNPS	Valley Floor	Lokern	Elk Hills
Taxidea taxus - American badger *	--	SSC	--	Y	Y	
Athene cunicularia hypogea - Western burrowing owl *	*MBTA*	*SSC*			Y	
Lanius ludovicianus - Loggerhead shrike *	*MBTA*	*SSC*			Y	
Plants						
Atriplex cordulata – Heartscale *	--	--	1B.2	Y	Y	
Atriplex coronata var. vallicola - Lost Hills crownscale	--	--	1B.2	Y	Y	
Atriplex tularensis - Bakersfield smallscale	--	CE	1A	Y		
Caulanthus californicus - California jewelflower	FE	CE	1B.1	Y	Y	
Cirsium crassicaule - Slough thistle *	--	--	1B.1	Y		
Clarkia tembloriensis ssp. calientensis - Vasek's clarkia	--	--	1B.1	Y		
Delphinium recurvatum - Recurved larkspur *	--	--	1B.2	Y		
Eremalche kernensis - Kern mallow	FE	--	1B.1	Y	Y	
Eriastrum hooveri - Hoover's eriastrum	DL	--	4.2	Y		
Fritillaria striata - Striped adobe-lily *	--	CT	1B.1	Y		
Layia leucopappa - Comanche Point layia	--	--	1B.1	Y		
Monolopia congdonii - San Joaquin woolly-threads	FE	--	1B.2	Y	Y	
Opuntia basilaris var. treleasei - Bakersfield cactus	FE	CE	1B.1	Y		
Pseudobahia peirsonii - San Joaquin adobe sunburst *	FT	CE	1B.1	Y		

Notes:

*Species not included in the SVJ Recovery Plan (USFWS 1998)

Federal

FE	Federal Endangered	SSC	state species of special concern
FT	Federal Threatened	FPS	fully protected species
DL	Delisted in 2003	--	no state status
MBTA	Migratory Bird Treaty Act	CNPS (California Native Plant Society)	
--	no Federal status	1A	Plants presumed extinct in California (CA)
State		1B.1	Rare, threatened, or endangered in CA and elsewhere. Seriously endangered in CA.
CE	state Endangered	1B.2	Rare, threatened, or endangered in CA and elsewhere. Fairly endangered in CA.
CT	state Threatened	4.2	Plants uncommon in CA. Fairly endangered in CA.

Sources: CDFG, 2011a; CDFG, 2011b; CDFG, 2012a; CDFG, 2012b; CDFG, 2012c; CNPS, 2012; USFWS, 2012

Covered Activities and Permit Terms

Each of the three HCPs provides permitting coverage for a specified set of activities over the respective permit term of each draft HCP. The County is working to update the current draft of the Valley Floor HCP, and is also considering augmenting the HCP with the elements required for a state Natural Communities Conservation Plan (NCCP). Unlike the other two HCPs discussed here (Lokern and Elk Hills), the Valley Floor HCP (or HCP/NCCP) is intended to cover multiple land uses rather than only oil and gas activities. While summary information about the current draft of the Valley Floor HCP is provided here for informational purposes (and to clarify its relationship to the Lokern and Elk Hills HCPs), it is anticipated that the current draft Valley Floor HCP will be modified. The Valley Floor HCP Permit Term is proposed to be 30 years.

The current draft of the Valley Floor HCP accommodates future land use development activities (i.e., oil/gas, water storage/conveyance, urban development, and public infrastructure), and minimizes uncertainty, risks, delays, and unexpected costs in Kern County that could be associated with project-by-project permitting. It also establishes a permitting approach that provides incentives to conduct Permitted Activities within areas of lesser conservation value and that promotes conservation of areas of higher conservation values. The Valley Floor HCP also provides for the implementation key element(s) (i.e., habitat protection) of the SJV Recovery Plan (USFWS 1998).

The draft Lokern HCP includes coverage for oil and gas exploration and production activities as well as land conservation activities within a 50-year time horizon. The draft Lokern HCP explains that Chevron's business purpose in developing a landscape level HCP is to provide operational flexibility and to avoid uncertainty, risks, delays, and unexpected costs as a result of activities associated with project-by-project permitting. The draft Lokern HCP includes conservation and preservation in perpetuity of Chevron's Lokern Lands to compensate for impacts resulting from oil and gas exploration and production activities in the Four Fields.

Like the draft Lokern HCP, the Elk Hills HCP includes operations, facilities, and activities associated with oil and gas exploration and production and land conservation. The Elk Hills HCP evaluates activities within a 50-year time horizon. The Elk Hills HCP addresses limited new infrastructure within the 2-mile buffer to accommodate oil field operations should such a need arise in future years.

Permitting Process

HCPs are federal documents approved by the USFWS and not the CDFW, although CDFW can contribute and advise on the technical aspects of HCPs. It is common practice for CDFW to use the HCP process to issue a 2080.1 Consistency Determination that effectively adopts the HCP as a state permit. For activities covered under each of the three HCPs, it is anticipated the measures included in each HCP will enable USFWS to make the findings necessary, under 10(a)(2)(B) of the U.S. Endangered Species Act (FESA) and the implementing regulations at 50 C.F.R. section 17.22, to issue an ITP pursuant to section 10(a)(1)(B) of FESA for incidental take of the HCP's covered species. This may also enable USFWS to issue a biological opinion pursuant to Section 7(b)(4) of FESA and its implementing regulations at 50 C.F.R. section 402.14, finding that activities allowed

by the Section 10(a)(1)(B) Permit are not likely to jeopardize Covered Species' continued existence nor result in the adverse modification or destruction of designated critical habitat. It is anticipated that the HCPs will also be used to authorize an ITP for covered activities under Section 2081(b) of the California Fish and Game Code and its implementing regulations, California Code of Regulations, title 14, section 783.

Although the Valley Floor HCP covers much of the same area analyzed by the Kern County Oil and Gas EIR, this HCP covers more than oil and gas activities and is part of a joint federal/state action. An Environmental Impact Statement (EIS) prepared pursuant to the National Environmental Policy Act (NEPA) process will be required as part of the USFWS process, and a separate EIR prepared pursuant to the CEQA process will be required by the County to evaluate the impacts. This separate EIS/EIR process would be used by responsible agencies such as CDFW to approve permits for activities other than the oil and gas activities covered in this EIR, and for permits for oil and gas activities that are available only under the Natural Community Conservation Act of 2003 (i.e., relating to fully protected species). The Kern County Oil and Gas EIR will help inform the content of the EIS/EIR for the Valley Floor HCP, but it is not dependent on the Valley Floor HCP, potential NCCP, or the HCP/NCCP EIS/EIR.

The draft Lokern HCP is a federal agency action, and since CEQA does not apply to federal agencies the Kern County Oil and Gas EIR will serve as an informational resource for the USFWS. The USFWS will be required to prepare its own environmental study as required by NEPA. Federal approval of the Lokern HCP is not dependent on approval of the Kern County Oil and Gas EIR. CDFW permit approvals relating to the HCP, like approvals for other oil and gas activity permits falling within the scope of the Kern County Oil and Gas EIR that do not rely on the HCP, are addressed in the Kern County Oil and Gas EIR, and CDFW is a responsible agency that will use the Kern County Oil and Gas EIR as provided for under CEQA and CESA.

As proposed, the Elk Hills HCP would supersede the 1995 Biological Opinion for continued operation of the Covered Lands. However, until such time when additional federal approval is deemed necessary, the Elk Hills Oil Field will be operated in compliance with the 1995 Biological Opinion. Likewise, once approved, the Section 2081 ITP sought by CRC would supersede the existing CESA MOU. Once approved, CDFW permit approvals relating to the HCP would be addressed through the Kern County Oil and Gas EIR in a manner similar to the draft Lokern HCP as described above.

If any of the three HCP are delayed in their approval, neither one is dependent on the other. Furthermore, an applicant can always request a Section 7 consultation from the USFWS to enable project-by-project permitting for federally listed special-status species. Similarly, CDFW can approve ITPs on a project-by-project basis if the HCPs are not adopted. Both USFWS and CDFW have processed, and are anticipated to continue to process, incidental take applications for oil and gas activities within Kern County whether or not the Valley Floor HCP/NCCP or Lokern or Elk Hills HCPs are timely approved.

Use of Kern EIR

The County's decision to prepare the Draft EIR to cover future CDFW permitting actions for oil and gas activities in Kern County is consistent with CEQA's prohibition against piecemealed environmental review. Specifically, for the purpose of CEQA the term "project" is defined broadly to include "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment …." (CEQA Guidelines, § 15378, subd. (a); see also Public Resources Code, § 21002.1, subd. (d) ["The lead agency shall be responsible for considering the effects, both individual and collective, of all activities involved in a project."].) As a result of this definition, "[c]ourts have considered separate activities as one CEQA project and required them to be reviewed together where, for example, the second activity is a reasonably foreseeable consequence of the first activity [citation]." (*Sierra Club v. West Side Irrigation Dist.* (2005) 128 Cal.App.4th 690, 698.)

The Kern County Oil and Gas EIR is an informational document for use by the USFWS, but each HCP is undergoing a separate NEPA review as required. CDFW is a responsible agency under CEQA for the Draft EIR, and will use the Draft EIR pursuant to CEQA for all CESA actions that fall within the scope of the Draft EIR per CEQA requirements.

The Kern County Oil and Gas EIR shares similar goals with the Lokern and Elk Hills HCPs. These goals include providing a more uniform approach to addressing biological resource impacts and associated mitigation and supporting the conservation of biological resources that are important conservation priorities that are associated with oil and gas activities. Consistent with these goals, both HCPs would contribute to the permanent conservation of lands in central and western Kern County that support covered species and provide important linkages to other existing and proposed conservation lands in the project vicinity for the overall benefit of species conservation and recovery. Therefore, the Lokern and Elk Hills HCPs would help protect and restore vital wildlife linkages and promote connectivity for wildlife movement.

The implementation of the Lokern and Elk Hills HCPs, and preservation of important species habitats, when combined with the conservation efforts of other unrelated projects addressed by the County's Oil and Gas EIR, will result in preservation of habitat for the benefit of federal and state listed species and species of concern. These habitat lands will be managed in larger, contiguous blocks rather than smaller project-specific mitigation efforts. As illustrated on Figure 5 below, the draft Lokern and Elk Hills HCPs will help to establish a continuous habitat corridor between the Lokern Lands and the Elk Hills, which is one of the recovery goals of the USFWS SJV Recovery Plan and other plans enacted for the preservation of threatened and endangered species in central and western Kern County.

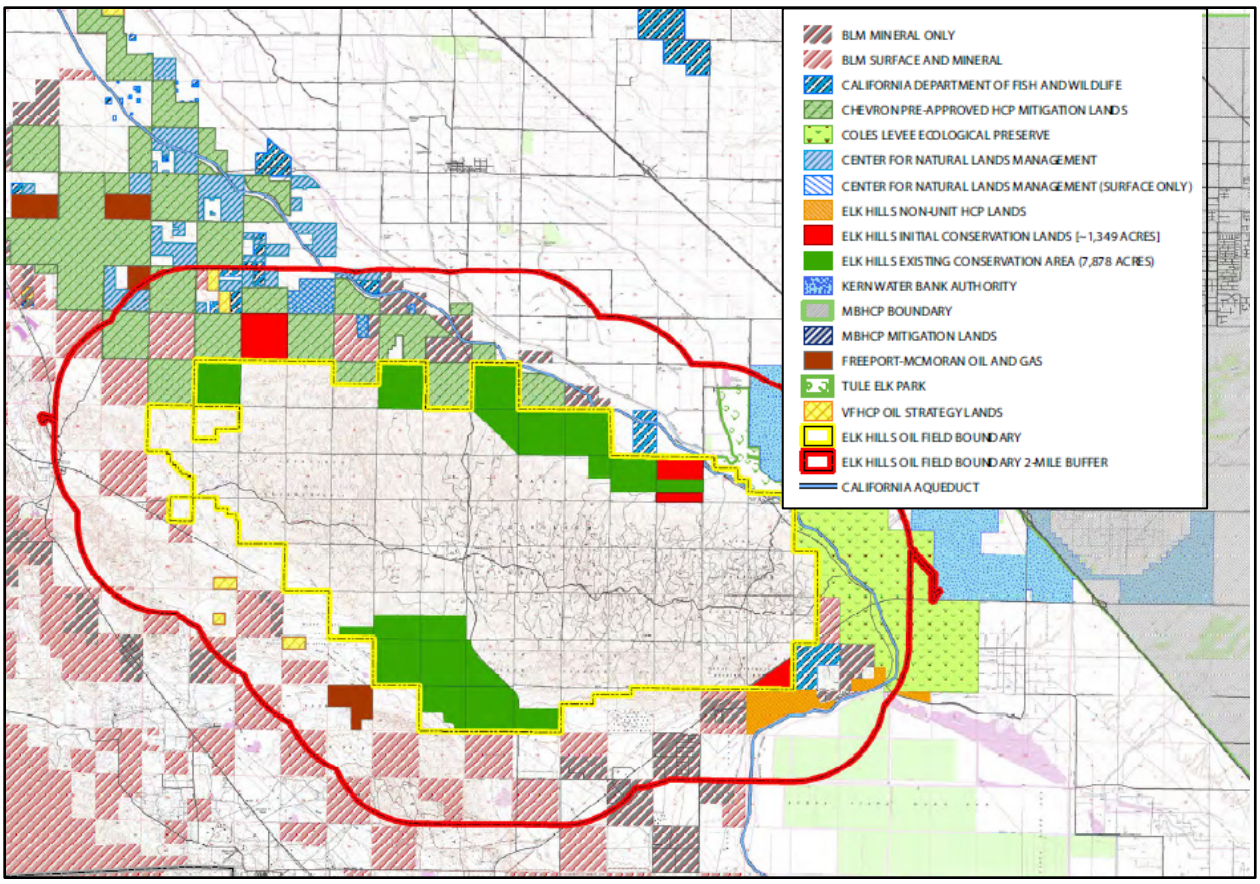


Figure 5. Conservation Lands in the vicinity of the Elk Hills and Chevron's Lokern Lands

Geo-1: CCST: Produced Water and Earthquake Risk

The California Council for Science and Technology (CCST), in its report, *An Independent Scientific Assessment of Well Stimulation in California, Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulations* (2015),[102] considered the risk that disposal of produced water by underground injection could cause earthquakes. Citing that finding, some commenters suggested that potential induced seismicity impacts from injection operations had not been sufficiently analyzed in this EIR.

The DEIR did analyze the findings of CCST's previous report, *Advanced Well Stimulation Technologies in California* (2014).[103] In that report, CCST concluded:

[102] https://ccst.us/publications/2015/2015SB4-v2.pdf.
[103] http://ccst.us/publications/2014/2014wst.pdf.

- Differences between California and other U.S. regions suggest that the likelihood of induced seismicity due to wastewater injection in California is low compared to other regions in the U.S;
- The zones at which the rocks are rigid enough to accumulate enough stress to cause significant earthquakes are relatively deep in California, and significantly deeper than the oil and gas development and wastewater disposal zones;
- Oil and gas production in California occurs in sedimentary basins, which are less susceptible to induced seismicity from wastewater injection; and
- Operation of injection wells has had little effect on seismicity rates in Southern California, including Kern County.

DDEIR at 4.6-15–17.

CCST's July 2015 report reached similar conclusions, finding that:

> Typical wastewater volumes injected per well in California are generally less than those associated with well stimulation operations in other parts of the country where induced seismicity has occurred. For example, typical wastewater volumes injected in Kern County to date have been about one fourth of those resulting from well stimulation in the Barnett shale and injected in the Dallas-Fort Worth area in Texas, where induced seismicity has been reported from ongoing observational studies. This might suggest that at the present time the potential for induced seismicity related to wastewater disposal in California may be relatively low compared with some other regions in the U.S.

CCST 2015 at 271.

CCST also noted that, to date, there have been no reported cases of induced seismicity associated with produced water injection in California. CCST 2015 at 30. CCST recommended further study of the correlation, if any, between injection and earthquakes. *Id.* Commenters claim that CCST found evidence of a link between injection well activity and certain earthquakes in California, but that overstates CCST's conclusions. In fact, CCST identified a couple historical cases where there was seismic activity following pressure changes in certain injection wells; but in some cases CCST also found "no immediate correlation" was evident. *Id.* at 295. CCST's ultimate recommendation was for more detailed analysis. *Id.* In connection with this EIR, the County reviewed such a study (BSK 2015), the results of which are discussed in the DEIR. The BSK study similarly concluded that seismic hazard related to current wastewater injection practices in California is low. DEIR at 4.6-53. It is therefore not critical to the analysis in this EIR whether seismic events have caused structural damage in other parts of the country, as induced seismic events are unlikely to occur as a result of the Project.

Commenters incorrectly state that CCST found that the potential for induced seismicity from injection activities in California is just as high as in other locations. CCST notes the relative depths of earthquakes and injection activity, but ultimately concludes that "While the above argument suggests that induced seismicity could potentially be caused by wastewater disposal in California,

analysis of the relationship of seismicity to injection operations in the state is necessary to find out if that is indeed the case." *Id.* at 281.

Two studies released in June 2015 provide further confirmation of the conclusions in the DEIR. The first study focused on large-scale assessment of differences in injection operations and the possibly of induced seismicity in California and Oklahoma. T. Gobel, A comparison of seismicity rates and fluid-injection operations in Oklahoma and California: Implications for crustal stresses. Leading Edge (June 2015) at 640-648. The study found that:

- Injection rates increased in Oklahoma between 1998 and 2013, and the rate of earthquakes increased significantly after 2009. Injection rates increased in California between 2001 and 2009, and in Kern County injection has continuously increased since 1995. However, in California there was no association between injection and earthquake rates comparable to that in Oklahoma. In fact, the rate of earthquakes in California actually decreased (though not significantly) over approximately the same period in which injection increased.
- Pressures and peak rates at which injection occurs are similar in California and Oklahoma. No systematic differences were identified that could be responsible for observed differences in seismic activity.
- The focal depths of seismic events in California are significantly deeper than injection depths. Much of the seismic activity is distributed in the upper 15 km (9.3 miles) with a mean of 10 km (6.2 miles). From 1980 through 2001, events with magnitudes between M4 and M5 and above M5 occurred at depths of about 1 to 27 km (0.6 and 16.7 miles) with many of the shallow earthquakes being aftershocks of the Northridge earthquake. By contrast, the mean depth of injection in California is shallower, at approximately 1.5 km (0.9 mile).

The study concludes that the specific geologic setting, in particular hydraulic connectivity and the stress state on nearby faults, is the primary determinant of injection-induced seismicity. The absence of noticeable seismic response in California despite the largely similar injection operations in the two states indicates a fundamental difference geological stresses between the regions.

The second study was conducted in the Los Angeles Basin to assess the influence of oil industry operations on seismicity. E. Hauksson, T. Gobel, J. Ampuero and E. Cochran, *A century of oil-field operations and earthquakes in the greater Los Angeles Basin, southern California*. Leading Edge (June 2015) at 650-656. The authors reported the following:

- Based on record since 1935, no significant differences were found in seismicity characteristics inside and outside oil fields in the Los Angeles Basin, including earthquake rates and depths, and the ratio between earthquake magnitude and frequency (referred to as the "b value").
- Analysis of Southern California Seismic Network data and DOGGR records of production and injection did not reveal significant changes in seismicity rate associated with temporal changes in production or injection.

- Production and injection rates are fairly steady over months to years, and were not associated with sudden changes in stresses that could trigger earthquakes.
- Oil and gas reservoirs are sealed by impermeable sedimentary layers and fault zones that enclose the reservoirs. Fluid movements in and out of the reservoirs are unlikely to affect the adjacent, mostly impermeable faults.
- More than 98% of earthquakes in the Los Angeles Basin occur at depths of greater than 5 kilometers below the surface. There is no significant difference in the depth distribution between earthquakes outside or inside of the oil fields. These results suggest that the earthquakes are tectonic in origin, not the result of oil field activities.
- No evidence of induced earthquakes was found, and the management of balanced production and injection of fluids appears to reduce the risk of induced-earthquake activity in the oil fields

Finally, in responding to comments on the SB 4 EIR regarding this subject, DOGGR concluded:

- The injection factor that appears to have the most direct consequence in regard to induced seismicity is net fluid balance (*e.g.*, the total balance of fluid introduced into or removed from the subsurface). In California, existing regulations require that injection wells affect only the zone targeted for injection and that injection pressures remain at or below the pressure of the target zone. This practice maintains stability of the target zone and the likelihood of a resulting seismic event is therefore low; and
- DOGGR's forthcoming revised rules and regulations for the underground injection control (UIC) program may further address the potential for deep well injection that could potentially cause seismic events.

SB 4 Final EIR at C.2-94–95.

Despite the above conclusions, commenters assert that the mitigation measures in the EIR must prohibit injection or drilling near fault lines in order to adequately mitigate the risks of induced seismicity. To the contrary, existing regulations such as the control of over-pressuring according to CCR Title 14, Division 2, Chapter 4, Subchapter 1, Article 3 requirements, sufficiently protect against induced seismic events.

Therefore, potential induced-seismicity impacts from wastewater injection are expected to be less than significant after mitigation. To further address concerns about earthquake risk, a new mitigation measure has been added (MM 4.8-7(e)) to require additional earthquake monitoring and reporting to help inform the need for, and substance of, any further regulation of this issue. Further information about the topics addressed in the CCST report in relation to the DEIR is provided in GR-20.

GHG-1: GHG Methodology and Emission Estimates

Several comments state that the DEIR did not adequately identify all of the potential greenhouse gas (GHG) emissions from the project and their potential impacts.

The GHG analysis in the EIR quantifies direct GHG emissions from permitted and non-permitted facilities, as well as combustion, venting, and fugitive sources associated with construction, well production and stimulation, and well abandonment. The analysis also includes emissions from vehicles used during well construction and operation. The analysis compares GHG baseline emissions for 2012 with emissions in 2035 under full project build out. The emissions estimate for 2035 includes all GHG emissions from construction and operation of the project, including fugitive emissions and methane leakage, and thus accurately portrays the GHG emissions attributable to the Project.

Emissions from the following GHGs were quantified as carbon dioxide equivalent (CO2E) in the GHG analysis: Carbon Dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Chlorofluorocarbons (CFCs), Sulfur hexafluoride (SF_6), Hydrofluorocarbons (HFCs), and Perfluorocarbons (PFCs). The following GHGs were not counted in the analysis: black carbon and Nitrogen trifluoride (NF_3). Nitrogen trifluoride is not emitted by the oil and gas industry but is used for production of computer memory products, flat panel displays, and thin-film solar cells and thus it was not included in the GHG analysis. Black carbon emissions are a result of incomplete combustion and occur in the oil and gas industry from flaring. "Black carbon and methane emissions from oil and gas activities – overcoming emission reduction barriers", Carbon Limits, p. 8, online at: http://www.carbonlimits.no/PDF/CH4BCBarrierReportCarbonlimits.pdf, accessed September 2, 2015. However, physical measurements of black carbon from flares are difficult to conduct and there are currently little to no measurements on the magnitude of black carbon emissions from gas flares. *Id.* pp. 8, 26. In addition, Health & Safety Code § 38505(g) does not include black carbon in its definition of GHGs for AB 32. *See* H&S Code § 38505(g) (including in the definition of GHGs: Carbon dioxide, methane, nitrous oxide, Hydrofluorocarbons, Perfluorocarbons, Sulfur hexafluoride, and nitrogen trifluoride). Finally, SJVAPCD enforces several regulations related to flaring that apply to Project activities. For these reasons, black carbon was not calculated in the GHG analysis.

Significance Thresholds and Analysis

CEQA Guidelines § 15064.4(b) gives a lead agency discretion to choose the appropriate threshold of significance to apply to a project. A lead agency is not required to adopt a "no net increase" significance threshold. Thus, the analysis in the EIR appropriately relies on SJVAPCD guidance for determining GHG impacts. The SJVAPCD guidance utilizes a tiered approach to assess impacts of GHG emissions. The tiers are (1) demonstrating compliance with an approved GHG emissions reduction program such as CARB's cap-and-trade program, (2) demonstrating project implementation of Best Performance Standards (BPS) to reduce GHG emissions, and (3) demonstrating achievement of a 29% reduction in GHG emissions from Business As Usual (BAU). *See* "Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA" and "District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency". None of these methods of determining the significance of GHG emissions have been rejected by a court with jurisdiction in Kern County, while reliance on the BAU-based significance threshold has been specifically upheld as a proper exercise of agency discretion by two California appellate courts.

In *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal. App. 4th 327, 336-37 (*CREED*), reliance on the BAU significance threshold was upheld as a proper exercise of agency discretion. In evaluating a remodel and expansion of an operating retail store that would demolish a 1970s-era building and build a modern, energy-efficient building, the City of Chula Vista used AB 32's reduction goals to determine whether the project would reduce "business as usual" emissions – emissions assuming no reduction from measures required by AB 32 – by the percentage required to be consistent with AB 32's statewide emission goals. *CREED* had argued various other thresholds were more stringent and therefore should have been the relevant threshold. The court, citing to CEQA Guidelines § 15064.4, upheld the City's decision to use an AB 32 percentage reduction based on the "business as usual" methodology and found that *CREED*'s arguments regarding potential alternative thresholds were unavailing.

Three subsequent cases concurred with the approach in *CREED*. *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832, 841-42; *Friends of Northern San Jacinto Valley v. County of Riverside*, Riverside County Sup. Ct., Case No. RIC10007572 (2012); and *Center for Biological Diversity v. City of Fullerton*, Orange County Sup. Ct., Case No. 30-2011-00499466-CU-WM-CXC (2012).) Though the courts in *Friends of Oroville* and *Friends of Northern San Jacinto* criticized the lead agency's *analysis* of the BAU-based significance threshold, neither court disapproved of the BAU approach. Instead, both courts stated that the lead agencies should have followed the same analysis utilized in *CREED*. In particular, in *Friends of Northern San Jacinto*, the trial court rejected the comparison to a "hypothetical" worst-case BAU scenario that was highly unrealistic (disregarding local zoning restrictions, assuming the project site was stripped of vegetation and fully developed even in steeply sloping areas) – but distinguished that unrealistic hypothetical BAU scenario from the reasonable BAU analysis in *CREED*.

More recently, in *Friends of Oroville*, an EIR for a Wal-Mart replacement project used the BAU scenario for GHG as the threshold of significance, an approach favorably reviewed in *CREED*. Although the court found that the City of Oroville operated from an appropriate legal foundation with regard to its adopted threshold, the court found that the *analysis* was faulty. Specifically, the lead agency focused on the relative percentage of project emissions against the statewide numbers for 2004, determining that the project would contribute a mere .003% of California's 2004 emissions. Such a calculation, as noted by the court, would always pale when compared to the "world's eighth largest economy." The appellate court stated that the correct analysis, as reflected in *CREED*, would have involved an evaluation of the project as compared to a business-as-usual reference point. According to the court, *CREED* "exemplifies the model, showing us a proper way to apply the AB 32 threshold-of-significance standard." *Id.* at 841.

One trial court found that the BAU methodology improperly relied on a hypothetical baseline. *Center for Biological Diversity v. Dept. of Fish and Wildlife*, Los Angeles Sup. Ct., Case No. BS131347 (2012) (*Newhall Ranch*). In Newhall Ranch, the trial court found the BAU methodology improper, but the court of appeal reversed. *Center for Biological Diversity v. Dept. of Fish and Wildlife* (2014) 224 Cal. App. 4th 1105. Relying on cases that rejected use of purely hypothetical conditions (such as planned or permitted facility capacity, never actually achieved) as the baseline, the trial court interpreted the BAU scenario as a form of impermissible "hypothetical baseline." On

the contrary, the court of appeal concluded, the trial court erred in equating the BAU-based *significance threshold* with an improper hypothetical *baseline*: "We agree with the [lead agency] that the trial court's ruling, as do some aspects of plaintiffs' analysis, conflated the baseline with the significance determination." Slip Opin. at 99-100 (this portion of the decision was not published). The case is currently pending appeal before the California Supreme Court.

In addition, in *Cleveland National Forest Foundation v. San Diego Assoc. of Gov. et al.* (2014) 231 Cal.App.4th 236 (*SANDAG*) the Superior Court of San Diego County found that the EIR for SANDAG's SB 375 mandated transportation plan violated CEQA because it failed to: (1) analyze the inconsistency between the plan's GHG emissions impacts after 2020 and the state's policy goals presented in Executive Order S-3-05; and (2) adequately address mitigation measures for the plan's GHG emission impacts. On appeal, the court held that the EIR violated CEQA for omitting a discussion of the plan's consistency with the state climate policy of continual GHG emissions reductions, presented in Executive Order S-3-05. The opinion also included some broad language that could be interpreted to call into question the BAU approach:

> Although [§ 15064.4] specifies three means of determining whether a project's greenhouse gas emissions impacts are significant, the "among others" qualifying language indicates these means are not exclusive. Moreover, "the fact that a particular environmental effect meets a particular threshold cannot be used as an automatic determinant that the effect is or is not significant . . . a threshold of significance cannot be applied in a way that would foreclose the consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant." (*Protect The Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 (Amador).) Consequently, the use of the Guideline's thresholds does not necessarily equate to compliance with CEQA, particularly where, as here, the failure to consider the transportation plan's consistency with the state climate policy of ongoing emissions reductions reflected in the Executive Order frustrates the state climate policy and renders the EIR fundamentally misleading. *SANDAG* at p. 18 (emphasis added).

Thus, the BAU methodology, as well as the extent to which CEQA's GHG analytical and mitigation obligations can be satisfied through compliance with other GHG laws such as SB 375 and AB 32, are matters currently under consideration by the California Supreme Court in both the *SANDAG* and *Newhall Ranch* cases.

The analysis in the EIR finds that Project GHG emissions would either be covered by CARB's cap-and-trade program, or are exempt from cap-and-trade and mitigated to a no net increase standard by GHG mitigation offsets. MM 4.7-1, 4.7-2, and 4.7-4. GHG emissions are also required to be reduced through compliance with applicable regulations, such as CARB's proposed new methane standard. MM 4.7-3; CARB Proposed "GHG Emission Standards for Crude Oil and Natural Gas Facilities" online at: http://www.arb.ca.gov/cc/oil-gas/meetings/Draft_Regulatory_Language_4-22-15.pdf.

The EIR thus finds that the Project would result in an overall increase in GHG emissions and that these GHG emissions would be potentially significant, but that impacts would be reduced to less than significant with mitigation. Mitigation Measures 4.7-1 through 4.7-4 will ensure that all

regulated sources are covered by and comply with CARB's cap-and-trade program and implement BPS, and that GHG emissions not covered by CARB's cap-and-trade program or other mandatory GHG emission reduction measures are offset. In addition, each applicant must implement methods to recover for reuse or destroy methane. Irrespective of the significance threshold, these mitigation measures collectively will assure that GHG emissions from the Project are mitigated to a level of net-zero increase.

Although the Project is anticipated to be consistent with the adopted California Climate Change Scoping Plan, CARB's GHG cap-and-trade program, and other applicable adopted standards and regulations, Impact 4.7-2 is found to be significant and unavoidable. In addition, impacts from cumulative GHG emissions are found to be significant and unavoidable due to Kern County's inability to assure that cumulative GHG emissions are controlled in a manner sufficient to address global climate change, even though Project emission are fully mitigated.

Methane

Commenters state that the EIR should have used a different Global Warming Potential (GWP) for methane, claiming that the values used mask the short term effects of methane emissions. The comment is correct that the EIR did not use the IPCC's most recently updated GWP for methane. The EIR used GWPs from the values included in the EPA's most recently amended Mandatory Greenhouse Gas Reporting Regulation (40 C.F.R. Part 98, Subpart A, Table A-1), which has not yet adopted the IPPC's most recent GWP values. Table A-1 of this regulation provides the methane GWP of 25, based on a 100-year time horizon. The California Air Resources Board's GHG Mandatory Reporting Regulation and Cap-and-Trade regulations both use the federal GWP values by reference. *See* 17 Cal. Code Regs. § 95102(a)(67). Since the major state GHG regulatory programs rely on the federal greenhouse gas reporting regulation for specifying the GWP of various greenhouse gases, the DEIR appropriately used the same GWP values for its analysis.

Duration of Project, Scope of Analysis, and Impacts

Commenters suggest that the EIR should have included an analysis of consistency with various Executive Orders issued by California Governors, analysis of GHG emissions after 2035, and "aggregate" or total GHG emissions from the Project. These analyses are not required by CEQA.

Under the Article V, Section 1 of the California Constitution, the "supreme executive power of this State is vested in the Governor" and the Governor must "see that the law is faithfully executed". However, the Governor does not have the power to make law. As an executive officer of the state, the Governor is "forbidden to exercise any legislative power or function except as the constitution expressly provide[s]…" *St. John's Well Child and Family Center v. Schwarzenegger* (2010) 50 Cal. 4th 960, 985. The Governor may use executive orders to direct subordinate officers in the enforcement of a particular law, but cannot invade the province of the Legislature. 63 Ops. Cal. AG 583 (1980). Specifically, "the Governor is not empowered, by executive order or otherwise, to amend the effect of, or to qualify the operation of existing legislation." Id. In addition, nothing in the California Constitution or state law grants the Governor authority to issue an executive order that would impose obligations on third parties.

Since the Governor's executive power does not extend to making law or imposing obligations on third parties, it follows that Executive Orders, while aspirational, do not and cannot establish formal state policy for entities other than state agencies that report to the Governor. This conclusion is supported by the Legislature's action on climate change legislation in the recently-ended first year of the 2015-2016 legislative session. In particular, SB 32, which would set various future GHG reduction goals into statute, was not enacted but will be further considered in 2016. The debate on SB 32 showed that the Legislature has not yet determined what, if any, are the appropriate greenhouse gas emissions reduction goals beyond 2020. Accordingly, the Governor's post-2020 GHG emissions reduction goals are not formal state policy or law and need not be considered in the EIR's analysis. Nevertheless, the DEIR included an informational assessment of the Project's consistency with Executive Orders S-3-05 and B-30-15 on pages 4.7-43 and 4.7-44. This assessment concluded that "the proposed Project as mitigated is consistent with the goals of both EOs".

The EIR accurately identifies anticipated project emissions. Emissions from construction (well drilling) and operation are provided for anticipated annual emissions (Table 4.7-8) and for build out emissions in 2035. Emissions from facilities subject to Cap-and-Trade are identified in Table 4.7-6. As stated above, the EIR need not consider Governor's Executive Orders as binding policies, so there is no requirement to assess emissions out to 2050 as a commenter suggested. Also, unlike the situation in *Vineyard Area Citizens for Responsible Growth*, 40 Cal.4th 412, 431, the DEIR does identify and evaluate GHG emissions out to project build-out in 2035.

A commenter said that the 10% GHG emissions allowance, to account for emissions from facilities that are not subject to ARB's GHG Mandatory Reporting Regulation (MRR), is unsubstantiated. The 10% GHG allowance is the same as the 10% allowance added to the air quality emissions calculations to assure that emissions from smaller facilities were included in the analysis. As described on DEIR page 4.3-75, the larger operators (Title V sources) account for about 90% of the active crude oil wells in Kern County, so after emissions from these facilities were determined an additional 10% was added to the emissions total to account for emissions from the smaller sources that do not have Title V permits. Annual criteria pollutant emissions are not reported for smaller (non-Title V) sources, so direct emissions information is not available. Similarly, GHG emissions are not reported by facilities that are not subject to MRR. To account for those emissions, it was reasonable to assume a similar ratio for MRR and non-MRR sources. All GHG emissions from non-MRR sources will be mitigated by compliance with mitigation measures other than compliance with Cap-and-Trade.

Contrary to commenters' statements, nothing in CEQA requires that the EIR identify total GHG emissions summed over the lifetime of the Project. Annual emission rates as provided in Tables 4.7-6, 4.7-8 and 4.7-9 are much more informative, because they allow for comparison to statewide and county-wide annual emissions rates (Tables 4.7-2 through 4.7-5). The federal and state GHG mandatory reporting programs, California Cap-and-Trade, and the analyses in ARB's original and updated Scoping Plans under AB 32 all address GHG emissions on an annual basis. The approach used in the EIR is consistent with the approach used in these regulatory programs.

It is also noted that it is not possible to determine the particular impact on global climate change that may result from the emissions that come from a particular project, or even from all GHG emissions in California, and the commenter did not identify any such methodology. The CEQA Guidelines and the SJVAPCD policies also do not require such an analysis.

A commenter states that the DEIR did not properly compare Project GHG emissions to baseline GHG emissions. Table 4.7-9 identifies Project baseline emissions (2012) and Project build-out emissions (2035). As discussed in Global Responses 2 and 6, the analysis is conservative because all emissions from new wells drilled after Project approval are considered to be new emissions without consideration of emission decreases from well retirement.

Mitigation

Commenters state that the EIR analysis "treats MRR permitted emissions as though they will not occur" and that the Cap-and-Trade program will expire in 2020 and therefore cannot be relied on as mitigation after 2020. With regard to reliance on Cap-and-Trade as mitigation, the statewide emission cap for sources and activities included in Cap-and-Trade (including most oil and gas production activities as described in the DEIR) is fixed by regulation through 2020. 17 Cal. Code Regs. §95800 *et seq*. Any GHG emission increases from sources in the program are subject to the limit, and facility operators must either purchase GHG emissions allowances or emission offsets in quantities equal to reported annual emissions. Under the program as a whole, the statewide GHG emission rate for sources in the program cannot exceeded the levels specified in the regulation, which ARB imposed as necessary to achieve the AB 32 statewide GHG emission limit for 2020. The SJVAPCD CEQA guidance and policy documents referenced above specifically authorize reliance on Cap-and-Trade as a mitigation measure, and explain the District's reasons for adopting these policies. Considering emissions covered by Cap-and-Trade to be mitigated in no way ignores those emissions or the CEQA Guidelines. Thus, reliance on the Cap-and-Trade program is an appropriate mitigation measure for sources and activities included in the program. Also see GR 22 regarding compliance with regulations as mitigation.

Commenters state that the Cap-and-Trade program expires in 2020 and therefore can't mitigate project emissions after that time. This statement is inaccurate. The California Cap-and-Trade program and other federal and state GHG emission control programs will almost certainly continue beyond 2020. AB 32 specifically states that the statewide greenhouse gas emission limit "shall remain in effect unless otherwise amended or repealed" and that the statewide GHG emission limit should "be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020." Health and Safety Code § 38551(a), (b). The Cap-and-Trade regulation does not expire, it just currently includes compliance periods and statewide emission caps only through 2020. Since cap-and-trade is the signature element of ARB's AB 32 regulations, like other emissions regulations it is expected to remain in in effect indefinitely, with ARB adding requirements for later years as needed.

Reliance on Best Performance Standards (BPS) and future GHG emission standards are said to not be enforceable mitigation. BPS are used to reduce GHG emissions from various sources and activities, and in that way do mitigate GHG emissions. The EIR analysis does not rely solely on

future GHG regulations to mitigate project emissions. Rather, since it is known that ARB and other agencies will be adopting GHG emission standards that will apply to Project emissions, the EIR correctly recognizes that emissions will be reduced (mitigated) when such regulations become effective. Lower emission levels will require smaller quantities of offsetting emission reductions, but in all cases emissions remaining after application of MM 4.7-1, 4.7-2 and 4.7-3 must be offset in accordance with MM 4.7-4. At the time of filing an application for conformity review, applicants must specify their expected GHG emissions and identify how those emissions will be mitigated. Emission-reducing measures may include the measures listed by ARB at http://www.arb.ca.gov/cc/non-co2-clearinghouse/non-co2-clearinghouse.htm, but those measures are not required, All reductions will be verified by the County.

Various comments identify a single mitigation measure and state that the measure will be unenforceable or otherwise ineffective in providing mitigation. The mitigation measures were not intended to individually provide full mitigation for Project GHG emissions. The measures were designed as a package, such that mitigating Project GHG emissions to a level of net zero is achieved by all four of the GHG mitigation measures working in concert. Since Project GHG emissions are mitigated to a net zero increase, additional mitigation for the significant and unavoidable impacts associated with plans, policies or regulations for reducing GHG emissions is not necessary or feasible.

A comment references the California Air Pollution Control Officers Association (CAPCOA) "CEQA and Climate Change" (2008) document as a source for mitigation measures for construction related GHG impacts. This document lists the following mitigation measures:

MM C-1: Certified Diesel Construction Equipment

MM C-2: Alternative Fuel Construction Equipment

MM C-3: Local Building Materials

MM C-4: Recycle Demolished Construction Material

MM C-1: Certified Diesel Construction Equipment is a mitigation measure for some criteria pollutants and diesel particulates (DPM), but the measure indicates that it has an adverse impact on GHG, as it "Increases CO2 emissions when trapped CO and carbon particles are oxidized." As such, there are reductions to some pollutants from certified diesel construction equipment but apparently there are also increases in GHG emissions. Other DEIR mitigation measures such as MM 4.3-3, which requires that off-road engines meet the Tier 3 emission standards, would substantially reduce emissions of criteria pollutants (without increasing GHG emissions).

The CAPCOA document includes MM C-2: Alternative Fuel Construction Equipment, but states that this measure is also adverse with respect to some criteria pollutants. The measure suggests "Use alternative fuel types for construction equipment. At the tailpipe biodiesel emits 10% more CO2 than petroleum diesel. Overall lifecycle emissions of CO2 from 100% biodiesel are 78% lower than those of petroleum diesel." However, the use of biodiesel may also result in a 10% increase in NOx

which would contribute to the nonattainment status for the State and federal ozone standard[104]. As such, MM 4.3-3 in the DEIR was recommended to reduce emissions of nitrogen oxides and particulate matter.

The CAPCOA document also lists MM C-3: Local Building Materials. The use of local building materials is frequently practiced by the construction industry to minimize the costs and time associated with transporting building materials.

Lastly, the CAPCOA document lists MM C-4: Recycle Demolished Construction Material. Section 4.17 Utilities and Service Systems of the DEIR discusses how the Kern County Waste Management Department (WMD) operates seven landfills, five transfer stations and three bin sites throughout the county. The WMD also operates two special waste facilities and provides information on recycling and waste to minimize waste generation. This DEIR section also discusses The California Solid Waste Reuse and Recycling Access Act of 1991 which requires expanded or new development projects to incorporate storage areas for recycling bins into the project design. Reuse and recycling of construction debris would reduce operating expenses and save valuable landfill space. To comply with this Act, the DEIR included the following mitigation measure:

MM 4.17-5 During construction activities for Project facilities, the Applicant shall not store construction waste onsite for longer than the duration of the construction activity, or transport any waste to any unpermitted facilities. The Applicant shall also reduce construction waste transported to landfills by recycling solid waste construction materials, such as taking materials to recycling and reuse locations listed in the brochure on recycling construction and demolition materials available on the Kern County Waste Management Department website.

For these reasons, the analysis in the EIR captures and addresses all GHG emissions from the Project and ensures that impacts from GHG emissions will be mitigated to a net-zero increase. The analysis is adequate under CEQA.

Haz-1: Pipeline Integrity

Commenters have suggested that the EIR does not adequately analyze and mitigate the risks from potential leaks from pipelines used during oil and gas activities that would be authorized by the Project, citing as an example the 2014 waste gas pipeline leak in the City of Arvin, CA. (The Arvin waste gas pipeline leak is discussed in the Chapter 4.8 – Hazards and Hazardous Materials, pp. 4.8-19-20).

As described in the Project Description, oil and gas activities that would be authorized by the Project could include construction and use of new, and use of existing, pipelines, including pipelines for transport of crude oil and natural gas, flowlines and injection lines, gathering lines and headers. (DEIR p. 3-45). These pipelines would transport crude oil, produced water, natural gas, waste gas,

[104] EPA. A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions. EPA420-P-02-001. October 2002.

and other hazardous and nonhazardous substances. As described in Chapter 4.8 – Hazards and Hazardous Materials, myriad federal and state regulations address pipeline safety, including: the Transportation of Hazardous Liquids by Pipeline regulations (49 CFR 195) (DEIR p. 4.8-33); the Pipeline Safety Improvement Act of 2002 (DEIR pp. 4.8-35-36); the Hazardous Liquid Pipeline Safety Act of 1979 (DEIR 4.8-36-37); the Oil Pipeline Environmental Responsibility Act (DEIR p. 4.8-56); and California Public Utilities Commission General Order 112-E and Proposed Amended General Order 112-F (DEIR p. 4.8-57).

In addition to the above regulations, the AB 1960 implementing regulations, which became effective in January 2011, impose requirements on pipelines transporting crude oil not already regulated under federal law. The AB 1960 regulations are codified at 14 CC §§ 1722-1777.3. (DEIR pp. 4.8-72 – 74). Pursuant to Section 1774 – Pipeline Construction and Maintenance, "[n]ewly installed pipelines shall be designed and constructed, and all pipelines shall be tested, operated, and maintained in accordance with good oil field practices and applicable standards …." The regulations further require that operators visually inspect all aboveground pipelines for leaks and corrosion at least once a year, and that any pipeline found to have a release of a reportable quantity be pressure tested to verify integrity prior to return to service. Further, mechanical integrity testing is required to be performed every two years on all active environmentally sensitive pipelines that are gathering lines, and all urban pipelines over 4 inches in diameter, subject to an exemption for pipelines less than 10 years old. The AB 1960 regulations further require operators to prepare and implement a pipeline management plan for all pipelines that have not been abandoned to the specified standards. 14 CCR 1776(f). The plan is required to be updated within 90 days of whenever pipelines are acquired, installed, or altered, or otherwise at the request of DOGGR.

The DEIR identified Mitigation Measure (MM) 4.8-4 to require, among other things, mechanical integrity testing requirements on pipelines within 200 feet of a sensitive receptor. MM 4.8-4 also applies to gas, oil and produced water pipelines, which goes beyond the proposed requirements in AB 1420, which would apply to gas pipelines only. Based on comments received, MM 4.8-4 is modified as follows to apply to pipelines within 300 feet of a sensitive receptor rather than 200 feet as identified in the DEIR:

MM 4.8-4 The Applicant shall implement the following measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations.

a. The Applicant shall identify gas, oil and produced water pipelines to be used for each new or reworked well site in its Site Plan, and shall show the location of any sensitive receptor located within ~~200~~ **300** feet of any such pipeline. For any pipeline located within ~~200~~ **300** feet of a sensitive receptor, the Applicant shall present evidence that each such pipeline has been integrity tested using pressure testing or other accepted test methods by a qualified professional within a two-year period prior to submittal of the Site Plan, and shall provide a copy of the test result to the County. For all waste gas lines less than or equal to 4 inches in diameter, a Pipeline Management Plan shall be developed and implemented in accordance with Division of Oil Gas and Geothermal Resources regulations Title 14, Division 2, Chapter 4, Section 1774.2. The Pipeline Management Plan shall include:

1. A listing of information on each pipeline including, but not limited to:
   i. Pipeline type.
   ii. Grade.
   iii. Installation date of pipeline.
   iv. Design and operational pressure.
   v. Any leak, repair, inspection and testing history.

2. A description of the testing method and schedule for all pipelines.

b. The Applicant shall notify the Kern County Environmental Health Division, surface landowner, and sensitive receptors located within 300 feet, of reportable quantities of fuel, gas, petroleum or hazardous materials leaks to the County within 48 hours of discovery, and to other applicable agencies as required by other laws. The Applicant shall immediately contain the leak (e.g., by isolating or shutting down the leaking equipment), clean up contaminated media (e.g., soils), and repair the leak prior to recommencing operations. The Applicant shall report the status and progress of the leak repair and remediation work to the County on monthly intervals until the repair has been completed, and any contaminated media has been remediated.
c. As part of the Site Plan, The Applicant shall identify the location and right of way for all pipelines to be used for the transport of oil, gas, and produced water, including pipelines that intersect the main transport line, based on existing data and using commercially available technology, and, based on the results of this analysis, shall identify any sensitive receptors within 300 feet of the pipeline for purposes of complying with Mitigation Measure 4.8-4. Mechanical integrity testing of all such pipeline lengths within 300 feet of a sensitive receptor shall be required pursuant to Mitigation Measure 4-8-4.
d. If a release, identified pursuant to subsection (b), cannot be repaired or remediated within 48 hours, and has potential impact to sensitive receptors, the Applicant shall incur costs to sample and analyze the potentially affected area, which may include soil, groundwater, outdoor or indoor air of sensitive receptors within 300 feet of the leak. Applicant shall pay all temporary relocation costs (e.g., housing, food, and transportation) for any exposed sensitive receptor until such time as the leak has been repaired and post-indoor air testing has been completed, as confirmed by identified agency having oversight of the remediation

Based on existing federal and state regulations, including AB 1960, as well MM 4.8-4 and other proposed mitigation measures, the DEIR concludes that impacts associated with the routine transport, use or disposal of hazardous materials via pipeline would be less than significant. (DEIR,

pp. 4.8-71 – 4.8-89. If the Project is approved, use of pipelines for oil and gas activities in Kern would be the most rigorously regulated in the State.

Nevertheless, commenters have suggested that, as with the waste gas pipeline leak in Arvin, CA, where records of the pipeline records purportedly showed the pipeline in a different location, so-called "legacy" pipelines must be identified and located to ensure that such pipelines do not run under or near sensitive receptors. The County recognizes that, over the course of one hundred-plus years of oil and gas operations in the County, thousands of miles of pipelines have been laid, and that over time, use of many of those pipelines may have been discontinued and records relating to their precise location lost. The existence of such legacy pipelines is not a function of the Project, however, and, pursuant to CEQA, is part of the environmental baseline. As explained by the California Supreme Court in *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310 (*CBE*), "the baseline for CEQA analysis must be the 'existing physical conditions in the affected area' . . . , that is, the 'real conditions on the ground'." (*Id*. at p. 321, quoting *Environmental Planning & Information Council v. County of El Dorado* (1982) 131 Cal. App. 3d 350, 354, and *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 121.) This is the case even where "actual development or activity had, by the time CEQA analysis was begun, already exceeded that allowed under the existing regulations." (*CBE, supra*, 48 Cal.4th at p. 321; see also *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1452-1453[baseline for a proposed quarry development was the actual condition of the land, even though some existing environmental degradation had resulted from prior illegal mining and clearing activities]; *Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278-1280 [baseline for airport expansion was existing airport operations, even though the airport had been operating and had expanded without a required permit for several years]; *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357, 370-371 [baseline for proposed school playground use was the existing playground facility, even though prior construction of the facility may have violated the city's code].) "This is so even if the current condition includes unauthorized and even environmentally harmful conditions that never received, and, as a result of being incorporated into the baseline, may never receive environmental review." (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 249, citing *Citizens for East Shore Parks v. State Lands Com.* (2011) 202 Cal.App.4th 549, 561 [explaining that the CEQA definition of the environmental baseline means some existing environmental conditions may "never receive environmental review"]; see also *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1233 [stating that "any illegal activities affecting the baseline environmental condition are best addressed by enforcement agencies"].) Thus, the County lacks the authority pursuant to CEQA to require mitigation to address the existence of legacy pipelines.

However, for existing pipelines that will be used by the Project, the County does believe further action can be taken to map the location of these pipelines so that, as necessary, the requirements MM 4.8-4 can be applied if such pipelines are within 300 feet of a sensitive receptor. Subsection (c) of MM 4.8-4 was added to address this issue, as noted above.

The potential impact from the routine transport, use or disposal of hazardous materials via pipeline would continue to be less than significant with mitigation.

Haz-2: Idle Wells

Some commenters have expressed concern regarding potential impacts of existing idle wells located within the County. An idle well is a well that has not been officially plugged and abandoned, on which the operator has ceased all activity, including but not limited to drilling, production or injection. (DEIR at p. 11-29.) The County recognizes that, over the course of one hundred-plus years of oil and gas operations in the County, numerous wells have been allowed to idle. The existence of such idle wells is not a function of the Project, however, and, pursuant to CEQA, is part of the environmental baseline.

As explained by the California Supreme Court in *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310 (*CBE*), "the baseline for CEQA analysis must be the 'existing physical conditions in the affected area' . . . , that is, the 'real conditions on the ground'." (*Id*. at p. 321, quoting *Environmental Planning & Information Council v. County of El Dorado* (1982) 131 Cal. App. 3d 350, 354, and *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 121.) This is the case even where "actual development or activity had, by the time CEQA analysis was begun, already exceeded that allowed under the existing regulations." (*CBE, supra*, 48 Cal.4th at p. 321; see also *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1452-1453[baseline for a proposed quarry development was the actual condition of the land, even though some existing environmental degradation had resulted from prior illegal mining and clearing activities]; *Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278-1280 [baseline for airport expansion was existing airport operations, even though the airport had been operating and had expanded without a required permit for several years]; *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357, 370-371 [baseline for proposed school playground use was the existing playground facility, even though prior construction of the facility may have violated the city's code].) "This is so even if the current condition includes unauthorized and even environmentally harmful conditions that never received, and, as a result of being incorporated into the baseline, may never receive environmental review." (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 249, citing *Citizens for East Shore Parks v. State Lands Com.* (2011) 202 Cal.App.4th 549, 561 [explaining that the CEQA definition of the environmental baseline means some existing environmental conditions may "never receive environmental review"]; see also *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1233 [stating that "any illegal activities affecting the baseline environmental condition are best addressed by enforcement agencies"].) Therefore, existing idle wells within the Project Area are properly considered part of the environmental baseline for the purpose of this EIR. (See, e.g., Draft EIR, p. 4.3-73.)

However, the Draft EIR describes and analyzes potential impacts associated with future well abandonments authorized under the proposed Amendment to Chapter 19.98 (Oil & Gas Production). Specifically, the Draft EIR analyzes potential impacts associated with the anticipated abandonment of 2,231 wells per year in the Project Area. (Draft EIR, pp. 1-19, 4.9-134.) Similarly, the Draft EIR acknowledges the potential for idle wells to be reactivated. Reactivation of an idle

well may range from simple activities, such as replacement of a well pump, to well deepening, sidetracking, or re-working. (Draft EIR, p. 3-53.) As discussed in the Project Description, the Draft EIR addresses potential environmental impacts associated with reactivation of idle wells that may occur under the proposed project. Where necessary, the Draft EIR requires mitigation measures to address potentially significant project-specific and cumulative impacts associated with future reactivation as well as abandonment of wells within the Project Area. (See Generally Draft EIR, Chapter 4.) Therefore, the Draft EIR properly incorporates existing idle and abandoned wells into the baseline conditions; in addition, the Draft EIR evaluates and mitigates potential impacts to the extent future well activities are anticipated to create new idle or abandoned wells or otherwise impact existing idle or abandoned wells within the Project Area through, for example, reactivation of an idle well.

In response to comments, the County has added a new idle well process to the Revised Amended Ordinance to help facilitate public involvement, DOGGR enforcement, and applicant accountabity, for compliance with DOGGR's idle well regulations. (Section 7.1.3)

Noise-1: Noise and Vibration

"A threshold of significance is an identifiable, quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (CEQA Guidelines, § 15064.7 subd. (a))

Like many lead agencies, Kern County has exercised its discretion to formulate significance thresholds by using language from Appendix G of the CEQA Guidelines. Consistent with the CEQA Guidelines, Kern County has adopted the following thresholds of significance (among others) to analyze noise impacts from project construction and operation: (1) whether a project would expose persons to, or generate noise levels in excess of standards in the local general plan or noise ordinance or applicable standards of other agencies; (2) whether a project would create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; and (3) whether a project would create a permanent increase in ambient noise levels in the project vicinity above levels existing without the project. (DEIR, p. 4.2-18.)

The first threshold applies to both project construction and project operation, and addresses whether the proposed project would result in "exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies standard." This threshold clearly specifies that noise impacts should be analyzed against the standards established in the local general plan. The Kern County General Plan, as well as the general plans for each of the incorporated cities within the project area, applies an exterior noise

level standard of 65 dB DNL[105] for noise-sensitive receptors. (DEIR, pp. 4.2-8, 4.2-18; Noise Assessment (September 2015), p. 14.) Therefore, a project would normally be considered to have a significant impact if it would result in exposure of persons to exterior noise levels in excess of 65 dB DNL/CNEL.

The second threshold applies to project construction, and addresses whether the proposed project would create a "substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project." The third threshold applies to project operation, and addresses whether the proposed project would create a "substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project." While these two thresholds qualitatively assess temporary or permanent increases over ambient noise without the project, the lead agency – Kern County – maintains discretion to determine the quantitative threshold applicable to each project. For this project, the County applied a quantitative threshold of 65 dB DNL/CNEL, which represents the exterior noise levels the County has deemed to be acceptable for noise sensitive areas. (DEIR, pp. 8-9; General Plan, pp. 145-150.) Where a project would exceed 65 dB DNL/CNEL, noise mitigation measures would be required. (General Plan, p. 148.)

In addition, the County noise ordinance exempts from restriction all daytime construction noise that occurs between 6:00 AM and 9:00 PM on weekdays, and between 8:00 AM and 9:00 PM on weekends. For nighttime construction noise occurring between 9:00 PM and 6:00 AM on weekdays and between 9:00 PM and 8:00 AM on weekdays, the Kern County noise ordinance provides that construction noise cannot be audible within 150 feet of the construction site and 1,000 feet of an occupied residential building. (DEIR, p. 4.12-20.) These exemptions are typical of city and county noise ordinances and reflect the recognition that construction-related noise is temporary in character, is inherently noisy, is generally acceptable when limited to daylight hours, and is part of what residents expect as part of a typical urban noise environment.

A number of commenters challenged the County's selected noise thresholds. As an initial matter, where an agency's significance thresholds are challenged by a project opponent, the standard of review for a court reviewing the selected threshold is the "substantial evidence" standard, meaning the court must give deference to the lead agency's decision to select particular significance thresholds, including the threshold for construction noise. (See National Parks and Conservation Association v. County of Riverside (1999) 71 Cal.App.4th 1341, 1358 [applying the substantial evidence test to review of an agency's decision to select particular thresholds for an EIR]; Mount Shasta Bioregional Ecology Center v. County of Siskiyou (2012) 210 Cal.App.4th 184, 204-207 [upholding analysis of increased noise generated by project based on significance thresholds adapted from other agencies]; Eureka Citizens for Responsible Government v. City of Eureka (2007) 147

[105] DNL is the day/night average sound level, which is the average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 pm and before 7:00 am. The DNL represents the existing ambient conditions, as measured over a 24 hour period.

Cal.App.4th 357, 371-374 [deferring to city's determination that noise analysis was performed in a manner consistent with general plan policy]; Sierra Club v. Tahoe Regional Planning Agency (E. D. Cal. 2013) 916 F.Supp.2d 1098, 1146-1151 [upholding agencies' application of significance threshold for construction noise].) As discussed in the DEIR and in these responses to comments, the County's noise thresholds are supported by substantial evidence. As such, they are to be accorded great deference.

Those commenters challenging the thresholds generally attack the quantitative 65 dB DNL threshold long used by the County in its CEQA documents, which is based on the Noise Element in the County's General Plan, to measure whether the project would create substantial temporary or permanent unacceptable increases in ambient noise levels in the project vicinity above levels existing without the project. Rather than rely on the County's adopted General Plan noise standard of 65 dB DNL, which was developed to protect County residents from excessive noise, commenters suggest the County should have applied an alternative quantitative threshold that analyzes whether a project would create a 5 dB increase over the existing ambient noise level. CEQA does not require the County to adopt such threshold. To the contrary, CEQA vests the lead agency with substantial discretion in determining the appropriate threshold of significance to evaluate the severity of a particular impact. (See CEQA Guidelines, § 15064, subd. (b); Save Cuyama Valley v. County of Santa Barbara (2013) 213 Cal.App.4th 1059, 1068 [explaining agency discretion to fashion significance thresholds].) As explained in the CEQA Guidelines, "[t]he determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area." (CEQA Guidelines, § 15064, subd. (b).)

Importantly, case law clearly provides that a lead agency does not run afoul of CEQA by rejecting different thresholds proposed by a project opponent. (See Citizens for Responsible Equitable Environmental Development v. City of Chula Vista (2011) 197 Cal.App.4th 327, 335-336 ("CREED") [rejecting petitioners' argument that the City erred by not applying a different significance threshold]; California Oak Foundation v. Regents of University of California (2010) 188 Cal. App. 4th 227, 282 [rejecting petitioner's argument that a lead agency used the incorrect significance threshold in evaluating the biological significance of tree impacts]; National Parks & Conservation Assn. v. County of Riverside (1999) 71 Cal. App. 4th 1341, 1356-1357 [upholding a biological significance threshold used by Riverside County as supported by substantial evidence].) Moreover, CEQA does not require an agency to set thresholds that would essentially establish a "one molecule rule" by which a project's noise impacts would be deemed significant if the project's noise levels exceeds the background ambient levels by five decibels. (Communities for a Better Environment v. California Resources Agency (2002) 103 Cal.App.4th 98, 120.)

To the extent commenters suggest it is inappropriate for the County to rely on regulatory noise standards, such as the County's General Plan, to analyze noise impacts, commenters are incorrect. Ordinances, plans, policies, and regulations adopted by a lead agency, or adapted from those of another agency with expertise over the resource at issue, can and often do serve as the basis for

setting thresholds of significance. (See North Coast Rivers Alliance v. Marin Mun. Water Dist. (2013) 216 Cal.App.4th 614, 651 [upholding analysis of greenhouse gas emission based on consistency with county's emissions reduction goals]; National Parks & Conserv. Assn. v. County of Riverside (1999) 71 Cal.App.4th 1341, 1353 [upholding EIR's use of county noise standards for assessing significance of project's noise impacts]; Mira Mar Mobile Community v. City of Oceanside (2004) 119 Cal.App.4th 477, 492-493 [upholding thresholds of significance for aesthetic impacts derived from city's local coastal program policies; Sierra Club v. Tahoe Regional Planning Agency (E. D. Cal. 2013) 916 F.Supp.2d 1098, 1146-1151 [upholding significance threshold that limited hours during which construction could occur, but did not otherwise impose limit on construction noise because county's approach was consistent with noise ordinance.)

CEQA case law also endorses a lead agency's use of existing environmental standards or regulations as thresholds of significance. (See Tracy First v. City of Tracy (2009) Cal.App.4th 912 [upholding determination that energy impact of project was less than significant because the project achieved energy efficiencies greater than those required by California Energy Efficiency Standards]; Cadiz Land Co. v. Rail Cycle (2000) 83 Cal.App.4th 47 [upholding finding that incremental impacts of criteria pollutants on sensitive crops would be less than significant based on National Ambient Air Quality Standards promulgated to protect public health and welfare from adverse effects of a pollutant]; Protect The Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th 1099, 1107 ["thresholds can be drawn from existing environmental standards, such as other statutes or regulations"]; Rialto Citizens for Responsible Growth v. City of Rialto (2012) 208 Cal.App.4th 899 [upholding use of thresholds of significance recommended by SCAQMD to assess air quality impacts]; Oakland Heritage Alliance v. City of Oakland (2011) 195 Cal.App.4th 884, 896 [agency has discretion to rely on adopted standards to serve as significance thresholds for a particular project].)

In sum, the EIR properly relied on its General Plan and noise ordinance to establish thresholds of significance for noise impacts.

One commenter attached an Acoustical Review of the DEIR, prepared by Charles M. Salter Associates, Inc. (Salter Report). The Salter Report alleges that the County's noise analysis ignores increases to ambient noise levels, does not adequately mitigate noise and vibration impacts, and fails to analyze interior noise, nighttime noise and single event noise. The County reviewed the Salter Report and determined that it does not constitute substantial evidence of noise impacts not already addressed in the DEIR. Commenter's citations to its own expert to discredit the County's environmental and noise experts constitutes nothing more than a classic "battle of the experts." Under established CEQA precedent, lead agencies may accept the determinations and conclusions reached by the expert or experts that prepared the EIR, even though other conclusions also might be reached by other experts. (See Center for Biological Diversity v. Dept. of Fish & Wildlife (2014) 224 Cal.App.4th 1105, 1179-1180; Eureka Citizens v. City of Eureka (2007) 147 Cal.App.4th 357, 371-72; Greenebaum v. City of Los Angeles (1984) 153 Cal.App.3d 391, 412 [it is not an "abuse of discretion" for a public agency "to give more weight to one set of 'experts' than to another"].) Here, the County properly relied upon the standards articulated in its General Plan and Noise Ordinance, and upon the analysis and conclusions of its noise expert and EIR consultant.

Some commenters attempt to frame the EIR's use of regulatory thresholds as a "baseline" issue. The E's selection of the appropriate significance thresholds by which to measure a project's impacts is not akin to the DEIR's description of the existing environmental conditions, or the "baseline." As such, the law governing a lead agency's selection of thresholds differs vastly from the case law governing a lead agency's description of the environmental baseline. The "baseline" cases cited by commenters (Communities for Better Environment v. South Coast Air Quality Management Dist. (2010) 48 Cal.4th 310; Environmental Planning & Information Council v. County of El Dorado (1982) 131 Cal.App.3d 350) are clearly inapplicable to the County's selection of the noise thresholds for the proposed project. In Communities for Better Environment, the EIR for a refinery project relied upon the permitted emissions capacity as the "baseline" rather than the refinery's actual emissions. The Supreme Court held that the maximum amount of emissions allowed under the refinery's existing permit was not part of the baseline against which future environmental impacts should be assessed. The Court did not address an agency's reliance on its General Plan standards as significance thresholds. Similarly, in Environmental Planning & Information Council v. County of El Dorado (1982) 131 Cal.App.3d 350, 355 the Court of Appeal analyzed whether the a project to update the county's general plan should set the baseline by the existing general plan or on the "actual environment upon which the proposal will operate." The Court did not consider whether the county could rely on its regulations to establish thresholds of significance.

In any event, here the County's EIR did quantify and disclose the on-site existing average ambient noise emissions. As explained in the DEIR, ambient noise monitoring was conducted between January 7, 2015 and January 21, 2015, at 18 locations within the Project Area. Noise monitoring sites were selected to represent typical acoustic settings within the Project Area where oil and gas exploration and production activities either already occur or could occur in the future, and included six locations in the Western Subarea, six locations in the Central Subarea, and six locations in the Eastern Subarea. (DEIR, p. 4.12-4; Noise Assessment, p. 8.) As shown in Table 4.12-3 of the DEIR, the average DNL for the project area, or the average ambient baseline condition, is 54.7 dB DNL. (DEIR, p. 4.12-5; see also, Noise Assessment (September 2015), Table V, p.9.)

In addition, existing traffic noise levels along US 5 and along state highways in the project area were calculated to provide a representative sampling of the range of existing traffic-related noise levels along major roadways within the project area. (Noise Assessment (September 2015), p. 10.) A total of 270 roadway segments were analyzed for existing traffic noise exposure. Traffic noise levels were calculated using the FHWA Highway Traffic Noise Production Model. Table VI in the Noise Assessment prepared for the project summarizes existing annual average (or baseline) traffic noise exposure. In addition, existing noise levels generated by the three railroad operations in the project area (the Union Pacific Railroad, Burlington Northern Santa Fe Railway and San Joaquin Valley Railroad) were calculated by Brown-Buntin Associates and are reported in Table VII of the Noise Assessment. (Noise Assessment (September 2015), Table VII, p. 11.) The Noise Assessment also addressed existing aircraft noise levels and reasonably foreseeable noise from the high speed train proposed by the California High Speed Rail Authority. (Noise Assessment (September 2015), p. 12.)

After disclosing the existing ambient noise in the Project Area, the DEIR disclosed the construction and operational noise that is expected to be generated by the project. Although noise impacts may vary for each location of future oil and gas construction and operational activities, the DEIR analyzed the potential project activities (both construction and operations) that may occur at any given time. (DEIR, p. 4.12-18.) As explained in the DEIR and further articulated in the Noise Assessment prepared for the project, project-related construction noise levels could exceed 60 dB CNEL at distances of 800 to 3,000 feet. (DEIR, p. 4.2-19.) Table 4.12-11 in the DEIR provides estimated project construction noise levels caused by well pad preparation, Table 4.12-12 sets forth estimated project construction noise levels for well drilling, and Table 4.12-13 presents estimated project construction noise levels for hydraulic fracturing (DEIR, pp. 4.2-26 to 4.2-17.) The Noise Assessment further articulates the anticipated noise generated by typical project construction equipment at distances of 50 to 100 feet from a receptor. (Noise Assessment (September 2015), p. 20.)

For project operations, the DEIR analyzed noise exposure that would be caused by gas and production wells and related accessory activities. Here, the DEIR disclosed that well production (electric power) could exceed 60 dB CNEL at a distance of 70 feet and well production (diesel power) could exceed 60 dB CNEL at a distance of 190 feet. (DEIR, p. 4.12-20.) The Noise Assessment further disclosed the project-related noise exposure caused by each project-related noise source. Table XI in the Noise Assessment provides distances to the 60 dB DNL and 65 dB DNL contours for individual project related noise sources such as drilling, hydraulic fracturing and well production. (Noise Assessment (September 2015), p. 17.)

While the DEIR discloses that the increased noise from the project would constitute a change to existing on-site conditions, this increase alone is not sufficient to support a significance determination because the County has determined that exterior noise levels at or below 65 DNL are not harmful. The DEIR therefore inquires whether the project's noise generation is significant when measured against the County's noise threshold as codified in its General Plan. (DEIR, pp 18-20, 25-28.) Neither CEQA nor any of the CEQA "baseline" cases cited by commenters prohibits the use of these EIR inquiries. To the contrary, the CEQA Guidelines expressly allow a lead agency to use its discretion to select the appropriate factors for determining the significance of impacts. (See CEQA Guidelines § 15064(b) ["The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved . . ."].) Guidelines section 15125(e) also authorizes comparison of a project to an adopted plan, provided the analysis examines "the existing physical conditions . . . as well as the potential future conditions discussed in the plan."

Moreover, commenters do not show how the use of the EIR's inquiries precluded, or could preclude, public participation or informed decision-making. The EIR' s noise analysis is supported by substantial evidence; does not understate the Project' s actual noise impacts; and examines and discloses existing ambient noise conditions and the significance of the Project's emissions based on the methodology derived from the County's General Plan. It is only when an EIR "fails to include relevant information and precludes informed decision-making and public participation" that a

prejudicial abuse of discretion arises. (Save Our Peninsula Committee v. Monterey County Bd. of Supervisors (2001) 87 Cal.App.4th 99, 128.) That did not occur here.

The DEIR Was Not Required to Analyze Single Event Noise

Some commenters assert the DEIR is inadequate for failing to analyze sleep disturbance caused by single event noise. Single event noise is measured by the Sound Exposure Level (SEL), a noise metric commonly used to describe intermittent or isolated noise events such as an aircraft overflight or train pass-by, and should not be applied when describing long-term exposure over a 24-hour period of time. There are no noise standards that utilize the SEL metric. Kern County establishes noise level criteria in terms of the DNL metric. The DNL is a the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The 10 dB penalty applied during the nighttime hours accounts for increased sensitivity to noise exposure occurring during nighttime hours, and therefore does address the potential for sleep disturbance.

Interior Noise Levels Would Be Less Than Significant

Some commenters allege the DEIR improperly omits analysis of noise impacts on interior noise levels of sensitive receptors. This is incorrect. Although the DEIR did not explicitly describe potential impacts to interior noise levels, it can be assumed that compliance with the exterior noise level standards established in the DEIR will also demonstrate compliance with the interior noise threshold of 45 dB DNL. Although construction methods and materials vary based upon location and period of construction, typical construction complying with building code standards can be expected to provide an outdoor-to-indoor noise level reduction (NLR) of a at least 20 dB. The DEIR establishes an exterior noise level criterion of 65 dB DNL. Demonstration of project compliance with the exterior noise level criterion would ensure project compliance with the interior noise level criterion of 45 dB DNL. It can reasonably be assumed that residential uses will be capable of providing a minimum outdoor-to-indoor NLR of 20 dB, provided door and windows remain closed for acoustical purposes. Contrary to some commenters' opinions, quantification of outdoor-to-indoor noise level reductions and subsequent interior noise levels is commonly determined with doors and windows closed.

Nighttime Noise Levels Would Be Less Than Significant

Some commenters assert the DEIR is inadequate for failing to analyze nighttime noise impacts. Here, commenters assert the DEIR should take into account receptors' higher sensitivity to noise during nighttime hours. As noted above, however, Kern County establishes noise level criteria in terms of the DNL metric. The DNL is a the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The 10 dB penalty applied during the nighttime hour accounts for increased sensitivity to noise exposure occurring during nighttime hours, and therefore does address the potential for sleep disturbance. The DEIR concludes that noise impacts are less than significant with mitigation.

The Noise Mitigation Measures Adequately Reduce Noise Impacts to Less Than Significant

The DEIR requires the project applicant to implement mitigation measure 4.12-1 and mitigation measure 4.3-3 to reduce construction and operational noise impacts to less than significant. Measure 4.12-1 includes a number of measures, such as temporary sound attenuation walls, modification of equipment, construction of a temporary berm, and minimum setback distances for various construction activities (e.g., 800 foot setback for well pad preparation.) Measure 4.12-2 requires a minimum 190 foot setback between new oil and gas wells and the closest sensitive receptor. In addition, Table XI of the Noise Assessment describes minimum setback distances required to ensure that noise impacts remain less than significant. (Noise Assessment (September 2015), p.17.)

A few comments suggested that these mitigation measures are inadequate to reduce noise impacts to less than significant levels. The minimum setbacks provided in Table XI of the Noise Assessment accurately describe the minimum setback distances required to ensure that noise levels do not exceed 65 dB DNL at sensitive receptors, for each specified equipment type. The setbacks described in Table XI were calculated and modeled using the loudest Leq levels for each type of equipment. Leq noise level measurements were obtained from 4 individual directions from each equipment type to document the loudest direction from the noise source. Additionally, the reference measurements were obtained while each equipment type was operating at maximum capacity during the loudest activity. For example, over any given period of time, noise levels fluctuate during drilling activities such as well advancement and well pull out activities. Noise levels increase as the drill rig is actively advancing (loudest activity) and decrease while the well string is being pulled from the bore hole and new sections of pipe are added. Over any given hour or 24-hour period, there are regular periods of time where the diesel engine may be turned off entirely for maintenance or other required services. The setback distances provided in Table XI assume continuous, peak noise levels over a 24-hour period, and therefore should be considered a worst-case assessment of project-related noise levels (setback distances). Therefore, utilizing these minimum setbacks will ensure compliance with the County's applicable 65 dB DNL noise threshold and the impacts will be less than significant.

A Revised Noise Study has been submitted to and accepted by the County. FEIR, App. F-1. The Revised Noise Study provides additional information concerning appropriate setbacks and, for each construction activity, the setback distance has increased slightly, resulting in still greater protection for the environment. Mitigation Measure 4.12-1 has been revised to incorporate these new setback requirements.

TR-1: Traffic Analysis and Mitigation Program

The County received several comments concerning the EIR's analysis of transportation and traffic impacts. This global response is intended to address those comments in a single response. Comments not addressed by this Master Response are addressed in the individual responses to comments.

Introduction

The DEIR's analysis of the Project's transportation and traffic impacts is set forth in DEIR, *Section 4.16, Transportation and Traffic*. This section describes the affected environment and regulatory setting for transportation and traffic. It also describes the impacts on transportation and traffic that would result from the implementation of the Amendment to Chapter 19.98 (Oil and Gas Production) of the Project, including impacts from future oil and gas development pursuant to the Amended Zoning Ordinance, and mitigation measures that would reduce these impacts, if necessary.

This section of the EIR is based on the technical study, Traffic Impact Study and Roadway Assessment Kern County Oil and Gas Well Activity (Traffic Study), dated March 2015, which was prepared by Ruettgers and Schuler and included as Appendix W to the EIR. The Traffic Study provides an analysis of existing and 2035 traffic conditions. Potential traffic impacts to intersections and roadways were determined for both development/construction and operation of the Project using the most recently published roadway volumes and project-related vehicle trip calculations. Discussion and evaluation of the transportation facilities, including pavement conditions, are based on site surveys with applicable thresholds and impacts identified. Additional impacts to the airport system are also discussed.

As explained in *Section 4.16, Transportation and Traffic*, with mitigation, the Project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, and would not conflict with an applicable congestion management program. With mitigation, the Project would not result in a change in air traffic patterns that results in substantial safety risks, nor would it substantially increase transportation-related hazards due to a design feature or incompatible use. The Project, as mitigated, would have a less than significant impact with respect to its potential to result in inadequate emergency access, and would not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Finally with mitigation, the Project would not make a cumulatively considerable contribution to cumulative transportation or cumulative traffic impacts. (See also DEIR, at p. 6-9.)

The County's Reliance on its Transportation Experts

As an initial matter, under established CEQA precedent, lead agencies such as the County, may accept the determinations and conclusions reached by the expert or experts that prepared the EIR, even though other conclusions also might be reached by other experts. (See *Center for Biological Diversity v. Dept. of Fish & Wildlife* (2014) 224 Cal.App.4th 1105, 1179-1180; *Eureka Citizens v. City of Eureka* (2007) 147 Cal.App.4th 357, 371-72; *Greenebaum v. City of Los Angeles* (1984) 153 Cal.App.3d 391, 412 [it is not an "abuse of discretion" for a public agency "to give more weight to one set of 'experts' than to another"].) Here, the County's determinations are supported by substantial evidence; it has properly relied on the standards articulated in its CEQA Implementation Document, its Environmental Checklist, and upon the analysis and conclusions of its transportation and traffic expert and EIR consultant in arriving to its less than significant impact conclusions for Impacts 4.16-1 through 4.16-7.

A detailed discussion of concerns raised by commenters is presented below.

Pavement Conditions

A commenter raised concerns regarding the DEIR's impact analysis of pavement conditions, suggesting that that the analysis of traffic impacts and road wear and tear appear to exclude vehicle trips associated with workers driving to and from the project site. A commenter also raised concerns regarding the determination of appropriate mitigation for pavement impacts, arguing that there was no justification as to how mitigation fees were reached.

The EIR did consider the potential impacts of oil and gas traffic on pavement condition. (See DEIR, at pp. 4.16-25 – 4.16-28, 4.16-50 – 4.16-78; Traffic Report, at pp. 69-76.) As noted in the traffic study:

> Heavy truck traffic is the primary factor affecting pavement condition. Pavements are designed using a Traffic Index (TI) which is a measure of the cumulative number of heavy trucks expected to load a pavement over its service life. As per Caltrans methodology, TI's are estimated by converting mixed truck loads to 8,000-pound Equivalent Single-Axle Loads (ESAL's).

(Traffic Study, at p. 69.) To accurately reflect pavement impacts over the duration of the project, the analysis methodology, the analysis included freeways, highways, arterials and collectors. Specifically, on the same page the Traffic Study states:

> A TI for a 20-year design life (standard for new roadway construction) was assigned to each study roadway. Caltrans truck count data for the year 2012 were used to develop TI estimates for state routes per Caltrans methodology. When available, design TI's obtained from record drawings were used for county roadways. For each of the remaining county roadways, TI's were estimates based on a review of KernCOG traffic count data and roadway classification.

Using the inputs above, the County was able to run the pavement condition analysis:

> The pavement condition analysis consisted of assessing the need and timing for maintenance and rehabilitation improvements per roadway segment per study year based on estimates of remaining pavement service life. Both remaining life and improvement needs were estimated based on a pavement life cycle curve developed for this study. The curve . . . closely approximates a "typical" pavement life cycle curve and correlates PASER ratings to pavement condition.

One comment states that the pavement condition analysis resulted in inadequate maintenance mitigation fee determinations and cites both: (a) oil and gas truck loads; and (b) mitigation fees from other states. Neither point of criticism is considered applicable to this Project. The comment refers to reported occurrences of oil and gas trucks exceeding legal load limits in Pennsylvania as a reason why the County should consider increased oil and gas axle loadings in the pavement condition analysis. The existence of illegal loads in Pennsylvania does not substantiate the existence of illegal

oil and gas loads in the County. The EIR assumes that special loads are permitted by the County, and are dealt with independently from the normal oil and gas permit process.

A direct comparison of the pavement condition mitigation fee calculated as a part of this study to similar fees imposed in other states suggests a uniformity in oil and gas traffic characteristics and roadway maintenance and rehabilitation practices that is neither presented nor supported. There are a number of variables that go into determining pavement condition and the variables cited in the states referenced by the commenter are unknown. For example, the initial condition of the roads may have been highly deficient to begin with for truck loading and the volume of trucks used in oil activity. Additionally, many other regions of the country do not have Kern County's pipeline infrastructure for both oil products and water. Another variable is weather – Kern County does not have extreme winter weather that destroys road pavement, as do some of the regions to which the comments refer.

Significantly, Kern County is different from most other regions cited by the comments in that the County's road system has been built to service the oil & gas industry over the past 100 years. (Traffic Study, p. 3.) Accordingly, traffic related to oil and gas production is not a new impact on an existing road system. Further, as described in the Traffic Study, and included as MM 4.16-1, the County is developing and implementing a pavement condition mitigation program to ensure Project-related activities contribute their fair share for the preservation, upkeep, and restoration of county roads and appurtenant facilities. (DEIR, at p. 1-65, 4.16-77.)

Level of Service

One comment suggests that the DEIR did not analyze the "existing plus project" traffic scenario. The "existing plus project" traffic scenario was considered in the DEIR as the "Year 2015" Scenario. (DEIR, at pp. 4.16-45 – 4.16-49; Traffic Study, at pp. 18-68.)

One comment states that the DEIR's analysis of traffic impacts is inadequate. Specifically, the commenter disagrees with the DEIR's conclusions that several signal-controlled intersections will have an improved LOS after the addition of Project traffic under 2035 conditions.

Level of Service is used to provide generalized categories of operational performance, which can be clearly understood by decision-makers and the general public. This rating system is used by the County to provide criteria and thresholds for significant impacts. The evaluation of delay numbers is a technical consideration for engineers during the report development process and for reviewing agencies through the use of appendix.

Despite what the commenter suggests, this is not a case where adding project traffic to an intersection results in an improved level of service. As provided on page 19 of the Traffic Study:

> Future traffic volumes, evaluated in this study, were developed for both, typical traffic volume growth and for oil and gas industry specific growth. These future traffic volume scenarios are referred to as "2035 % Growth Only" and "2035 NOG + O&G Projection" respectively.

(Traffic Study, at p. 19.) "2035 % Growth Only" is defined as existing traffic volumes projected to 2035 using typical growth rates appropriate for the study area. (*Ibid.*) "2035 NOG + O&G Projection" is derived from the addition of: (1) Existing traffic that is not oil and gas related projected to 2035 using appropriate growth rates for the area; and (2) Oil and gas related traffic projected to 2035 using an oil and gas industry specific growth rate. (*Ibid.*)

Both "2035 % Growth Only" and "2035 NOG + O&G Projection" scenarios include project traffic and were calculated for the purposes of comparing various growth rate potentials. These are both "Future + Project" scenarios and cannot be compared in the same way as would be done in a simple traffic study where the basic scenarios like "Future" and "Future + Project" are compared.

Assumptions

One comment states that the DEIR's traffic analysis is flawed because it bases its trip generation estimates on "suspect assumptions." The comment also questions the DEIR's reliance on traffic forecast assumptions.

The assumptions used to develop oil and gas trip generation estimates, traffic volume projections and average vehicle occupancy rates are considered within the industry to be both conservative and reasonable.

Regarding trip generation, as stated in the Transportation Study on page, traffic engineers and planners typically use trip generation rates, equations and data contained in the ITE *Trip Generation Manual* to estimate traffic volumes generated by conventional land use (e.g., commercial, residential, recreational, etc.). However, the ITE manual does not contain similar information for traffic generated by oil and gas activities. Therefore, for the purposes of this study, a multi-tiered approach was used to estimate daily volumes of oil and gas traffic using three data sources: well field vehicle counts, oil and gas employment figures and AADT (Annual Average Daily Traffic) volumes. The results of each of this three tiered approach were in general agreement, lending support for the assumptions and values used within each estimate.

For traffic volume projections, the annual growth rate for oil and gas traffic was developed based on projections of new wells drilled and total producible wells for the years 2015 through 2035. (WZI, WSPA.) Annual growth rates ranged from 0.71 percent to 0.81 percent. The study used the average annual growth rate of 0.76 percent because.

Methodology

One comment states that the DEIR employs analytical methods that are unsuitable for a project of this type and scale. Specifically, the comment states that the DEIR inappropriately analyzes roadway segment LOS impacts using a volume/capacity ("V/C") ratio. The comment also disagrees with the DEIR's use of "Project % Share," which identifies the proportion of the total improvement cost attributed to the Project.

The analysis methodology of the DEIR and corresponding Traffic Study is based on County adopted standards, which utilized a daily traffic volume evaluation and General Plan goals.

Further, in response to comments, the following EIR text changes are being made to ensure consistency with Appendix W:

DEIR, p. 4.16-57:

The "Project % Share" for Olive Ave: South St - Wood St. is changed from "245.68%" to "100.00%."

DEIR, p. 4.16-64:

The "Project % Share" for Stockdale Hwy: I5 SB Ramps - I5 NB Ramps is changed from "207.26%" to "100.00%."

The Project-share figures assign a 1.00 percent share to more than half of the roadway segments within the street network that had nominal traffic volume assignments within the project distribution. Notwithstanding an assignment of "no measureable traffic," as a conservative approach, the 1.00 percent value acknowledges potential use, resulting in a mitigation value and fees for roadway maintenance/improvement.

Mitigation of Transportation and Traffic Impacts

One comment disagrees with the DEIR's underlying conclusions and indicates that because impacts were not appropriately found "significant" the DEIR failed to properly "mitigate." The comment is based on the statement that, "under the County's criteria, no matter how much congestion exists or how much intersection and traffic operations are impacted, they will still be defined as LOS F as there is no lower LOS category."

The comment disagrees with the County's established threshold. "A threshold of significance is an identifiable, quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (CEQA Guidelines, § 15064.7 subd. (a).) Like many lead agencies, Kern County has exercised its discretion to formulate significance thresholds by using language from Appendix G of the CEQA Guidelines. Consistent with the CEQA Guidelines, Kern County has adopted the following thresholds of significance (among others) to analyze transportation and traffic impacts: Conflict with an applicable congestion management program, including, but not limited to LOS standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways as follows: (1) Metropolitan Bakersfield General Plan LOS C, (2) Kern County General Plan LOS D, and (3) Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D. (DEIR, at p. 4.16-44.)

Where an agency's significance thresholds are challenged by a project opponent, the standard of review for a court reviewing the selected threshold is the "substantial evidence" standard, meaning the court must give deference to the lead agency's decision to select particular significance thresholds. (See National Parks and Conservation Association v. County of Riverside (1999) 71 Cal.App.4th 1341, 1358 [applying the substantial evidence test to review of an agency's decision to

select particular thresholds for an EIR]; Mount Shasta Bioregional Ecology Center v. County of Siskiyou (2012) 210 Cal.App.4th 184, 204-207 [upholding analysis based on significance thresholds adapted from other agencies]; Eureka Citizens for Responsible Government v. City of Eureka (2007) 147 Cal.App.4th 357, 371-374 [deferring to city's determination that analysis was performed in a manner consistent with general plan policy]; Sierra Club v. Tahoe Regional Planning Agency (E. D. Cal. 2013) 916 F.Supp.2d 1098, 1146-1151 [upholding agencies' application of significance threshold].) As discussed in the DEIR and in these responses to comments, the County's transportation and traffic thresholds are supported by substantial evidence. As such, they are to be accorded great deference.

The comment disagrees with the County's criteria because, according to the comment, no matter how much traffic operations are impacted, they will still be defined as LOS F, as there is no lower LOS category. Rather than rely on the County's adopted standard, the comment suggests the County should have applied an alternative quantitative threshold that analyzes LOS in excess of "F." CEQA does not require the County to adopt such threshold. To the contrary, CEQA vests the lead agency with substantial discretion in determining the appropriate threshold of significance to evaluate the severity of a particular impact. (See CEQA Guidelines, § 15064, subd. (b); Save Cuyama Valley v. County of Santa Barbara (2013) 213 Cal.App.4th 1059, 1068 [explaining agency discretion to fashion significance thresholds].) As explained in the CEQA Guidelines, "[t]he determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area." (CEQA Guidelines, § 15064, subd. (b).)

Importantly, case law clearly provides that a lead agency does not run afoul of CEQA by rejecting different thresholds proposed by a project opponent. (See Citizens for Responsible Equitable Environmental Development v. City of Chula Vista (2011) 197 Cal.App.4th 327, 335-336 ("CREED") [rejecting petitioners' argument that the City erred by not applying a different significance threshold]; California Oak Foundation v. Regents of University of California (2010) 188 Cal. App. 4th 227, 282 [rejecting petitioner's argument that a lead agency used the incorrect significance threshold in evaluating the biological significance of tree impacts]; National Parks & Conservation Assn. v. County of Riverside (1999) 71 Cal. App. 4th 1341, 1356-1357 [upholding a biological significance threshold used by Riverside County as supported by substantial evidence].)

CEQA case law also endorses a lead agency's use of existing environmental standards or regulations as thresholds of significance. (See Tracy First v. City of Tracy (2009) Cal.App.4th 912 [upholding determination that energy impact of project was less than significant because the project achieved energy efficiencies greater than those required by California Energy Efficiency Standards]; Cadiz Land Co. v. Rail Cycle (2000) 83 Cal.App.4th 47 [upholding finding that incremental impacts of criteria pollutants on sensitive crops would be less than significant based on National Ambient Air Quality Standards promulgated to protect public health and welfare from adverse effects of a pollutant]; Protect The Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th 1099, 1107 ["thresholds can be drawn from existing environmental standards, such as

other statutes or regulations"]; Rialto Citizens for Responsible Growth v. City of Rialto (2012) 208 Cal.App.4th 899 [upholding use of thresholds of significance recommended by SCAQMD to assess air quality impacts]; Oakland Heritage Alliance v. City of Oakland (2011) 195 Cal.App.4th 884, 896 [agency has discretion to rely on adopted standards to serve as significance thresholds for a particular project].) The County properly relied on its General Plan, the City of Bakersfield General Plan, and Caltrans standards to establish thresholds of significance for transportation and traffic impacts.

One comment states that even where the DEIR does disclose significant intersection and roadway LOS impacts, it fails to provide adequate mitigation. The comment states that the DEIR should have included the recommended improvements in the Traffic Study.

"[A]n EIR need not analyze '"'every imaginable alternative or mitigation measure; its concern is with feasible means of reducing environmental effects.'"' [Citation.]" (Santa Clarita Organization for Planning the Environment v. City of Santa Clarita (2011) 197 Cal.App.4th 1042, 1055-1056.) "'Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors. (Pub. Resources Code, § 21061.1.) Mitigation measures that cannot be legally imposed or enforced need not be proposed or analyzed. (San Diego Citizenry Group v. County of San Diego (2013) 219 Cal.App.4th 1, 16; citing Tracy First v. City of Tracy (2009) 177 Cal.App.4th 912, 938; Pub. Resources Code, § 21086, subd. (b).) The EIR complies with these requirements – the County has incorporated a thorough mitigation framework to ensure that transportation and traffic impacts are minimized, and the DEIR concluded that these measures would reduce the impact to less than significant. (DEIR, p. 4.4-125.)

Water-01: Disposal into Unlined Ponds and Sumps

Several commenters requested further information about disposal into a "sump," "pit" or "pond" as used in this EIR. (Please also see Global Response GR-Air 11 for a description of these terms and an explanation of how they were accounted for with regard to particular impacts.) For purposes of this EIR, the terms "sump" and "pit" are one in the same, and refer to an excavated depression in the ground which collects crude oil, produced water, or solids, such as drilling muds or cuttings, in oil producing fields. The terms "drilling sump" and "drilling pit" are utilized interchangeably in this EIR to refer to the collection of drilling fluids and cuttings (collectively known as "drilling muds"), which are produced during drilling operations. The term "operation sumps" is used to refer to sumps that are utilized to store fluids and solids, which are produced during the life of the operational well as well as potential workover activities. (DEIR at 3-47). By contrast, the terms "evaporation and percolation ponds," or "perc ponds" refers to a type of storage for produced water, where it is allowed to percolate into the soil and / or evaporate into the air. A percolation pond is used to dispose of water associated with hydrocarbon production by percolation into the soil. A natural or artificial evaporation pond is a pond with a large surface area that is designed to efficiently evaporate water by exposure to sunlight. (DEIR at 3-47)

The primary difference between sumps and pits on the one hand and ponds on the other is that sumps and pits are co-located with wellhead sites. Ponds, on the other hand, are typically

centralized facilities which collect fluids from multiple operators at a location that is not related to the location of drilling operations. *See also* Comment on DEIR No. 83-25 ("CVRWQCB staff uses the term 'pond' for an unlined impoundment for disposal of produced water via evaporation and percolation … CVRWQCB staff uses the words 'drilling mud pits' for an unlined impoundment used by the industry to contain drilling fluid and cuttings while drilling a well.")

As discussed in the DEIR Section 4.9, a portion of the produced water generated in the Project Area has been disposed in unlined ponds. The disposal of produced water to unlined ponds has been conducted on reliance on an exemption contained in state regulations applicable to "discharges of [nonhazardous] wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields" (23 CCR §2511(b)) where the discharge was in compliance with an adopted water quality control plan, including the Tulare Lake Basin Plan adopted by the Central Valley Regional Water Quality Control Board (CVRWQCB).

As discussed in the DEIR, the CVRWQCB has determined that groundwater quality has been impaired as the result of constituent migration from unlined ponds in Project Area locations and has issued remediation orders to certain of these facilities. A farmer in the Western Subarea was awarded damages for agricultural water quality impacts attributed to the use of up-gradient produced water disposal ponds. More recently, as summarized in the California Council on Science and Technology (CCST) assessment of well stimulation treatments in California released on July 9, 2015, there is concern that produced water disposed of in percolation ponds could contain hydraulic fracturing chemicals (CCST Study, p. 41). These chemicals could remain resident in oil-bearing formation water after treatments are conducted, be extracted with produced water during subsequent hydrocarbon production activity, and disposed into surface ponds. Recently enacted California regulations prohibit the direct surface disposal of produced water into sumps and pits from a well following a well stimulation treatment (14 CCR § 1786; *see also* CCST Study, p. 43). As discussed in the DEIR, the CVRWQCB has determined that well stimulation treatment flowback water was improperly discharged into surface drilling sumps. In July 2015, an operator in the Project Area was subject to administrative civil liability for discharges of treatment fluids to drilling sumps (Administrative Civil Liability Order R5-2015-0096, http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/kern/r5-2015-0096.pdf, accessed September 2015). To date, as noted in the CCST Study, there has been no documented contamination of groundwater from well stimulation treatment chemicals as a result of disposal in percolation ponds, and the extent to which treatment chemicals remain in oil-bearing formations after treatment or may be disposed into surface ponds with other produced water volumes has not been characterized.

Existing oilfield sumps are subject to DOGGR regulations including, but not limited to, 14 CCR §§ 1760, 1770, 1775, and 1776. These regulations include requirements for sump location, construction, and closure. Project Area oilfield sumps and surface ponds are also regulated by the CVRWQCB under state and, where applicable, federal water quality laws and regulations. As discussed in the DEIR, in November 2014 the CVRWQCB adopted a work plan to address oilfield production water disposal within the jurisdiction of the Central Valley Water Board (http://www.swrcb.ca.gov/rwqcb5/water_issues/oil_fields/information/disposal_ponds/index.shtml, accessed September 2015). The work plan is scheduled to be completed by December 2016 and focuses on clarifying the

locations and regulatory status of oilfield ponds used in California, including the Project Area (*e.g.*, whether they are permitted or unpermitted and whether they are operating in compliance with state regulations) and to address potential water quality issues associated with their past or ongoing use. Unpermitted facilities will be required to obtain waste discharge requirements (WDRs) from the CVRWQCB under state law and to comply with other applicable requirements designed to protect groundwater quality. Permitted facilities that are determined to be out of compliance will be required to meet applicable compliance requirements or to close.

The 2014 Work Plan includes the following tasks:

- Systematic inventory of all produced water ponds within the Central Valley to identify the location and status of land discharges.
- Continuing field inspections of produced water ponds at permitted facilities to assess compliance with WDRs and instituting inspections of ponds at unpermitted facilities prior to the Regional Board issuing requests for information or enforcement orders.
- Permitting all facilities — including currently permitted facilities that need updated WDRs and unregulated facilities that require a permit to operate — via three new General Orders (GOs): GO 1 – facilities with discharges that meet the basin plan maximum salinity, chloride, and boron limits; GO 2 – facilities that have discharges exceeding the salinity limits but will not substantially affect water quality or cause a violation of water quality objectives; and GO 3 – facilities that overlie areas with naturally occurring poor quality groundwater that do not have probable beneficial uses and are not specifically identified in the basin plans. Facilities that are found to be suitable to remain in operation, but that do not meet the criteria in one of the GOs, will be considered for coverage under individual WDRs.
- Facilities that have produced water ponds that are suspected to have adversely affected water quality will be issued Cleanup and Abatement Orders (CAOs) with a schedule for tasks, including: collecting information on the ponds; groundwater quality assessment; assessment of potential or actual impacts to groundwater; submittal of a Report of Waste Discharge or Notice of Intent to operate under a GO; and, if needed, an estimate of when termination of discharge would occur. Each CAO will be in effect until the facility either obtains WDRs or until no further regulatory coverage is needed (i.e., discharge ceases and any needed remedial activity is completed).
- Possible enforcement actions for existing facilities that cannot comply with conditions of their WDRs or for unregulated facilities that do not comply with Regional Board directives.

Three status reports have been issued by the CVRWQCB since the Work Plan was adopted. The most recent status report, "Status Report #3," is dated April 4, 2015 (http://www.swrcb.ca.gov/rwqcb5/water_issues/oil_fields/information/disposal_ponds/index.shtml, accessed September 2015). The April status report states that the CVRWQCB has identified 578 active ponds and 355 inactive ponds within the Regional Board's jurisdiction, including the Project Area. Of the 578 active ponds, 370 are covered by WDRs and 208 are not currently regulated. Notices of Violation (NOVs) were sent to facilities with active ponds not covered by WDRs and with no record of a Report of Waste Discharge as required by state law. The April status report also

indicated that the Regional Board was working on drafting enforcement orders for those facilities that are not covered by WDRs and where existing WDRs need to be updated. The April status report indicates that the Regional Board will issue approximately 180 enforcement orders pertaining to disposal ponds.

The April status report states that in March 2015, the CVRWQCB issued orders under State Water Code Section 13267 to 77 oil producers covering active ponds at 169 facilities requiring the submission of a comprehensive characterization of wastewater discharged to the ponds. These orders require submittal of analytical data for produced water waste constituents, including general minerals (major cations and anions), total dissolved solids, metals, radionuclides, organic compounds (such as polynuclear aromatic hydrocarbons, benzene, toluene, ethylbenzene, and xylenes), and others (such as boron, lithium, and strontium). These orders were issued to answer questions about specifically what is in the wastewater. The orders also include a list of known ponds and require operators to inform the CVRWQCB if any additional discharges are occurring. The responses to the orders were due on 15 June 2015. The CVRWQCB has been publicly releasing responses, including analytical data for produced water waste constituents (available at http://www.swrcb.ca.gov/rwqcb5/water_issues/oil_fields/information/disposal_ponds/index.shtml, last accessed September 28, 2015).

The CVRWQCB work plan states that the Board may utilize Cease and Desist Orders (CDOs), CAOs, information orders under Section 13267 of the Water Code, or assess Administrative Civil Liabilities (ACLs) to address compliance issues that are determined to exist at surface pond disposal facilities. Two surface pond operators have been subject to compliance orders in the Project Area since June 2015. In June 2015, the CVRWQCB issued a CAO to E&B Natural Resources Management addressing the operation of three disposal ponds for which WDRs had not been issued (Order R5-2015-0066, http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/kern/r5-2015-0066_cao.pdf, accessed September 2015). In July 2015, the CVRWQCB adopted an order directing the Valley Water Management Company to conduct additional investigations and implement remediation measures, if necessary, for ponds at the Fee 34 Facility and ponds and a surface spray system at the Race Track Hill Facility in the Project Area (Order R5-2015-0093, http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/kern/r5-2015-0093.pdf, accessed September 2015). In general, these orders include periodic monitoring, hydrogeologic characterization of the area around the ponds, an evaluation of the nature and extent of any impacts to groundwater, a survey of water supply wells within a mile of the ponds, sampling of domestic wells, and set specific deadlines for compliance.

As discussed above, the CVRWQCB has significantly enhanced oversight of surface pond disposal activities in the Project Area and is implementing a work plan that is designed to ensure that all such facilities are compliant with all applicable water quality and other legal requirements by December 2016. DEIR mitigation measure (MM) 4.9-1 requires that applicants subject to the proposed Conditional Permit Review process must comply with all applicable laws and regulations at all times. DEIR MM 4.9-5 prohibits any applicant for activities subject to the proposed amended Zoning Code Chapter 19.98 to discharge produced water into any surface disposal facility unless the

facility has received WDRs or an express waiver of such requirements from the CVRWQCB. These measures ensure that no oil or gas activity subject to the Conditional Permit Review process may discharge into a surface disposal pond or other facility unless the facility has not been permitted by the CVRWQCB or is not otherwise in compliance with all applicable laws and regulations, including surface and groundwater water quality protection requirements.

Section 1786 of the California Public Resources Code was revised and became effective July 1, 2015 in response to California's new well stimulation treatment legislation (commonly referred to as "Senate Bill 4" ("SB 4")). Section 1786 requires that all oilfield operations must comply with several "requirements for the storage and handling of well stimulation treatment fluid, additives, and produced water from a well that has had a well stimulation treatment." The regulations state that fluids "shall be stored in containers and shall not be stored in sumps or pits," which has been interpreted by DOGGR and the CVRWQCB to mean that any fluids recovered from a stimulation treatment, and all produced water subsequently generated from a well subject to a stimulation treatment, cannot be disposed to land. In addition, the new regulations require that operators, during "the course of conducting well stimulation activities, including but not limited to well stimulation treatment fluid, additives, produced water from a well, solids separated from well stimulation treatment fluid, remediation wastes, or any other wastes generated from the processing, treatment or management of these wastes…" determine if the waste is a hazardous waste as defined by State law. Any such hazardous wastes may not be disposed by using Class II injection wells and disposal must instead be "in compliance with all hazardous waste management requirements of the Department of Toxic Substances Control." In general, identified hazardous wastes would be physically transported to appropriate hazardous waste disposal facilities.

As revised, Section 1786 prohibits the surface disposal of well stimulation treatment (WST) fluids, WST flowback recovered from a well during and immediately after a WST process, and produced water subsequently generated during production from a well that was subject to a WST. These fluids must be disposed by Class II well injection if they are nonhazardous, or disposed in an appropriate hazardous waste management facility the materials qualify as hazardous wastes under state law. As a result, Section 1786 limits the use of WST fluids, flowback and produced water from WST wells. Table 7-7 summarizes the allowable uses of produced water and other fluids from WST and non-WST wells relative to the produced water use categories considered in the DEIR, including three future 2035 scenarios (see Table 4.9-27 and discussed below).

Table 7-7: Summary of Allowed Uses, WST and Non-WST Well Fluids and Produced Water

	Fluids and Produced Water From WST Wells (Section 1786)	Fluids and Produced Water From non-WST wells
Coil tubing, dust control, surface facility construction (non-Class II Injections)	**NO**	YES
Agricultural reuse	**NO**	YES
Produced Water Land Disposal	**NO**	YES
EOR water and steam injections, pressure maintenance and well pulling (Class II Injections)	YES	YES
Injection Well Disposal	YES	YES

Note: Uses not allowed for WST-well derived fluids and produced water assume no additional treatment. Recent studies indicate that advanced treatment trains, including reverse osmosis, would likely be sufficient to remove WST-related constituents for uses such as irrigation. See California Council on Science and Technology, *Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulations,* Volume II, pp. 115-116 (July 2015). It is possible that Section 1786 may allow for surface uses of WST-well water provided sufficient monitoring and treatment is implemented to detect and remove constituents of concern prior to reuse.

The extent to which the produced water reuse and disposal scenarios considered in the DEIR (see Table 4.9-27) might change in response to the revised Section 1786 requirements depends on the relative amount of Project Area produced water that would be generated from wells subject to WST treatment. As discussed in DEIR Table 4.9-5, the California Council on Science and Technology (CCST) study of well stimulation technology in response to the state SB 4 legislation included an analysis of 1,986 well stimulation treatments in Kern County from 2012-2014. The average water use per WST in the Project Area was 0.38 acre-feet. As discussed in DEIR Table 3-5, 2,697 new production wells would be drilled each year in the Project Area, and 1,200 wells would be subject to a WST procedure. Based on the CCST consumption data for WST operations in Kern County, about 456 acre-feet per year of water and other fluids would be used to complete 1,200 well stimulation treatments annually in the Project Area. The volume of fluid directly related to WST in the Project Area amounts to 0.14% of the total produced water supply projected for 2035 (321,894 acre-feet) and would have no significant impact on produced water use under future any future scenario considered in the DEIR.

As discussed above, DOGGR and the CVRWQCB interpret Section 1786 to preclude surface use of produced water generated in the normal course of oilfield operations from a well that was subject to a WST procedure. The amount of total Project Area produced water that current is, and that may in the future be derived from stimulated wells and subject to the Section 1786 restrictions does not appear to be quantified in any existing study or analysis. In general, produced water would be generated within the Project Area from a combination of legacy wells that predate revised Section 1786 and non-stimulated well which would not be subject to the new surface use limitations, and

WST wells that are subject to Section 1786. The relative number of each type of these well depends on such factors as the rate of new drilling, the retirement of legacy wells, and the need for WST procedures. These factors can vary over time and in response to market conditions.

The following methodology was used to provide a conservative assessment of the potential impacts of newly enacted Section 1786 on the future water use scenarios in the DEIR:

1. Based on the CCST analysis of WST and non-WST well performance, the volume of produced water generated from oil production in WST and non-WST wells is assumed to be the same in each instance. The CCST compared the volume of produced water in 1,414 WST and 3,247 non-WST wells over a six-month period in Kern County and concluded that "The data do not show substantive differences between the volumes of produced water generated in the first six months from stimulated wells and non-stimulated wells." California Council on Science and Technology, *Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulations,* Volume II, pp. 94-95 (July 2015).

2. The ratio of produced water from WST wells to total Project Area produced water was assumed to be equal to the ratio of the annual number of projected WST activities (1,200 treatments) to the annual number of new production wells (2,697 wells). As a result, this approach assumes that 44% (1,200/2,697) of all produced water in the Project Area would be subject to the Section 1786 surface use limitations. This methodology is highly conservative because a significant portion of Project Area produced water would likely be generated by wells that predated Section 1786, and the ratio of total produced water that could potentially be limited by Section 1786 is likely to be significantly lower than 44% of the Project Area total.

3. As shown in Table 4.9-27, about 321,894 acre-feet of produced water is projected to be generated in the Project Area by 2035. Using the conservative assumptions described above, about 143,223 acre-feet (44%) is assumed to be produced from WST wells subject to the new Section 1786 limitations, and about 178,671 acre-feet (56%) is assumed to be produced from non-WST wells. The potential impacts of this assumed distribution of produced water under Section 1786 for the three future scenarios discussed in the DEIR are summarized below.

Scenario 1: Pro-Rata Increase. Scenario 1 assumes that the uses of produced water in 2012 increase pro-rata by 2035, including injection, land disposal, and enhanced oil recovery, except for agricultural reuse, which is assumed to remain constant at 38,658 acre-feet per year. As shown in Table 7-8, the Project Area would have enough non-WST produced water to allocate to surface uses as anticipated in Scenario 1, including (non-Class II injection) surface maintenance and repairs, agricultural use, and land disposal with a remainder of 97,531 acre-feet.

Table 7-8: Scenario 1 (Pro-Rata Increase) and WST, Non-WST Supply Availability

Non WST Supply	**178,671**
Coil tubing, dust control, surface facility construction	-197
Agricultural reuse	-38,658
Produced Water Land Disposal	-42,285

Table 7-8: Scenario 1 (Pro-Rata Increase) and WST, Non-WST Supply Availability

Unused non-WST Supply	**97,531**
WST Supply	**143,223**
EOR water and steam injections, pressure maintenance and well pulling (Class II Injections)	-121,215
Injection Well Disposal	-119,539
Supply Excess or Deficit	**0**

The Project Area WST-derived produced water supply would be about 143,223 acre-feet, and this water could be used for subsurface activities, including Class II enhanced oil recovery (EOR) and disposal. The combined amount of the remaining non-WST and the WST derived produced water would be sufficient to meet the projected Class II injection activity in Scenario 1. It is possible that, in certain subareas, such as in the west where majority of WST activity would occur, the volume of non-WST produced water would not be sufficient to allow for the projected amount of surface disposal. In such an instance, it is injection disposal rates would increase to dispose of water that could not be applied to the surface due to the Section 1786 limitations.

Scenario 2: 50% reduction from 2012 surface disposal volume. Scenario 2 includes most of the assumptions in Scenario 1, except that surface disposal is assumed to fall by 50% in response to regulatory concerns, or from 30,931 acre-feet in 2012 to 15,466 acre-feet in 2035. As shown in Table 7-9, Scenario 2 reduces the surface disposal volumes that would be affected by Section 1786. Consequently, the Project Area would have sufficient non-WST supplies for the surface uses anticipated in Scenario 2 with a residual non-WST supply of 124,350 acre-feet.

Table 7-9: Scenario 2 (50% Surface Disposal Reduction) and WST, Non-WST Supply Availability

Non WST Supply	**178,671**
Coil tubing, dust control, surface facility construction	-197
Agricultural reuse	-38,658
Produced Water Land Disposal	-15,466
Unused non-WST Supply	**124,350**
WST Supply	**143,223**
EOR water and steam injections, pressure maintenance and well pulling (Class II Injections)	-121,215
Injection Well Disposal	-146,358
Supply Excess or Deficit	**0**

The combined amount of the remaining non-WST and all the WST derived produced water (143,223 acre-feet) would be sufficient to meet the projected Class II injection activity in Scenario 2.

Scenario 3: 90% reduction from 2012 surface disposal volume and increased agricultural reuse. Scenario 3 assumes that land disposal is reduced by 90% in response to regulatory concerns, or from 30,931 acre-feet in 2012 to 3,093 acre-feet, and that agricultural reuse of produced water will increase from 38,658 to 50,419 acre-feet to fully offset oil and gas demand (11,761 acre-feet) for

higher quality water in 2035. As shown in Table 7-10, Scenario 3 reduces the surface disposal and also increases the agricultural use volumes that could be affected by Section 1786. In this scenario, the Project Area would have sufficient non-WST supplies (178,671 acre-feet) to allocate to these uses and also retain a residual non-WST supply of 124,962 acre-feet.

Table 7-10: Scenario 2 (50% Surface Disposal Reduction) and WST, Non-WST Supply Availability

Non WST Supply	**178,671**
Coil tubing, dust control, surface facility construction	-197
Agricultural reuse	-50,419
Produced Water Land Disposal	-3,093
Unused non-WST Supply	**124,962**
WST Supply	**143,223**
EOR water and steam injections, pressure maintenance and well pulling (Class II Injections)	-121,215
Injection Well Disposal	-146,970
Supply Excess or Deficit	**0**

The combined amount of the remaining non-WST supply, and all the WST-derived produced water (143,223 acre-feet) that could be used for Class II injection activity in Scenario 3.

In conclusion, although it is possible that the use of water from WST-derived sources may be constrained by Section 1786 in certain subareas, especially in the west where most WST activity will occur, in the aggregate, and based on the projected number of new production and WST wells over time, the Project Area appears to have sufficient WST and non-WST produced water supplies to fulfill the three future scenarios discussed in the DEIR. Section 1786 shortfalls that could occur would likely affect surface disposal in the western subarea. Additional injection would occur to dispose of WST-derived water that could not be applied to the surface under Section 1786. There appears to be sufficient non-WST produced water available to maintain the level of agricultural reuse assumed in scenarios 1 and 2, and to increase the level of reuse by 11,761 acre-feet per year in Scenario 3.

Finally, it is possible that some of the produced water and other fluids associated with WST wells will be characterized and disposed of as a form of hazardous waste. The volume of this potential waste stream cannot be estimated at this time due to the lack of historical data. The analysis summarized above, however, indicates that a very significant amount of Project Area WST-related material must be treated as hazardous waste to significantly affect the three scenarios considered in the DEIR.

Water-02: Exempt Aquifers and Underground Injection Program

Several commenters questioned the DEIR's analysis of certain wells which have been injecting into non-exempt aquifers or aquifers historically treated as exempt. Commenters also questioned whether the EIR may properly rely on compliance with DOGGR's Underground Injection Control program requirements, which they allege are inadequate.

The UIC Program

As discussed in the DEIR, oil and gas wastewater, produced water, and enhanced oil recovery operations that inject water and other constituents into subsurface formations are regulated under the Underground Injection Control (UIC) program administered by the U.S. Environmental Protection Agency (USEPA) in conjunction with the federal Safe Drinking Water Act. In 1982, DOGGR was granted primacy by the USEPA to administer the UIC program for underground injections associated with oil and gas exploration and production. In general, subsurface injections regulated by the UIC program are not permitted in any aquifer that meets the federal criteria for an underground source of drinking water (USDW), which typically includes groundwater with a total dissolved solid (TDS) concentration of less than 10,000 milligrams per liter (mg/l). Certain locations that contain groundwater that otherwise meet the USDW criteria may be exempted from the UIC injection prohibition, including aquifers located in formations that are actively used or that can commercially be developed for oil and gas production. The Safe Drinking Water Act and related regulations include a process for identifying, evaluating, and granting or denying exemptions for aquifers that meet the USDW criteria. Any such exemption must be approved by the USEPA.

As explained in the DEIR, in 2011, the USEPA commissioned an independent audit of the California UIC program which identified several potential problems, including the potential lack of exemption documentation for 11 aquifers that had historically been treated as exempt in California. In response, DOGGR, the State Water Resources Control Board (SWRCB), and the USEPA developed a work plan for systematically reviewing and correcting UIC program problems. In March of 2015 the USEPA issued a final schedule for DOGGR's and the SWRCB's work plan. As explained in the DEIR, the UIC work plan requires DOGGR and the SWRCB to submit updates to USEPA by certain deadlines. On April 20, 2015 DOGGR adopted emergency regulations codifying the compliance dates in that work plan. On July 13, 2015, DOGGR initiated the process of adopting permanent regulations that codify those compliance dates. The existing UIC program and the emergency and permanent regulations were available for incorporation in the analysis as the DEIR was prepared.

14 Cal. Code Regs. Section	Summary UIC Program Regulations
1722	General requirements for all onshore wells
1722.1 1722.1.1 1722.8 1722.8.1	Operator bond and identification requirements

14 Cal. Code Regs. Section	Summary UIC Program Regulations
1722.2 – 1722.4	Casing standards
1722.5	Blowout prevention standards
1722.6	Fluid control requirements
1722.7	Authorization to require directional surveys
1722.9	Spill Contingency Plan requirements
1723 – 1723.8	Standards relating to plugging and abandonment
1723.9	Idle well testing
1724 1724.1	Recordkeeping requirements
1724.3 1724.4	Standards for well safety devices, including testing and inspection
1724.6 1724.10	Permitting requirements for Class II UIC projects
1724.7	General data submittal requirements
1724.8	Data submittal requirements for cyclic steam injection projects
1724.9	Data submittal requirements for gas storage projects

14 Cal. Code Regs. Section	Summary of DOGGR Emergency UIC Program Review Regulations
1760.1	Definitions
1779.1(a)(1)	Mandates that injection into non-exempt, non-hydrocarbon-producing aquifers containing less than 3,000 mg/l TDS cease by October 15, 2015, unless EPA approves an aquifer exemption.
1779.1(a)(2)	Requires injection into non-exempt, non-hydrocarbon-producing aquifers containing between 3,000 and 10,000 mg/l TDS to cease by February 15, 2017, unless EPA approves an aquifer exemption.
1779.1(a)(3)	Specifies that injection into non-exempt but hydrocarbon-producing aquifers must cease by February 15, 2017, unless EPA approves an aquifer exemption.
1779.1(b)	States that injection into certain identified aquifers must cease by December 31, 2016 unless EPA approves aquifer exemptions.
1779.1(c)	Indicates that UIC project approvals are discretionary.
1779.1(d)	Outlines civil penalties.

11 Aquifers Historically Treated as Exempt

As explained in the DEIR, the UIC work plan requires DOGGR and the State Water Board to submit updates to EPA by certain deadlines. Consistent with the work plan, on July 15, 2015 DOGGR and the SWRCB sent a letter to the USEPA that included a "Preliminary Assessment of 11 Aquifers Historically Treated As Exempt" (July 15, 2015 letter). The letter included the following information for each of the 11 aquifers: (1) the number and location of injection (disposal) wells; (2) the TDS concentration representative of each aquifer; (3) the TDS of the injected fluids for each aquifer; (4) the historical depth of injection; and (5) the volume injected since 1983. Two of the 11 aquifers, the Pico formation in the South Tapo Canyon field (Ventura County) and an undifferentiated formation in the Bunker field (Sacramento County) are not located in the Project Area, and are apparently no longer used for injection. Consequently, the potential exemption or non-exemption of these two aquifers would have no effect on oil and gas exploration or production in the Project Area.

Nine of the 11 aquifers historically been treated as exempt are located in the Project Area. The field and geological formation in which each aquifer occurs, the number of active injection disposal wells, and the total and annual average injection in each aquifer, are summarized in Table 7-11. Based on the references to "number of disposal wells permitted in the zone" that are included in Attachment 1 of the July 15, 2015 for each aquifer, the following discussion assumes that the wells and reported well volumes refer to disposal rather than enhanced oil recovery or other forms of subsurface injection that are also regulated under the UIC program.

Table 7-11: Project Area Aquifers Historically Treated as Exempt and Under Review by DOGGR, the SWRCB and the USEPA

Field	Formation	Permitted Disposal Wells	Barrels injected since 1983	Average Annual Injection, 1983-2015 (22 years) Acre feet/year	Year of last injection
Round Mountain	Walker	30	1,529,910,014	8,987	2015
Kern River	Santa Margarita	32	799,041,272	4,694	2015
Kern River	Chanac	12	568,987,463	3,342	2015
Round Mountain	Olcese	6	160,798,008	945	2015
Kern Front	Santa Margarita	13	151,820,215	892	2015
Mount Poso	Walker	5	63,777,556	375	2015
Kern Bluff	Kern River	0	5,816,190	34	1993
Blackwell's Corner	Tumey	0	2,425	0	1986
Wild Goose	Undifferentiated	0	0	0	N/A

Source: DOGGR, SWRCB July 15, 2015 letter to the EPA

As shown in Table 7-11, three fields and formations account for 74 of 98 injection wells and over 88% of the total injection volume from permitted disposal wells in the nine Project Area aquifers historically treated as exempt. These include the Walker formation in the Round Mountain oil field, the Santa Margarita formation in the Kern River oil field, and the Chanac formation in the Kern River oil field. On average, about 17,023 acre feet per year was injected into aquifers historically treated as exempt located in the three fields. As discussed in the DEIR, in 2012 about 84,571 acre-feet of produced water and other permitted materials were disposed by injection in the Project Area. The average annual volume of injection by the 74 permitted disposal wells in the Walker formation in the Round Mountain oil field, the Santa Margarita formation in the Kern River oil field, and the Chanac formation in the Kern River oil field is about 20% of the total amount of Project Area injection disposal during 2012.

The potential exemption or non-exemption of the Walker formation in the Round Mountain oil field, the Santa Margarita formation in the Kern River oil field, and the Chanac formation in the Kern River oil field could affect oil and gas operations in the Round Mountain and Kern River oil fields, two of the largest producing fields in the Project Area. As discussed in the DEIR (see Appendix F), the Kern River field ranked as the second largest oil producing field in the Project Area, and the Round Mountain field was one of the top 10 producing oil fields in the Project Area during 2012. As shown in Appendix F, in 2012 about 283,802,002 barrels (36,700 acre-feet) of produced water was generated in the Kern River field, and 131,738,812 barrels (17,000 acre feet) of produced water was generated in the Round Mountain field. The average annual disposal volume in the two aquifers historically treated as exempt in the Kern River field is about 20% of the total amount of produced water generated in that field during 2012. The average annual disposal volume in the Walker formation historically treated as exempt in the Round Mountain field is more than 50% of the total amount of produced water generated in that field during 2012.

If disposal into one or more of the three largest Project Area aquifers historically treated as exempt is not permitted in the future, oil operators in the Kern River and Round Mountain fields that currently inject into these aquifers would be required to use alternative disposal methods. Potential disposal alternatives could include: (a) installing new, permitted disposal wells in aquifers and formations that do not meet the USDW criteria or that are clearly exempt; (b) conveying the affected disposal fluids to other existing and permitted injection facilities that discharge into aquifers and formations that do not meet the USDW criteria or that are clearly exempt; (c) conveying disposal fluids to other permitted noon-injection disposal facilities, such as surface ponds; (d) treating certain of the disposal fluids as required for oil field operational reuse (e.g., enhanced oil recovery steam or water injection) or for agricultural or other permitted reuse; and/or (e) reducing oil production activities that generate produced water and other fluid wastes to reduce the volume of disposal fluids and not exceed available disposal capacity by alternative methods.

The July 15, 2015 letter indicates that “most or all [of the Project Area aquifers] may not meet the criteria for an aquifer exemption.” The letter further indicates that if oil operators “cannot provide information that supports a determination that an aquifer meets the criteria for exemption, the Division will deem its evaluation complete for that aquifer” and “will issue [a] public notice proposing a determination that the aquifer fails to meet the criteria for exemption.” According to the

letter, DOGGR "believes it is likely that it will be receiving such information for at least one of the 11 aquifers." This aquifer was not identified in the letter. Based on the volume of disposal in each of the nine Project Area aquifers historically treated as exempt, operators would likely have greater incentives to seek aquifer exemptions for the Walker formation in the Round Mountain oil field, or for the Santa Margarita or Chanac formations in the Kern River oil field. If aquifer exemptions were sought but not approved for these locations, and alternative permitted disposal or reuse options cannot feasibly be identified or developed, oil production (and associated produced water generation) could be reduced below the levels assumed in the DEIR for the Kern River and/or Round Mountain oil fields. The extent to which any such reduction might occur, or disposal fluids currently injected into the three aquifers might be disposed of or reused in a different manner, cannot be predicted with reasonable certainty at this time.

The other six Project Area aquifers historically treated as exempt (Round Mountain field, Olcese formation; Kern Front field, Santa Margarita formation; Mount Poso field, Walker formation; Kern Bluff field, Kern River formation; Blackwell's Corner field, Tumey formation; Wild Goose field, Undifferentiated formation) either have no permitted disposal wells operating in the applicable aquifers (the Kern Bluff, Blackwell's Corner and Wild Goose fields) or have historically injected relatively minor amounts of disposal fluids. No injections have occurred since 1993 in the Kern Bluff, Blackwell's Corner, and Wild Goose fields, and the July 15, 2015 letter indicated that the Wild Goose aquifer may not meet USDW criteria. Consequently, the potential exemption or non-exemption of these three aquifers will likely have no significant effect on oil and gas exploration or production in the Project Area.

Chevron U.S.A. Inc. operates approximately 98% of the Kern River Field. Chevron is the process of exiting the two aquifers historically treated as exempt in the Kern River Field, Santa Margarita and Chanac. The new target formation for disposal is the Olcese formation, a zone with greater than 10,000 mg/l TDS which does not require an exemption because it is not a USDW. Chevron received UIC project approval for the Olcese formation in March 2015. As of September 2015, two wells have already been converted to the Olcese formation and Chevron has received permits for five other wells to be converted. Chevron has represented it is on target to exit the two aquifers historically treated as exempt by December 31, 2016, as required by DOGGR regulations. 14 CCR 1779.1.

The total average annual disposal volume in the three aquifers historically treated as exempt in the Round Mountain (Olcese formation), Kern Front, and Mount Poso fields is about 2,212 acre-feet per year, or 2.6% of the total volume disposed by injection in the Project Area during 2012. As noted above, the July 15, 2015 letter indicates that DOGGR and SWRCB do not expect that oil field operators will provide additional information to support aquifer exemption applications for most of the aquifers historically treated as exempt apart from potentially one Project Area aquifer. Due to the limited volume of disposal that has historically occurred, operators may have less incentive to pursue aquifer exemptions for any of these three aquifers. If aquifer exemptions were sought but not approved for any of these locations, and alternative permitted disposal or reuse options could not feasibly be identified or developed by the affected operators, oil production (and associated produced water generation) could be reduced below the levels assumed in the DEIR for the Kern Front, Mount Poso and/or Round Mountain oil fields. Based on the relatively small ratio of total

Project Area disposal (about 2.6%) that, on average, occurs in the Kern Front, Mount Poso and/or Round Mountain (Olcese formation) aquifers historically treated as exempt, the extent to which any such reduction might occur, or disposal fluids currently injected into the three aquifers might be disposed of or reused in a different manner, would likely be substantially lower than could be associated with larger Project Area aquifers.

As shown in Table 7-11, the average annual disposal volumes into the Round Mountain, Olcese formation is about 11% of the average annual volume disposed into the Walker formation, and 5.5% of the total volume of produced water generated in the field during 2012. If both the Round Mountain field Olcese and Walker formation aquifers are not exempted, operators in the Round Mountain field would be required to identify or develop alternative disposal methods for a greater volume of fluid than if either aquifer remains available for injection.

EOR Activities in Non-Exempt Aquifers

On July 31, 2015, DOGGR reported to EPA that it had reviewed 5,625 UIC wells throughout the state that permitted to inject into aquifers not designated as "exempt" under the UIC program. 5,475 of the wells are associated with thermal Enhanced Oil Recovery (EOR) operations (steam flood and cyclic steam wells). Because water must be pretreated to a higher quality before EOR injection, and small quantities of water are involved, DOGGR considered any threat to aquifers to be "greatly reduced." Of the remaining 150 non-thermal wells, 126 are no longer classified as injection wells and are not injecting fluids, 19 are water flood wells, one is a pressure maintenance well and only four are waste disposal wells. Of those four waste disposal wells, 2 are located in Kern County. DOGGR is conducting further investigation of the remaining wells to determine if they pose a potential risk to groundwater with a current beneficial use. Letter from Steve Bohlen, DOGGR, and Jonathan Bishop, State Water Resources Control Board, to Michael Montgomery, USEPA Region IX (July 31, 2015). Accordingly, the magnitude of the risk to usable groundwater aquifers appears very limited based on information currently available.

EIR Baseline and Reliance on UIC Program Regulations

As discussed in the DEIR, all oil and gas activity subject to the new County permit process under proposed Zoning Ordinance amendments must certify that all waste disposal, including by subsurface injection to surface ponds, or by reuse, will only occur in facilities and by means that are fully permitted by and meet all applicable state and federal laws and permit requirements. It is reasonable for the County to assume that operators will comply with the UIC program and any updates thereto for purposes of this EIR. Towards Responsibility in Planning v. San Jose (1988) 200 Cal. App. 3d 671, 680 ("City is not obliged to speculate about effects which might result from violations of its own ordinances or water quality standards set by other agencies"); Rominger v. Colusa (2014) 229 Cal. App. 4th 690, 728 (arguments against significance analysis rejected where challengers offered "no evidence to suggest that it would be unreasonable to expect" compliance with statewide regulations). The County is also entitled to presume that DOGGR and the SWRQB will carry out their duty to update and enforce the UIC program consistent with USEPA requirements. Cal. Evid. Code § 664 ("It is presumed that official duty has been regularly performed").

The information released by DOGGR and the State Water Board thus far in connection with the review of the UIC program indicates that, even as the state agencies are engaged in correcting the deficiencies in UIC program enforcement identified by EPA, there has been little or no resulting environmental harm. This conclusion is supported by a recent court decisions as well. In May 2015 two environmental groups filed a lawsuit challenging emergency regulations adopted by DOGGR in connection with the work plan described above. The environmental groups sought a preliminary injunction against their enforcement. On July 16, 2015, the Alameda County Superior Court denied the preliminary injunction. Among other things, the court found:

- The plaintiffs failed to present evidence that the emergency regulations posed a risk of imminent harm to protected (non-exempt) aquifers;
- DOGGR and the State Water Board have not discovered evidence that any active drinking water wells have been impacted; and
- The threat of contamination alleged by the plaintiffs is theoretical and speculative.

Even to the extent there is any associated harm from past activities in aquifers historically treated as exempt or EOR activities in non-exempt aquifers, it is part of the environmental baseline for purposes of CEQA review. Mount Shasta Bioregional Ecology Ctr. v. Siskiyou (2012) 210 Cal. App. 4th 184, 200 ("CEQA analysis must be the existing physical conditions in the affected area, that is, the real conditions on the ground, rather than the level of development or activity that could or should have been present according to a plan or regulation"); Ctr. for Biological Diversity v. Dep't of Fish & Wildlife (2015) 234 Cal. App. 4th 214, 250 ("How present conditions come to exist may interest enforcement agencies, but that is irrelevant to CEQA baseline determinations — even if it means preexisting development will escape environmental review under CEQA").

Water-03: Sustainable Groundwater Management Act

Several commenters raised questions about water supply, and the management of groundwater resources, in the Project Area. As discussed in the DEIR, California enacted a Sustainable Groundwater Management Act (SGMA) in 2014 that requires the implementation of a Groundwater Sustainability Plan (GSP), or a coordinated set of GSPs, by January 31, 2020 for virtually all groundwater basins in the Project Area (as defined in the DEIR). The GSP will managed by one or more new Groundwater Sustainability Agencies (GSAs) that must be established for the Project Area by June 30 2017. Groundwater basins within the Project Area are ranked as high- and medium-priority by the state and therefore are subject to the earliest GSA establishment and GSP enactment deadlines under the SGMA. California statewide groundwater elevation monitoring maps identify virtually all of the valley floor groundwater basins in the Project Area as "high priority" basins, and the Tulare Lake and Kern County basins are identified as being in a critical condition of overdraft. Prior to enactment of the SGMA, several local governments and water districts (including Kern County) established the Kern Groundwater Authority as a Joint Powers Authority to provide a framework for the active, comprehensive management of the groundwater basin underlying the valley portion of Kern County, to preserve and maintain local control of groundwater resources and provide long term surety for all basin users.

The SGMA defines groundwater as "water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels." A groundwater extraction facility is defined as "a device or method for extracting groundwater from within a basin" (Water Code §10721(g-h)). The purpose of a GSP is to achieve "sustainable groundwater management" within 20 years, which is defined as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results" (Water Code Section 10721(u)). The SGMA defines six basin management "undesirable results":

- Chronic lowering of groundwater levels (not including overdraft during a drought, if a basin is otherwise managed);
- Significant and unreasonable reductions in groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degradation of water quality;
- Significant and unreasonable land subsidence; and
- Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses (Water Code Section 10721(w)).

According to the California Department of Water Resources (DWR), the DWR is required to enact emergency regulations for evaluating and implementing GSPs by June 1, 2016. The DWR is conducting public workshops that address ten topics associated with the development and implementation of GSPs, including:

Topic 1 - Pre-SGMA Conditions and Undesirable Results

Topic 2 - Measureable Objectives and Interim Milestones

Topic 3 - Land Use and County Involvement

Topic 4 - Alternative GSP Submittals

Topic 5 - Boundaries – Overlapping and Unmonitored Areas

Topic 6 - Intra-Basin Coordination Agreements

Topic 7 - Water Budgets and Coordination

Topic 8 - State Agency Coordination

Topic 9 - Data Collection, Management, and Reporting

Topic 10 - Adaptive Management and Focus Areas

The topical discussions are tentatively scheduled to be completed by September 2015. Draft GSP regulations are currently anticipated by the DWR to be available and will be discussed at three public meetings to be held in early 2016 in accordance with the SGMA. As of mid-August 2015, the DWR had released discussion papers and other documentation related to the first six of the ten GSP regulation topics (http://www.water.ca.gov/groundwater/sgm/gsp.cfm, accessed August 18, 2015).

As discussed in DEIR Section 4.9, water from hydrocarbon-bearing formations is brought to the surface and separated from recoverable oil and gas deposits throughout the state, including the Project Area. This water is commonly called "produced water." About 91% of the total water used for oil and gas exploration and production in the Project Area during 2012 (88,812 acre-feet of 97,590 acre-feet), including well development, enhanced oil recovery (EOR) steam and water flooding, well maintenance, and other oil and gas activities, was obtained from treated and reused produced water (DEIR Table 4.9-27). About 38,372 [TBD K-J] acre-feet of treated produced water was supplied to farmers in the Eastern Subarea for irrigation in 2012, including 37,102 acre-feet supplied to the Cawelo Water District (Cawelo Water District, Agricultural Water Management Plan, February 2014, Table 30), 70 acre-feet on approximately 80 acres of the Concordia Ranch, and 1,200 acre-feet supplied to the Jasmine Mutual Water Company for use on about 400 acres (Per. Communication, Central Valley Regional Water Quality Control Board staff, August 2015). Oil and gas reuse of produced water, and treated produced water used for irrigation, accounted for about 54% [TBD K-J] of the total volume of produced water extracted in the Project Area in 2012 (127,184 [TBD K-J] acre-feet of 234,959 acre-feet). As shown in DEIR Table 4.9-27, treated produced water is projected to meet over 91% of all oil and gas water demand in the Project Area under future conditions.

Produced water has not typically been considered a source of municipal and industrial (M&I) or irrigation-quality groundwater in California. Water derived from hydrocarbon-bearing formations is often highly saline and may contain constituents that preclude most M&I or agricultural reuse without treatment. In many cases the necessary treatment may be similar in scope to the processes required to desalinate marine water. These processes usually require significant energy use which generates greenhouse gas and other emissions. Constituents removed from the treated water, including salts, may require additional infrastructure, such as pumps and pipelines, transportation and handling for safe disposal. In contrast with higher quality groundwater that is available and used for M&I and agricultural purposes, most of the volume of produced water in the Project Area is extracted and reused or disposed only by oil and gas operators. As noted by the California Commission on Science and Technology (CCST) in a 2015 report to the state legislature on well stimulation treatments, produced water that is subsequently re-injected back into the formation largely comprises "a closed loop system," and operators "using solely produced water for injection are not generally competing with other water users" (CCST 2015, Vol. II, Chapter 2 page 59). In 2012, about 38% (88,812 acre-feet of 234,959 acre-feet) of the total volume of produced water in the Project Area was reinjected into source formations in the "closed loop" manner described in the CCST report.

Produced water that is not reused by oil and gas operators or treated and supplied for irrigation is subject to disposal in Class II injection wells regulated by the state Division of Oil, Gas and

Geothermal Resources (DOGGR) under the federal Underground Injection Control (UIC) program or by other means, including to surface ponds and land. As discussed in DEIR Section 4.9, disposal by Class II injection wells has increased in the Project Area over time due to regulatory and safety concerns. As noted by the U.S. Environmental Protection Agency (U.S. EPA), by injecting produced water "deep underground, Class II wells prevent surface contamination of soil and water," and all oil and gas producing states require the injection of produced water "into the originating formation or into formations that are similar to those from which it was extracted" (http://water.epa.gov/type/groundwater/uic/class2/index.cfm, accessed August 2015). In some cases, the U.S. EPA may allow for Class II well discharges into formations that meet the criteria for a potential underground source of drinking water (USDW) under federal law. According to the U.S. EPA, the UIC program prevents contamination of water supplies by setting minimum requirements for state UIC programs, including in California, that "prevent contamination by keeping injected fluids within the intended injection zone, or in the case of injection directly or indirectly into a USDW, the fluids must not endanger or have the potential to endanger a current or future public water supply" (http://water.epa.gov/lawsregs/guidance/sdwa/upload/programregplaceunder.pdf, accessed August 2015). As discussed in DEIR Section 4.9, and in Global Response __, DOGGR, the State Water Resources Control Board (SWRCB) and the U.S. EPA are implementing a work plan to correct certain regulatory deficiencies in the state UIC program. In 2012, about 36% (84,517 acre-feet of 234,959 acre-feet) of the total volume of produced water in the Project Area was disposed by injection in Class II wells. As of August 2015, DOGGR and the SWRCB had not confirmed that any aquifer used for M&I or agricultural purposes had been contaminated by current or prior Class II injection well operations in the Project Area.

As discussed in DEIR Section 4.9 and 4.17, in addition to treated produced water, oil and gas operators also use higher-quality M&I or agricultural irrigation-quality groundwater for exploration and production activities (collectively, "M&I water"). Oil and gas demand for M&I water in the Project Area is projected to increase from 8,778 acre-feet in 2012 to 11,761 acre-feet in 2035. As discussed in DEIR Section 4.17, all oil and gas demand for M&I water is conservatively assumed in the DEIR analysis to be obtained from groundwater. The volume of M&I groundwater used for oil and gas activities was less than 1% of total Project Area groundwater extraction in 2012, and is projected to remain lower than 1% of total annual M&I groundwater extraction in the future during normal, dry, and multiple dry years (DEIR, Table 4.17-34).

The SGMA groundwater sustainability planning requirements have never been previously implemented in California. As of August 2015, no GSP (as defined in the SGMA) has ever been adopted by any state or local agency, and the DWR has not published draft regulations for GSP preparation and implementation. Consequently, the extent to which oil and gas-related activities, including the "closed loop" extraction and reinjection of produced water into source formations or disposal in similar formations in accordance with the UIC program, will be incorporated into a Project Area GSP is uncertain. Any GSP adopted in the Project Area must ensure that groundwater use will not cause any of the six "undesirable results" listed in the SGMA. The proposed revisions to the Zoning Ordinance include significantly enhanced requirements that are consistent with these objectives.

Water Code Sections 10721(w)(1)-(2) require that a GSP must not cause the "chronic lowering of groundwater levels" or "significant and unreasonable reductions in groundwater storage." As discussed in DEIR Section 4.17, M&I and agricultural water demand in the Project Area, including oil and gas use of M&I-quality groundwater, has resulted in a significant lowering of groundwater levels and reduced groundwater storage, particularly during the current drought. Additional groundwater has been extracted by Project Area and other California users in recent years to make up for the absence of imported and other surface water supplies. The proposed Zoning Code amendments require Oil and Gas Conformity Review applicants to reuse and/or supply additional amounts of produced water, and to use other supplies in lieu of M&I-quality groundwater, to the extent feasible. Oil and Gas Conformity Review applicants are also required to cooperate with the County to integrate into the GSP for the Tulare Lake-Kern Basin best practices to encourage reuse of produced water and the development of new supplies of treated produced water.

DEIR mitigation MM 4.17-2 requires that oil and gas operators increase the reuse of produced water, and reduce use of municipal and industrial-quality ground or surface water use to the extent feasible. By the end of 2016, the five biggest oil industry users of M&I water by volume shall be identified by using water supply data submitted to DOGGR, and the five largest M&I users shall work together to develop and implement a plan identifying new measures to reduce municipal and industrial water use by 2020. The plan shall address the following activities, as appropriate: steam generation; drilling and completions (including hydraulic fracturing); dust control; compaction activities related to construction; and landscaping. MM 4.17-2 also requires that the five biggest oil and gas users of M&I water in the Project Area work with local agricultural producers and water districts through available programs, including GSPs adopted under the SGMA, to identify new opportunities to increase the use of produced water for agricultural irrigation and other activities, as appropriate. Finally, MM 4.17-2 requires that any produced water treated and used for agricultural irrigation or other activities shall be tested and monitored to assure compliance with applicable standards for agricultural irrigation or other uses.

MM 4.17-3 requires that any oil and gas applicant subject to the proposed Oil and Gas Conformity Review process must cooperatively work with the County to integrate into the GSP for the Tulare Lake-Kern Basin, best practices from the oil and gas industry to encourage the reuse of produced water from oil and gas activities, and (with appropriate treatment) to produce new water supplies for other uses, such as agricultural irrigation and groundwater recharge. The produced water reuse goal is 30,000 acre-feet per year, which would offset more than the current and projected future use of imported water and groundwater from non-oil bearing zones by the oil and gas industry.

MM 4.17-4 requires that any Oil and Gas Conformity Review applicant shall work with the County on the GSP for the Project Area to increase the use of reclaimed water and reduce the use of M&I quality imported surface water or groundwater.

Pursuant to MM 4.17-2 through 4.17-4, Oil and Gas Conformity Review applicants will be required to: (a) use additional produced water for oil and gas activities to offset their demand for M&I quality groundwater to the extent feasible; (b) treat additional produced water for irrigation or other activities in lieu of groundwater to the extent feasible; (c) increase oil and gas use of recycled water to offset demand for higher quality ground and surface water; and (d) cooperate with the County in

the development of a GSP to incorporate measures that encourage the reuse of produced water, with appropriate treatment. These objectives are consistent with the SGMA goals of managing groundwater basins to avoid the chronic lowering of groundwater levels and significant and unreasonable reductions in groundwater storage.

Water Code section 10721(w)(3) requires that a GSP avoid "significant and unreasonable seawater intrusion." The Project Area is located about 90 miles east and inland from the Pacific Ocean. Project Area groundwater basins are not subject to a significant risk of seawater intrusion.

Water Code section 10721(w)(4) requires that a GSP avoid "significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies." Potential oil and gas production and exploration activities that could affect water quality are discussed in detail in Section 4.9, including: (a) stormwater and site runoff discharges; (b) discharges to oil drilling sumps during well construction; (c) produced water and other discharges to surface ponds; (d) surface spills and other discharges of oil and gas related-materials or fluids to land, including agricultural reuse of produced water; (e) surface or unintended subsurface discharges of well stimulation treatment fluids; (f) unintended subsurface discharges during well construction, maintenance, reworking, production, or other roil and gas exploration or production activities; and (g) unintended subsurface discharges from Class II injection wells. The proposed Zoning Code amendments require Oil and Gas Conformity Review applicants to comply with several measures that address potential risks of groundwater quality degradation, including the following:

MM 4.1-1, which requires that oil and gas applicants use existing roads whenever possible and route new roads in a manner that minimizes surface disturbance that avoid or reduce groundwater impacts that could be related to the mobilization of constituents that might degrade groundwater quality.

MM 4.1-2, which requires that all derricks, boilers, and other drilling equipment used to drill, repair, clean out, deepen or redrill any well with oil, gas, or other hydrocarbon, and sump facilities, be removed from a drill site within 90 days after completion of production tests or after abandonment of any well.

MM 4.1-3, which requires that all surface sumps and ponds be permitted only to the extent authorized by the Central Valley Regional Water Quality Control Board (via waiver, Waste Discharge Requirements, or other form of authorized written documentation) and must comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation or evaporation ponds for produced water.

MM 4.2-2 which requires several measures to protect agricultural lands that also avoid and minimize potential groundwater quality impacts, including: (a) surface water runoff and drainage well pad mitigation; (b) implementation of a Spill Prevention Countermeasure and Contingency Plan or Division of Oil Gas and Geothermal Resources (DOGGR) Assembly Bill 1960 spill plan and treatment of chemical spills treated in accordance with the DOGGR well stimulation treatment regulations; (c) speed limits to reduce dust generation or an alternate, more stringent dust suppression standard as adopted by the San Joaquin Valley Air Pollution Control District; (d) watering unpaved roads for dust suppression and control; (e) vehicle mud, dust, and weed seed

tracking control where unpaved roads intersect with paved roads; (f) stormwater controls during well drilling, reworking, and/or decommissioning; and (h) secondary containment for hazardous materials.

MM 4.3-2, which requires numerous measures to reduce construction emissions of particulate matter that also avoid and minimize potential groundwater quality impacts.

MM 4.4-15, which requires numerous measures to avoid and minimize impacts to protected and sensitive species that also avoid and minimize potential groundwater quality impacts, including: (a) a 20-mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted and the prohibition of off-road traffic outside of designated access routes is prohibited, which reduces surface disturbance and dust generation; (b) disposal of all food-related trash items and all forms of microtrash, such as wrappers, cans, bottles, bottle tops, and food scraps in closed containers removed daily from the site; (c) dust control measures for all excavations, spoils piles, access roadways, and parking and staging areas; (d) herbicides and rodenticide use restricted to those approved by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, and no herbicide use for vegetation control on split estate land in Tier 2 areas without surface owner approval; (e) drilling installations and operations must comply at all times with the applicable federal, State, county, and local law ordinances and regulations; (f) vehicle, equipment, and material storage limited to previously disturbed areas, no construction or operational material placement or storage outside of the planned disturbance area or stockpiled for future disposal, and the removal of all concrete and asphalt debris should from the site for recycling or proper disposal; and (g) full containment, collection and offsite disposal of all truck washing, paint, equipment, or similar activities.

MM 4.6-1, which requires substantial earthquake risk analysis and structural mitigation, including for pipelines that carry oil, gas, produced water, or other oil and gas related materials, to avoid and minimize damage due to seismic activity that could affect groundwater quality.

MM 4.6-3, which requires that structures on slopes greater than 30% be avoided unless an applicant determines that mineral recovery is infeasible from a different location, and site-specific professional engineering certification is submitted concluding that the new equipment will not cause landslides that could affect adjacent and downstream groundwater quality.

MM 4.8-1, which requires a comprehensive Worker Environmental Awareness Program that includes hazardous materials and hazardous waste management, and emergency preparedness, release reporting, and response requirements.

MM 4.8-2, which requires transportation, storage and disposal of all hazardous materials in compliance with the Hazardous Materials Transportation Act and measures to avoid roll-over accidents involving cargo tank trucks.

MM 4.8-3, which requires numerous spill prevention and cleanup measures, including: (a) construction activities allowing for easy cleanup of spills and construction crews that have sufficient tools, supplies, and absorbent and barrier materials to contain and recover spilled materials, fuels

and lubricants shall be stored only at designated staging areas; (b) fuel and lubricant tanks with appropriate secondary spill containment, (c) fuel trucks with oil spill response kits and equipment at all times; (d) regular routine equipment maintenance at the well pad, and prompt collection and lawfully disposal of wastes at an authorized recycling, treatment or disposal facility; (e) berms and/or dikes (secondary containment) for permanent above-ground bulk tanks, foundations with a passive leak detection system, and no tank placement in areas subject to periodic flooding or washout; and (f) a sufficient supply of sorbent and barrier materials on construction sites and contain runoff from contaminated areas, including shovels, drums for collection and disposal of contaminated soils, above ground tank inspection, drain locks, inspections conducted as much as possible in staging areas; and maintaining or repairing equipment and vehicles to reduce the likelihood of fuel or oil line breaks and leakage.

MM 4.8-4, which requires several measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations, including (a) the identification and evidence of integrity testing for all gas, oil and produced water pipelines located within 200 feet of any sensitive receptor; (b) a pipeline management plan for all waste gas lines less than or equal to 4 inches in diameter, developed and implemented in accordance with DOGGR regulations Title 14, Division 2, Chapter 4, Section 1774.2. The Pipeline Management Plan shall include; (c) pipeline design , testing methods, maintenance, recordkeeping requirements; (d) County notification of reportable quantities of fuel, gas, petroleum or hazardous materials leaks within 48 hours of discovery, and to other applicable agencies as required by other laws, with immediate containment, clean up , and repair.

MM 4.8-5, which requires that if an oil and gas applicant observes visual or olfactory evidence of contamination, or if soil contamination is otherwise suspected, work near the excavation site must be terminated, the work area must cordoned off and appropriate health and safety procedures implemented for the location.

MM 4.8-6, which requires that all oil and gas applicants implement the most up-to-date best management practices to prevent the release or accidental spillage of solid waste, garbage, construction debris, sanitary waste, industrial waste, naturally occurring radioactive materials, oil and other petroleum products, and other wastes into water bodies or water sources.

MM 4.8-7, which requires that exploration and development activities be conducted in accordance with the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development The Gold Book (Bureau of Land Management 2007), including sufficiently impervious secondary containment,, not storing chemical containers on bare ground or exposed to the sun and moisture; maintenance and secondary containment of chemicals containers; proper construction of containment dikes, containment to the extent feasible for all produced water tanks, and the removal of trash, junk, and other materials not in current use.

MM 4.8-8, which requires compliance with well and related facility construction standards for well completions, testing, and limiting a facility's environmental footprint and the incidence of releases of hazardous substances in accordance with the practices described in applicable American Petroleum Institute publications, State Water Resources Control Board General Orders or appropriate Regional Water Quality Control Board waste discharge requirements or general orders.

MM 4.8-9, which requires that all operations subject to the proposed Oil and Gas Conformity Review process comply with the pipeline management plan, including inspection and maintenance requirements, as administered by DOGGR pursuant to 14 California Code of Regulations 1774.

MM 4.8-10, which requires annual maintenance checks for leaks and corrosion and inspection schedules as required by California law.

MM 4.8-11, which requires annual worker training consistent with the facility's Hazardous Materials Business Plan and Spill Prevention, Control and Countermeasures Plan.

MM 4.8-12, which requires that cyclic steam injection activities above reservoir fracture levels comply with the terms and conditions of an applicable DOGGR site-specific Project Approval Letters for an injection project and appropriate monitoring and response if any surface expressions are observed.

MM 4.8-13, which requires compliance with all DOGGR safe drilling and drill casing practices, well design, construction and well management requirements, blowout requirements, all other provisions of 14 California Code of Regulations 1744 and other applicable regulations, and the practices described in Recommended Practice for Well Control Operations (American Petroleum Institute 2012).

MM 4.8-14, which requires reporting and notification of reportable contamination caused by oil and gas activities.

MM 4.8-15, which requires numerous measures pertaining to the use of acutely hazardous chemicals, including (a) evaluating whether other alternative chemicals that are less hazardous could be used; (b) ensuring that the smallest quantity of necessary acutely hazardous materials are stored on site; (c) notifying building occupants and the Kern County Fire Department when and where acutely hazardous materials would be used; and (e) ensuring that all applicable employees are trained to handle, transport store, dispose of, and are trained in the spill prevention, control and countermeasures for acutely hazardous materials.

MM 4.9-1, which requires that Oil and Gas Conformity Review applicants comply with all applicable federal, state, regional and local agency water quality protection laws and regulations, and commonly utilized industry standards, including (where applicable) stormwater and well stimulation treatment permit coverage.

MM 4.9-2, which requires that a drainage plan and related measures be prepared in accordance with the Kern County Grading Code, the Green Code and approved by the Kern County Engineering, Surveying and Permit Services Department, Floodplain Management Section where oil and gas sites subject to the proposed Zoning Code do not have stormwater permit coverage.

MM 4.9-3, which requires that all drilling operations either use a closed loop system to avoid discharges of drilling muds and fluids, or obtain coverage under the State Water Resources Control Board low threat discharge General Order, individual Waste Discharge Requirements issued by the Central Valley Regional Water Quality Control Board for the unit, or obtain coverage under a

general order issued by the Central Valley Regional Water Quality Control Board applicable to drilling ponds.

MW 4.9-4, which requires that any activity subject to proposed Zoning Code Chapter 19.98 not conduct any injection activity regulated by the Underground Injection Control program, including enhanced oil recovery activities that discharge into any underground source of drinking water unless the aquifer has been exempted by the United States Environmental Protection Agency or injection has otherwise been authorized by the U.S. Environmental Protection Agency or by DOGGR under delegated authority under the Safe Drinking Water Act.

MW 4.9-5, which requires that any activity subject to proposed Zoning Code Chapter 19.98 not discharge produced water into any surface disposal facility unless the facility has received Waste Discharge Requirements or a waiver from the Central Valley Regional Water Quality Control Board.

MM 4.9-6, which requires that all oil and gas constructed facilities within a mapped 100-year floodplain be protected from the maximum potential elevation of flooding during a 100-year flood by elevating structures or by implementing containment berms or other protective measures in compliance with the standards in the Kern County Floodplain Management Code and Chapters 19.50 and 19.70 of the Kern County Zoning Code.

MM 4.17-1, which requires approved septic systems in appropriate locations for oil and gas operations and maintenance buildings.

MM 4.17-3, which is discussed above, and that requires Oil and Gas Conformity Review applicants to work with the County during the County's participation in the creation of a Groundwater Sustainability Agency and to integrate into the GSP for the Tulare Lake-Kern Basin, best practices from the oil and gas industry to encourage the re-use of produced water from oil and gas activities, and (with appropriate treatment) to produce new water supplies for other uses such as agricultural irrigation and groundwater recharge.

MM 4.17-5, which requires that Oil and Gas Conformity Review applicants not store construction waste onsite for longer than the duration of a construction activity, not transport any waste to any unpermitted facilities, and reduce construction waste transported to landfills by recycling solid waste construction materials.

Other DEIR mitigation measures, including air emissions control measures identified in Section 4.3 (Air Quality), and MM 4.17-2 and 4.17-5, would also avoid and minimize Project Area groundwater quality degradation risks by improving regional air quality and reducing the constituent deposition on land that might be mobilized by stormwater or other means and percolate into groundwater, and by reducing oil and gas production and exploration demand for higher-quality groundwater supplies.

The proposed Zoning Ordinance amendments would result in the implementation of significantly enhanced groundwater water quality protection requirements applicable to all Oil and Gas Conformity Review applicants in the Project Area. These requirements are consistent with the

SGMA goals of managing groundwater basins to avoid significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

Water Code section 10721(w)(5) defines as an "undesirable result" significant and unreasonable "land subsidence that substantially interferes with surface land uses." As discussed in DEIR Section 4.6, land subsidence in the Project area has primarily been caused by higher-quality groundwater withdrawal for M&I and agricultural purposes. Project Area land subsidence rates were generally high until the early 1950s, when surface water began being transported into the area through the construction of canals and aqueducts. The importation of surface water resulted in decreased groundwater usage, water level recovery, and ultimately reduced rate of compaction. However, drought conditions in the mid-1970s, late 1980s and early 1990s caused increased pumping, water level declines and renewed compaction due to the lack of surface water supplies and increased reliance on groundwater. During the current drought, surface supplies curtailment has led to more significant groundwater use in the Project Area. As a result, significant land subsidence has occurred throughout the San Joaquin Valley, including in portions of the Project Area.

Land subsidence of less than one foot from oilfield withdrawals is known to occur in a few isolated areas in southwest Kern County. Generally, the extent and rate of oil and gas extraction subsidence is significantly less than subsidence caused by groundwater use because hydrocarbon extraction typically occurs at much deeper locations beneath the ground surface and a significant amount of the extracted produced water is reinjected to or near source formations. DOGGR monitors subsidence in oil and gas fields and regulates oil and gas withdrawal and re-pressurizing of each oilfield. If oilfield subsidence is observed, well operators are required to stabilize the ground by injecting additional produced water or reducing the volume of produced water being pumped during field operations.

As discussed above, the proposed Zoning Code amendments and MM 4.17-2 through 4.17-4 require Oil and Gas Conformity Review applicants to reuse and/or supply additional amounts of produced water, and to use other supplies in lieu of M&I-quality groundwater, to the extent feasible. Oil and Gas Conformity Review applicants will also be required to implement MM 4.6-4, which requires shall compliance with, and implementation of, a DOGGR approved repressuring plan as required by Division 3, Chapter 1, Article 5.5 of the Public Resources Code, commencing with Section 3315. MM 4.6-4 further requires that, in developed areas where subsidence is confirmed or suspected, subsidence monitoring shall be required using Synthetic Aperture Radar studies and/or other methods as approved by DOGGR to quantify and evaluate the potential effect on the area. These requirements would reduce oil and gas demand for higher-quality groundwater extraction that has been associated with subsidence in the Project Area, generate new water supplies that could be used in lieu of higher-quality groundwater, and will require oilfield subsidence monitoring and the implementation of appropriate responses to arrest any detected subsidence by repressuring the affect fields if necessary. As a result, the proposed Zoning Code amendments are consistent with the SGMA goals of avoiding significant and unreasonable land subsidence that substantially interferes with surface land uses.

Water Code section 10721(w)(6) defines as an "undesirable result" depletions of "interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water." As discussed above, the proposed Zoning Code amendments include significantly

enhancement requirements for avoiding and reducing potential impacts to Project Area surface water beneficial uses. MM 4.17-2 through MM 4.17-4 require additional reuse of produced water to the extent feasible and recycled water to reduce oil and gas demand for M&I quality imported surface water or groundwater. Surface water quality, including potential impacts from stormwater runoff, accidental spills or discharges, surface disposal of produced water or other oil and gas-related materials, including well stimulation treatment chemicals and construction muds and wastes, and constituent deposition from land disturbance, dust or air contaminants, will be subject to several additional requirements in conjunction with the Oil and Gas Conformity Review process, including the following:

MM 4.1-1, which requires that oil and gas applicants use existing roads whenever possible and route new roads in a manner that minimizes surface disturbance that avoid or reduce groundwater impacts that could be related to the mobilization of constituents that might degrade surface water quality and beneficial uses.

MM 4.1-2, which requires that all derricks, boilers, and other drilling equipment used to drill, repair, clean out, deepen or redrill any well with oil, gas, or other hydrocarbon, and sump facilities, be removed from a drill site within 90 days after completion of production tests or after abandonment of any well.

MM 4.1-3, which requires that all surface sumps and ponds be permitted only to the extent authorized by the Central Valley Regional Water Quality Control Board (via waiver, Waste Discharge Requirements, or other form of authorized written documentation) and must comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation or evaporation ponds for produced water.

MM 4.2-2 which requires several measures to protect agricultural lands that also avoid and minimize potential surface water quality and beneficial use impacts, including: (a) surface water runoff and drainage well pad mitigation; (b) implementation of a Spill Prevention Countermeasure and Contingency Plan or Division of Oil Gas and Geothermal Resources (DOGGR) Assembly Bill 1960 spill plan and treatment of chemical spills treated in accordance with the DOGGR well stimulation treatment regulations; (c) speed limits to reduce dust generation or an alternate, more stringent dust suppression standard as adopted by the San Joaquin Valley Air Pollution Control District; (d) watering unpaved roads for dust suppression and control; (e) vehicle mud, dust, and weed seed tracking control where unpaved roads intersect with paved roads; (f) stormwater controls during well drilling, reworking, and/or decommissioning; and (h) secondary containment for hazardous materials.

MM 4.3-2, which requires numerous measures to reduce construction emissions of particulate matter that also avoid and minimize potential surface water quality and beneficial use impacts.

MM 4.4-15, which requires numerous measures to avoid and minimize impacts to protected and sensitive species that also avoid and minimize potential surface water quality and beneficial use impacts, including: (a) a 20-mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted and the prohibition of off-road traffic outside of designated access

routes is prohibited, which reduces surface disturbance and dust generation; (b) disposal of all food-related trash items and all forms of microtrash, such as wrappers, cans, bottles, bottle tops, and food scraps in closed containers removed daily from the site; (c) dust control measures for all excavations, spoils piles, access roadways, and parking and staging areas; (d) herbicides and rodenticide use restricted to those approved by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, and no herbicide use for vegetation control on split estate land in Tier 2 areas without surface owner approval; (e) drilling installations and operations must comply at all times with the applicable federal, State, county, and local law ordinances and regulations; (f) vehicle, equipment, and material storage limited to previously disturbed areas, no construction or operational material placement or storage outside of the planned disturbance area or stockpiled for future disposal, and the removal of all concrete and asphalt debris should from the site for recycling or proper disposal; and (g) full containment, collection and offsite disposal of all truck washing, paint, equipment, or similar activities.

MM 4.6-1, which requires substantial earthquake risk analysis and structural mitigation, including for pipelines that carry oil, gas, produced water, or other oil and gas related materials, to avoid and minimize damage due to seismic activity that could affect surface water quality and beneficial uses.

MM 4.6-3, which requires that structures on slopes greater than 30% be avoided unless an applicant determines that mineral recovery is infeasible from a different location, and site-specific professional engineering certification is submitted concluding that the new equipment will not cause landslides that could affect adjacent and downstream surface water quality and beneficial uses.

MM 4.8-1, which requires a comprehensive Worker Environmental Awareness Program that includes hazardous materials and hazardous waste management, and emergency preparedness, release reporting, and response requirements.

MM 4.8-2, which requires transportation, storage and disposal of all hazardous materials in compliance with the Hazardous Materials Transportation Act and measures to avoid roll-over accidents involving cargo tank trucks.

MM 4.8-3, which requires numerous spill prevention and cleanup measures, including: (a) construction activities allowing for easy cleanup of spills and construction crews that have sufficient tools, supplies, and absorbent and barrier materials to contain and recover spilled materials, fuels and lubricants shall be stored only at designated staging areas; (b) fuel and lubricant tanks with appropriate secondary spill containment, (c) fuel trucks with oil spill response kits and equipment at all times; (d) regular routine equipment maintenance at the well pad, and prompt collection and lawfully disposal of wastes at an authorized recycling, treatment or disposal facility; (e) berms and/or dikes (secondary containment) for permanent above-ground bulk tanks, foundations with a passive leak detection system, and no tank placement in areas subject to periodic flooding or washout; and (f) a sufficient supply of sorbent and barrier materials on construction sites and contain runoff from contaminated areas, including shovels, drums for collection and disposal of contaminated soils, above ground tank inspection, drain locks, inspections conducted as much as possible in staging areas; and maintaining or repairing equipment and vehicles to reduce the likelihood of fuel or oil line breaks and leakage.

MM 4.8-4, which requires several measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations, including (a) the identification and evidence of integrity testing for all gas, oil and produced water pipelines located within 200 feet of any sensitive receptor; (b) a pipeline management plan for all waste gas lines less than or equal to 4 inches in diameter, developed and implemented in accordance with DOGGR regulations Title 14, Division 2, Chapter 4, Section 1774.2. The Pipeline Management Plan shall include; (c) pipeline design , testing methods, maintenance, recordkeeping requirements; (d) County notification of reportable quantities of fuel, gas, petroleum or hazardous materials leaks within 48 hours of discovery, and to other applicable agencies as required by other laws, with immediate containment, clean up , and repair.

MM 4.8-5, which requires that if an oil and gas applicant observes visual or olfactory evidence of contamination, or if soil contamination is otherwise suspected, work near the excavation site must be terminated, the work area must cordoned off and appropriate health and safety procedures implemented for the location.

MM 4.8-6, which requires that all oil and gas applicants implement the most up-to-date best management practices to prevent the release or accidental spillage of solid waste, garbage, construction debris, sanitary waste, industrial waste, naturally occurring radioactive materials, oil and other petroleum products, and other wastes into water bodies or water sources.

MM 4.8-7, which requires that exploration and development activities be conducted in accordance with the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development The Gold Book (Bureau of Land Management 2007), including sufficiently impervious secondary containment,, not storing chemical containers on bare ground or exposed to the sun and moisture; maintenance and secondary containment of chemicals containers; proper construction of containment dikes, containment to the extent feasible for all produced water tanks, and the removal of trash, junk, and other materials not in current use.

MM 4.8-8, which requires compliance with well and related facility construction standards for well completions, testing, and limiting a facility's environmental footprint and the incidence of releases of hazardous substances in accordance with the practices described in applicable American Petroleum Institute publications, State Water Resources Control Board General Orders or appropriate Regional Water Quality Control Board waste discharge requirements or general orders.

MM 4.8-9, which requires that all operations subject to the proposed Oil and Gas Conformity Review process comply with the pipeline management plan, including inspection and maintenance requirements, as administered by DOGGR pursuant to 14 California Code of Regulations 1774.

MM 4.8-10, which requires annual maintenance checks for leaks and corrosion and inspection schedules as required by California law.

MM 4.8-11, which requires annual worker training consistent with the facility's Hazardous Materials Business Plan and Spill Prevention, Control and Countermeasures Plan.

MM 4.8-13, which requires compliance with all DOGGR safe drilling and drill casing practices, well design, construction and well management requirements, blowout requirements, all other provisions of 14 California Code of Regulations 1744 and other applicable regulations, and the practices described in Recommended Practice for Well Control Operations (American Petroleum Institute 2012) to protect groundwater and surface water beneficial uses.

MM 4.8-14, which requires reporting and notification of reportable contamination caused by oil and gas activities.

MM 4.8-15, which requires numerous measures pertaining to the use of acutely hazardous chemicals, including (a) evaluating whether other alternative chemicals that are less hazardous could be used; (b) ensuring that the smallest quantity of necessary acutely hazardous materials are stored on site; (c) notifying building occupants and the Kern County Fire Department when and where acutely hazardous materials would be used; and (e) ensuring that all applicable employees are trained to handle, transport store, dispose of, and are trained in the spill prevention, control and countermeasures for acutely hazardous materials.

MM 4.9-1, which requires that Oil and Gas Conformity Review applicants comply with all applicable federal, state, regional and local agency water quality protection laws and regulations, and commonly utilized industry standards, including (where applicable) stormwater and well stimulation treatment permit coverage.

MM 4.9-2, which requires that a drainage plan and related measures be prepared in accordance with the Kern County Grading Code, the Green Code and approved by the Kern County Engineering, Surveying and Permit Services Department, Floodplain Management Section where oil and gas sites subject to the proposed Zoning Code do not have stormwater permit coverage.

MM 4.9-3, which requires that all drilling operations either use a closed loop system to avoid discharges of drilling muds and fluids, or obtain coverage under the State Water Resources Control Board low threat discharge General Order, individual Waste Discharge Requirements issued by the Central Valley Regional Water Quality Control Board for the unit, or obtain coverage under a general order issued by the Central Valley Regional Water Quality Control Board applicable to drilling ponds.

MW 4.9-5, which requires that any activity subject to proposed Zoning Code Chapter 19.98 not discharge produced water into any surface disposal facility unless the facility has received Waste Discharge Requirements or a waiver from the Central Valley Regional Water Quality Control Board.

MM 4.9-6, which requires that all oil and gas constructed facilities within a mapped 100-year floodplain be protected from the maximum potential elevation of flooding during a 100-year flood by elevating structures or by implementing containment berms or other protective measures in compliance with the standards in the Kern County Floodplain Management Code and Chapters 19.50 and 19.70 of the Kern County Zoning Code.

MM 4.17-1, which requires approved septic systems in appropriate locations for oil and gas operations and maintenance buildings to reduce potential water quality impacts, including to surface waters and beneficial uses.

MM 4.17-5, which requires that Oil and Gas Conformity Review applicants not store construction waste onsite for longer than the duration of a construction activity, not transport any waste to any unpermitted facilities, and reduce construction waste transported to landfills by recycling solid waste construction materials.

In summary, the proposed Zoning Ordinance amendments will significantly enhance groundwater level, storage and quality, surface water beneficial use, and land subsidence protection requirements in the Project Area. In addition Oil and Gas Conformity Review applicants will be required to cooperate with the County in the development of a project Area GSP that incorporates best practices for oil and gas exploration and production, including increased produced water reuse with appropriate treatment, and increased oil and gas use of recycled water in lieu of higher-quality ground or surface waters. Implementation of the proposed Zoning Code amendments would support the achievement of and be consistent with all applicable SGMA sustainable groundwater management objectives for the Project Area.

Water-04: Feasibility of Potable Water Use Ban

Some commenters requested that oil and gas producers be banned from use of any potable water for production activity. The County recognizes the importance of addressing impacts on water supply under current drought conditions in California. The EIR incorporates feasible mitigation measures to increase use of produced water. See Mitigation Measures 4.17-2, 4.17-3 and 4.17-4. However, CEQA requires an EIR to identify only mitigation measures that are feasible.[106] Mitigation is feasible if it is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.[107] Similarly, the County may reject any alternative that is not actually feasible.[108]

An alternative or mitigation measure requiring use of produced water for all oil and gas operations, or banning the use of potable municipal and industrial (M&I) water or groundwater for oil and gas operations, would not be feasible. Using produced water would, in many cases, significantly increase costs, and could result in increased chemical use, longer and more intensive surface activities, and the need for additional permitting processes to avoid adverse secondary environmental impacts.

---

[106] *Clover Valley Foundation v. City of Rocklin* (2011) 197 Cal.App.4th 200, 244-245 ["An EIR need not identify and discuss mitigation measures that are infeasible…Nothing in CEQA requires an EIR to explain why certain mitigation measures are infeasible."]

[107] CEQA Guidelines § 15364.

[108] *California Native Plant Soc*., 177 Cal.App.4th at 981; *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477. 489; CEQA Guidelines § 15091.

Produced water is currently used for some oilfield activities, such as discharge for dust suppression, but increasing that use beyond existing levels would require additional permitting and approvals to avoid impacts to biological, water and other resources. While the oil and gas industry in Kern County has been working with the Regional Water Quality Control Boards to increase use of produced water for dust suppression and other oilfield activities, there are regulatory hurdles to increasing use of produced water and it is uncertain whether and to what extent additional use of produced water will be permitted by the Boards. As such, a requirement to substitute produced water for all uses would not be legally feasible.

While oil and gas operators may be able to utilize additional produced water for some oilfield activities – as contemplated by Mitigation Measures 4.17-2, 4.17-3 and 4.17 – not all oilfield activities are able to use produced water. For some oilfield activities, such as drilling and abandonment work, the use of fresh water is required to properly formulate the cement mixtures that are needed to safely drill and abandon wells. Using produced water for these activities would jeopardize operators' ability to comply with well specifications provided for in DOGGR regulations.

Certain enhanced oil recovery (EOR) operations, such as steam generation, can require higher-quality water supplies than are typically obtained from treated produced water in order to avoid equipment corrosion or damage and potential chemical interactions. Use of produced water in these operations can also lead to increased need for equipment maintenance due to, for example, silica buildup or tube failures in boilers. Even when produced water can be used in EOR operations, water losses in the oil production cycle—due to losses on the surface, in the geological zones, or otherwise—typically necessitate the use of some fresh or brackish "make up" water from a surface or subsurface source. Depending on the nature of the operation, "make up" water often represents between 10 and 25 percent of the water used.

Additionally, the lack of infrastructure linking sources of produced water to the locations where water may be used, particularly in cases of new exploration, can result in increased truck trips and other more significant impacts associated with transporting produced water to operation sites. For example, pilot EOR projects typically cannot use recycled water due to the early stage of project development, which results in a lack of available recycled water. Furthermore, the treatment of water for reuse requires specialized equipment, consumes energy, and generates waste. In many cases, operators have also contracted with local water purveyors to utilize some supply of purchased water over a long-term contract; cancellation of such contracts would also create negative financial impacts for the region.

Some commenters urge a mitigation measure or alternative requiring the use of produced water specifically for well stimulation treatments. However, such requirements would significantly increase chemical use as well as costs. Chemicals used in fracture treatments impart viscosity for proppant transport and fracture geometry creation and improve post-treatment production results by minimizing polymer plugging and other phenomena detrimental to production. Using produced water instead of fresh water as a base fluid for fracture treatments would increase the chemical volumes needed to fulfill these functions. Produced water use for fracture treatments could require as much as a five-fold increase in buffering agents, and additional chelating agents, clay and scale inhibitors, and surfactants to prevent emulsions and reduce surface tension may also be needed to

minimize production complications that would be caused by the use of produced water. While produced water could be pre-treated to require fewer chemicals during the fracture treatment itself, such pre-treatment conditioning would also involve more chemicals, equipment, or both, to obtain water sufficient for use in the fracture treatment. Because of these complications, a typical fracturing operation would become significantly more expensive, and often uneconomic.

In addition, for some types of well stimulation, such as matrix acid stimulation, it is technologically infeasible to utilize produced water. Typically, matrix acid stimulation employs hydrofluoric acid (HF acid), which can only be mixed with fresh water. If HF acid comes into contact with formation brine, insoluble precipitants form, limiting the effectiveness of the acid stimulation system by plugging pore throats in the reservoir pore network. Such plugging can completely counteract the effects of the stimulation treatment. The reduction in the effectiveness of the treatment would require more frequent treatments, larger treatments, or both, which would lead to a significant increase in use of chemicals, emissions and heavy vehicle traffic hauling hazardous chemicals.

In sum, while operators are working to increase their use of produced water for oil and gas operations in Kern County, issues ranging from harms caused by chemical interactions to the lack of availability of produced water at certain sites renders complete elimination of freshwater use economically, socially, environmentally, and technologically infeasible.

Water-05: Water Supply and Demand Data Update

Commenters have indicated that that the 2012 water supply and demand estimates for oil and gas exploration and production activities in DEIR Section 4.9, DEIR Section 4.17, Impact 4.17-4, and in the Water Supply Assessment (WSA) for the project region underestimate the amount of surface pond disposal in the Western Subarea and the volume of produced water used for agriculture in the Eastern Subarea, and overestimate the amount surface pond disposal in the Eastern Subarea. Commenters have also requested clarification that the regional groundwater use and supply and demand average, and dry and multiple dry year estimates in the DEIR and WSA, do not identify or are intended to represent an assumed groundwater safe or sustainable yield for the analysis region.

In response to these comments, the County requested that Kennedy-Jenks, the engineering firm that prepared the WSA, review the estimates for the Western and Eastern subareas, clarify that the analysis does not assume a safe or sustainable yield for the analysis region, and revise the WSA as applicable. The revised, final WSA was prepared by Kennedy-Jenks and delivered to the County on September 18, 2015. The final WSA is attached as Appendix T-1. In addition, conforming changes to the table of Project Area produced water generation use or disposal were made to Table 5.1 of the Water Quality Assessment (WQA) prepared by Kennedy Jenks. The revised, final version of the WQA is attached as Appendix S-1.

The revisions in the Final WSA and WQA reflect minor corrections or additional information, including a larger amount of produced water land disposal in the Western Subarea, a larger amount of agricultural reuse of produced water in the Eastern Subarea, and a correspondingly smaller amount of land disposal in the eastern subarea. In addition, because the increased use of treated produced water for irrigation reduces agricultural demand for other water supplies by the same

amount, the ratio of oil and gas demand for higher quality (e.g., municipal and industrial or "M&I" water) to agricultural demand increases in the revised analysis by a small extent. No other changes were made to the WSA or WQA, and one of the revisions significantly affect the DEIR analysis or conclusions.

The following sections summarize in more detail the WSA revisions that have been made in response to comments, discuss the extent to which the revisions affect the DEIR analysis of potential impacts related to water supply and use, and demonstrate that the revisions do not significantly affect the DEIR impact analysis and significance conclusions.

A. Western Subarea Surface Disposal Volumes

As shown in Appendix T-1, Table 28, during the WSA review process a calculation error was identified for the amount of the produced water land disposal (primarily surface ponds) in the Western Subarea during 2012. The produced water land disposal for the Western Subarea has been revised to 19,545 acre-feet, an increase of 6,995 acre-feet from the amounts shown in DEIR Table 4.9-2. Table 7-12 summarizes the revisions to the Western Subarea water supply and use estimates for 2012 that reflect this revision.

Table 7-12: Western Subarea 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet)

	DEIR Table 4.9-2	Final WSA (Appendix T-1)	Change from DEIR Table 4.9-2
Water supplied			
Produced Water	131,341	131,341	-
M&I Water	8,358	8,358	-
TOTAL	139,699	139,699	-
Water Use			
Treated Produced Water			
EOR water and steam injections, pressure maintenance and well pulling	75,322	75,322	-
Coil tubing, dust control, surface facility construction	97	97	-
Oil and gas produced water reuse	75,419	75,419	-
Agricultural reuse	0	0	-
Subtotal: Produced Water Reuse	75,419	75,119	-
M&I Water			
New Well Construction (Drill Mud+Well Stimulation)	472	472	-
Maintenance (Mud Services + Cementing)	40	40	-

Table 7-12: Western Subarea 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet)

	DEIR Table 4.9-2	Final WSA (Appendix T-1)	Change from DEIR Table 4.9-2
Maintenance (Acidizing + Coil Tubing)	35	35	-
Maintenance (Well Pulling + Domestic Water)	397	397	-
Well Abandonment	134	134	-
Steam Production	7,279	7,279	-
Oil and gas M&I water demand	8,357	8,357	-
Subtotal: Oil and Gas Water Demand, M&I and Produced Water	83,776	83,776	-
Injection Well Disposal	40,482	40,482	-
Produced Water Land Disposal	12,950	19,545	6,595
Subtotal: Oil and Gas Produced Water Waste Disposal	53,432	60,027	6,595
TOTAL	139,699	139,699	-

Sources: DEIR Table 4.9-1, GR Appendix 1 Table 25

Note: Includes a water balance closure factor for the net difference between estimated water inputs and outputs of 2,490 in DEIR Table 4.9-1 and -4,104 in Appendix t-1 Table 28. All values subject to rounding and may vary slightly from Appendix T-1 Table 28.

As shown in Table 7-12, the WSA revisions increase the total volume of produced water land disposal, and the total amount of waste disposal (including by injection well) in the Western Subarea by 6,595 acre-feet. The water balance closure factor, which accounts for the net difference between the estimated water supplied and water used in the subarea using various methodologies, changes from 2,409 acre-feet to -4,104 acre-feet in the final WSA due to the revised calculations. All other 2012 water supply and use amounts for the Western Subarea in DEIR Table 4.9-2 are unaffected by the final WSA revisions in Appendix T-1

B. Eastern Subarea Produced Water Irrigation Reuse and Surface Disposal Volumes

As shown in Appendix T-1, Table 28, in response to comments, available information about the reuse of treated produced water for agricultural irrigation and the amount of produced water surface land disposal in the Eastern Subarea was reviewed for 2012. The review determined that the volume of produced water supplied to agricultural users in 2012, including the Cawelo Water District, the Jasmine Mutual Water Company and Concordia Ranch, was 38,658 acre-feet, an increase of 5,887 acre-feet from the amount in DEIR Table 4.9-4. The review also determined that the amount of produced water land disposal in the Eastern Subarea was lower by -5,887 acre-feet from the amount in DEIR Table 4.9-4. Table 7-13 summarizes the revisions to the Eastern Subarea water supply and use estimates for 2012 that reflect these revisions.

Table 7-13: Eastern Subarea 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet)

	DEIR Table 4.9-4	Final WSA (Appendix T-1)	Change from DEIR Table 4.9-4
Water supplied			
Produced Water	100,734	100,734	-
M&I Water	357	357	-
TOTAL	101,091	101,091	-
Water Use			
Treated Produced Water			
EOR water and steam injections, pressure maintenance and well pulling	12,528	12,528	-
Coil tubing, dust control, surface facility construction	45	45	-
Oil and gas produced water reuse	12,573	12,573	-
Agricultural reuse	32,771	38,658	5,887
Subtotal: Produced Water Reuse	45,344	51,231	5,887
M&I Water			
New Well Construction (Drill Mud+Well Stimulation)	74	74	-
Maintenance (Mud Services + Cementing)	19	19	-
Maintenance (Acidizing + Coil Tubing)	16	16	-
Maintenance (Well Pulling + Domestic Water)	186	186	-
Well Abandonment	62	62	-
Steam Production	0	0	-
Oil and gas M&I water demand	357	357	-
Subtotal: Oil and Gas Water Demand, M&I and Produced Water	12,930	12,930	-
Injection Well Disposal	41,919	41,919	-
Produced Water Land Disposal	17,084	11,197	-5,887
Subtotal: Oil and Gas Produced Water Waste Disposal	59,003	53,116	-5,887
TOTAL	101,091	101,091	-

Sources: DEIR Table 4.9-4, GR Appendix 1 Table 28.

Notes: Includes a water balance closure factor for the net difference between estimated water inputs and outputs of -3,613 in Table 4.9-4 and Appendix T-1, Table 28. All values subject to rounding and may vary slightly from Appendix T-1, Table 28.

As shown in Table 7-13, the volume of produced water used for agricultural reuse, and the total volume of produced water reuse, increased by 5,887 acre-feet in the Eastern Subarea in 2012. The volume of produced water land disposal, and total volume of produced water disposal correspondingly decreased by -5,887 acre-feet in the Eastern Subarea due to the increased use of produced water for irrigation. All other 2012 water supply and use amounts for the Eastern Subarea in DEIR Table 4.9-4 are unaffected by the revisions in the final WSA.

C. Project Area 2012 Oil and Gas Exploration and Production Water Supply and Demand

Table 7-14 summarizes the revisions to the Project Area oil and gas exploration and production water supply and use estimates for 2012 in DEIR Table 4.9-1 that reflect the Western and Eastern subarea revisions in the final WSA (Appendix T-1). No changes were made to the DEIR information for the Central Subarea.

Table 7-14: Project Area 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet)

	DEIR Table 4.9-1	Final WSA (Appendix T-1)	Change from DEIR Table 4.9-1
Water Supplied			
Produced Water	234,959	234,959	-
M&I Water	8,778	8,778	-
TOTAL	243,737	243,737	-
Water Use			
Treated Produced Water			
EOR water and steam injections, pressure maintenance and well pulling	88,668	88,668	-
Coil tubing, dust control, surface facility construction	144	144	-
Oil and gas produced water reuse	88,812	88,812	-
Agricultural reuse	32,771	38,658	5,887
Subtotal: Produced Water Reuse	121,583	127,470	5,887
M&I Water			
New Well Construction (Drill Mud+Well Stimulation)	589	588	-
Maintenance (Mud Services + Cementing)	61	61	-
Maintenance (Acidizing + Coil Tubing)	52	52	-
Maintenance (Well Pulling + Domestic Water)	594	595	-
Well Abandonment	202	202	-

Table 7-14: Project Area 2012 Oil and Gas Exploration and Production DEIR and Revised WSA Water Supply and Demand (acre feet)

	DEIR Table 4.9-1	Final WSA (Appendix T-1)	Change from DEIR Table 4.9-1
Steam Production	7,279	7,279	-
Oil and gas M&I water demand	8,778	8,777	-
Subtotal: Oil and Gas Water Demand, M&I and Produced Water	97,590	97,589	-
Injection Well Disposal	84,571	84,571	-
Produced Water Land Disposal	30,223	30,931	708
Subtotal: Oil and Gas Produced Water Waste Disposal	114,794	115,502	708
TOTAL	243,737	243,737	-

Sources: DEIR Table 4.9-1, GR Appendix 1 Table 28.

Notes: Includes a water balance closure factor for the net difference between estimated water inputs and outputs of -1,418 in DEIR Table 4.9-1 and -8,012 in Appendix T-1. All values subject to rounding and may vary slightly from Appendix T-1, Table 28.

As shown in Table 7-14, the volume of produced water used for agricultural reuse, and the total amount of produced water reuse in the Project Area during 2012 in the final WSA increased by 5,887 acre-feet from the level in DEIR Table 4.9-1. This increase reflects the larger volume of produced water reuse in the Eastern Subarea as shown in Table 7-13. The volume of produced water land disposal, and total volume of produced water disposal in the Project Area increased by 708 acre-feet from the level in DEIR Table 4.9-1. This increase reflects the net difference between the larger volume of produced water land disposal in the Western Subarea shown in Table 7-12 (+6,595 acre-feet) and the lower volume of produced water land disposal in the Eastern Subarea shown in Table 7-13 (-5,887 acre-feet). The water balance closure factor, which accounts for the net difference between the estimated water supplied and water used in the subarea using various methodologies, changes from -1,418 acre-feet to -8,012 acre-feet in the final WSA due to the revised calculations. All other 2012 water supply and use amounts for the Project Area in DEIR Table 4.9-1 are unaffected by the WSA revisions.

D. WSA Revisions and Water Supply and Demand Projections

Table 7-15 incorporates the revised Project Area agricultural water reuse and land disposal volumes summarized above in the DEIR projections of future water supply and demand , including the three future scenarios in DEIR Table 4.9-27. As discussed in the DEIR, Table 4.9-27 analyzes three future (2035) oil and gas water supply and use scenarios based on the projected annual increase in oil and gas exploration and production activity described in the DEIR. These scenarios include: (a) Scenario 1, which assumes a pro-rata increase in oil and gas water supply and demand from 2012 levels; (b) Scenario 2, which assumes a 50% reduction in surface disposal from 2012 levels in response to regulatory concerns about such disposal methods; and (c) Scenario 3, which assumes that

agricultural reuse of produced water is increased from 2012 levels by the amount of the projected oil and gas demand for higher-quality municipal and industrial (M&I) water demand in 2035 (11,761 acre-feet) and that produced water surface disposal would decline by 90% from 2012 levels. The DEIR scenarios assume that agricultural reuse of produced water will remain constant at an assumed 2012 level of 32,771 acre-feet year, a volume of use that is consistent with the average amount of produced water used for irrigation by the Cawelo Water District over the period 2009-2012 (see Appendix T-1, Table 28 and accompanying notes).

Table 7-15 incorporates all of the final WSA revisions (see Appendix T-1) described above, including the revised estimate of 38,658 acre-feet of agricultural produced water reuse and the revised produced water land disposal revisions in the Western and Eastern subareas for 2012, with the three scenarios analyzed in DEIR Table 4.9-27. Table 7-15 shows the net difference between the 2012 and the 2035 scenario projections in DEIR Table 4.9-27 and Table 7-15, which utilizes the revisions from the final WSA.

Table 7-15: Oil and Gas Exploration and Production Produced and M&I Water Supply and Demand 2012 and 2035 (Scenarios 1, 2, and 3), Revised WSA Estimates

	2012	Scenario 1 Pro-Rata Increase	Scenario 2 50% Surface Disposal Reduction	Scenario 3 Full M&I Water Use Offset and 90% Surface Disposal Reduction
Water Supplied				
Produced Water	234,959	321,894	321,894	321,894
M&I Water	8,778	11,761	11,761	11,761
TOTAL	243,737	333,655	333,655	333,655
Water Use				
Treated Produced Water				
EOR water and steam injections, pressure maintenance and well pulling	88,668	121,215	121,215	121,215
Coil tubing, dust control, surface facility construction	144	197	197	197
Oil and gas produced water reuse	88,812	121,412	121,412	121,412
Agricultural reuse	38,658	38,658	38,658	50,419
Subtotal: Produced Water Reuse	127,470	160,070	160,070	171,831
M&I Water				
New Well Construction (Drill Mud+Well Stimulation)	589	789	789	789

Table 7-15: Oil and Gas Exploration and Production Produced and M&I Water Supply and Demand 2012 and 2035 (Scenarios 1, 2, and 3), Revised WSA Estimates

	2012	Scenario 1 Pro-Rata Increase	Scenario 2 50% Surface Disposal Reduction	Scenario 3 Full M&I Water Use Offset and 90% Surface Disposal Reduction
Maintenance (Mud Services + Cementing)	61	82	82	82
Maintenance (Acidizing + Coil Tubing)	52	70	70	70
Maintenance (Well Pulling + Domestic Water)	594	796	796	796
Well Abandonment	202	271	271	271
Steam Production	7,279	9,754	9,754	9,754
Oil and gas M&I water demand	8,778	11,761	11,761	11,761
Subtotal: Oil and Gas Water Demand, M&I and Produced Water	97,590	133,173	133,173	133,173
Injection Well Disposal	84,571	119,539	146,358	146,970
Produced Water Land Disposal	30,931	42,285	15,466	3,093
Subtotal: Oil and Gas Produced Water Waste Disposal	114,794	161,824	161,824	150,063
TOTAL	243,737	333,655	333,655	333,655

Sources: Appendix t-1, Table 28 and DEIR Table 4.9-27; the 2012 summary includes a water balance closure factor of -4,104 as discussed in Table 7-12 above.

Table 7-16: Net Difference between DEIR Table 4.9-27 and Table 7-15 Projections (acre-feet)

	2012	Scenario 1 Pro-Rata Increase	Scenario 2 50% Surface Disposal Reduction	Scenario 3 Full M&I Water use Offset and 90% Surface Disposal Reduction
Water Supplied				
Produced Water	-	-	-	-

Table 7-16: Net Difference between DEIR Table 4.9-27 and Table 7-15 Projections (acre-feet)

	2012	Scenario 1 Pro-Rata Increase	Scenario 2 50% Surface Disposal Reduction	Scenario 3 Full M&I Water use Offset and 90% Surface Disposal Reduction
M&I Water	-	-	-	-
TOTAL	-	-	-	-
Water Use				
Treated Produced Water				
EOR water and steam injections, pressure maintenance and well pulling	-	-	-	-
Coil tubing, dust control, surface facility construction	-	-	-	-
Oil and gas produced water reuse	-	-	-	-
Agricultural reuse	5,887	5,887	5,887	5,887
Subtotal: Produced Water Reuse	5,887	5,887	5,887	5,887
M&I Water				
New Well Construction (Drill Mud+Well Stimulation)	-	-	-	-
Maintenance (Mud Services + Cementing)	-	-	-	-
Maintenance (Acidizing + Coil Tubing)	-	-	-	-
Maintenance (Well Pulling + Domestic Water)	-	-	-	-
Well Abandonment	-	-	-	-
Steam Production	-	-	-	-
Oil and gas M&I water demand	-	-	-	-
Subtotal: Oil and Gas Water Demand, M&I and Produced Water	-	-	-	-
Injection Well Disposal	-	-6,366	-6,241	-5,958
Produced Water Land Disposal	708	479	354	71
Subtotal: Oil and Gas Produced Water Waste Disposal	708	-5,887	-5,887	-5,887
TOTAL	-	-	-	-

Sources: GR Appendix 1, Table 28, DEIR Table 4.9-27, and Table 7-15 above; the 2012 summary includes a water balance closure factor of -4,104 as discussed in Table 7-12 above.

As shown in Table 7-15 and Table 7-16, the WSA revisions increase the amount of produced water reused for agriculture in 2012 from 32,771 acre-feet to 38,658 acre-feet, a net change of 5,887 acre-feet. Consistent with the methodology discussed in the DEIR and used to derive DEIR Table 4.9-27, the 2012 amount of produced water used for agriculture is assumed to be the same under future conditions, except in Scenario 3. The Scenario 3 projection assumes that agricultural reuse will increase from the 2012 level by 11,761 acre-feet in 2035 to fully offset the projected oil and gas demand for M&I quality water in that year. As shown in Table 7-16, the net difference between the amount of treated produced water used in 2012 and projected to be used for agriculture in the three 2035 scenarios in DEIR Table 4.9-27 and Table 7-15 is 5,887 acre-feet.

As shown in Table 7-15, the WSA revisions increase the amount of produced water land disposal in 2012 from 30,223 acre-feet to 30,931 acre-feet, a net change of 708 acre-feet. The slight increase in the net amount of produced water land disposal, and the increased use of treated produced water for agriculture in 2012 and in the three future scenarios, also generates minor changes to the amount of produced water land and injection well disposal in each scenario as follows:

Scenario 1 assumes that 2035 land and surface injection volumes will increase pro-rata from 2012 levels based on the applicants' estimated water demand increase by 2035 (see DEIR Section 4.9, "Methodology and Assumptions"). The final WSA 2012 land disposal volume increase from 30,233 acre-feet to 30,933 acre-feet results in a projected land disposal volume for Scenario 1 that is 479 acre-feet above the volume projected in the DEIR (42,285 acre-feet compared with 41,806 acre-feet in Table 4.9-27). As shown in Table 7-15, the volume of injection well disposal in Scenario 1 declines from 125,905 acre-feet in DEIR Table 4.9-27 to 119,539 acre-feet (-6,366 acre-feet). The reduced level of injection well disposal reflects the net increase of 5,887 acre-feet used for agriculture and 479 acre-feet of additional surface disposal in Scenario 1 attributable to the final WSA revision.

Scenario 2 is based on Scenario 1, and also assumes that produced water land disposal will be 50% below 2012 levels (see DEIR Section 4.9, "Methodology and Assumptions"). The final WSA revision of the 2012 land disposal volume from 30,233 acre-feet to 30,933 acre-feet results in a projected 2035 land disposal volume for Scenario 2 that is 354 acre-feet above the volume projected in the DEIR (15,466 acre-feet compared with 15,112 acre-feet in Table 4.9-27). As shown in Table 7-15, the volume of injection well disposal in Scenario 2 declines from 152,600 acre-feet in DEIR Table 4.9-27 to 146,358 acre-feet (-6,241 acre-feet). The reduced level of injection well disposal reflects the net increase of 5,887 acre-feet used for agriculture and 354 acre-feet of additional surface disposal in Scenario 2 attributable to the final WSA revisions.

Scenario 3 is based on Scenario 1 and assumes that produced water land disposal will be 90% below 2012 levels and that produced water agricultural reuse will increase by 11,761 acre-feet to offset projected oil and gas M&I water demand in 2035 (see DEIR Section 4.9, "Methodology and Assumptions"). The final WSA revision of the 2012 land disposal volume from 30,233 acre-feet to 30,933 acre-feet results in a projected land disposal volume for Scenario 3 that is 71 acre-feet above the volume projected in the DEIR (3,093 acre-feet compared with 3,022 acre-feet in Table 4.9-27).

As shown in Table 7-15, the volume of injection well disposal in Scenario 3 declines from 152,600 acre-feet in DEIR Table 4.9-27 to 146,970 acre-feet (-5,958 acre-feet). The reduced level of injection well disposal reflects the net increase of 5,887 acre-feet used for agriculture and 71 acre-feet of additional surface disposal in Scenario 3 attributable to the final WSA revisions.

E. Other WSA and WQA Changes

The final WSA (Appendix T-1) and final WQA (Appendix S-1) include certain additional adjustments to reflect the revised agricultural water reuse and land disposal volumes discussed above. The amount of produced water deliveries identified for the eastern subarea, and the Project Area as a whole, are increased by 5,887 acre-feet for the years 2015-2035 in Table 19 to be consistent with the additional use of treated produced water that was identified in the final WSA. Similarly, to reflect the additional use of 5,887 acre-feet of treated produced water for irrigation in the eastern subarea, the amount of water identified in Table 39 for "Agricultural Demand Raw and M&I Water" was reduced by 5,887 acre-feet, and the amount of water identified in the row "Agricultural Demand Produced Water" was increased by 5,887 acre-feet. Since the total agricultural water demand remains the same in the analysis, these changes do not affect the total supplies and demands in the project area for normal, dry and multiple dry years in the final WSA and in the DEIR. Table 5.1 in the WQA (Appendix S-1), which summarizes Project Area produced water generation and use, was revised to conform with the final WSA and water volumes were converted to acre-feet for ease of reference.

F. Clarification of Groundwater Use Estimates in Revised WSA and Basin Safe Yield

In response to comments, the revised WSA clarifies that the amount of groundwater use assumed in the regional supply and demand projections through 2035 does not, and was not intended to, represent the safe or sustainable yield for the Project Area.

As discussed in DEIR Section 4.9 and Section 4.17, and in Global Response Water-3, California recently enacted a Sustainable Groundwater Management Act (SGMA) that requires the implementation of a Groundwater Sustainability Plan (GSP), or a coordinated set of GSPs, by January 31, 2020 for virtually all groundwater basins in the Project Area. The GSP will be managed by one or more new Groundwater Sustainability Agencies (GSAs) that must be established for the Project Area by June 30, 2017. The purpose of a GSP is to achieve "sustainable groundwater management" within 20 years, which is defined as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results" (Water Code Section 10721(u)). The SGMA defines six basin management "undesirable results":

- Chronic lowering of groundwater levels (not including overdraft during a drought, if a basin is otherwise managed);
- Significant and unreasonable reductions in groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degradation of water quality;

- Significant and unreasonable land subsidence; and
- Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses (Water Code Section 10721(w)).

Groundwater basins within the Project Area are ranked as high- and medium-priority by the state and therefore are subject to the earliest GSA establishment and GSP enactment deadlines under the SGMA. California statewide groundwater elevation monitoring maps identify virtually all of the valley floor groundwater basins in the Project Area as "high priority" basins, and the Tulare Lake and Kern County basins are identified as being in a critical condition of overdraft. Prior to the enactment of the SGMA, several local governments and water districts (including Kern County) established the Kern Groundwater Authority as a Joint Powers Authority to provide a framework for the active, comprehensive management of the groundwater basin underlying the valley portion of Kern County, to preserve and maintain local control of groundwater resources and provide long term surety for all basin users.

As discussed in more detail in the revised WSA (Appendix T-1) the projected groundwater extraction rate used in the WSA assessment is not intended to represent the safe yield for the Project Area. Rather, it uses an historical mean extraction value for analysis purposes as the best available information prior to the implementation of the GSP for the basin. The historical mean extraction value used in the analysis does not represent the safe or sustainable yield for the Project Area. This assessment does not consider or identify a safe or sustainable yield for the Project Area. The GSP will identify the sustainable or safe yield that will avoid unsustainable extraction rates that could yield "undesirable results" (see Appendix T-1, Section 4.3.4.1 "Groundwater Extractions," Section 4.3.4.3, "Groundwater Supply Available in Project Area and Sub-Areas," and Section 7, "Comparison of Supplies and Demands" including the tables projecting supplies and demands through 2035 for normal/average, single dry and multiple dry years).

F. Summary and Evaluation of DEIR Impact Analysis and Findings

The final WSA revisions to Western and Eastern subarea produced water land disposal and Eastern Subarea produced water irrigation reuse result in an additional 5,887 acre-feet of treated produced water used for agriculture and an additional 708 acre-feet of produced water land disposal relative to the amounts assumed in the DEIR for the Project Area in 2012. The final WSA revisions also result in minor changes to the three water supply and demand scenarios considered in the DEIR through 2035, including: (a) treated produced water used for agriculture increases by a net amount of 5,887 acre-feet per year in all three scenarios; (b) produced water land disposal increases by a net amount of from 71 to 459 acre-feet depending on the scenario; and (c) produced water injection well disposal decreases by a net amount of -6,366 to -5,958 acre-feet depending on the scenario. None of these changes affect the total volume of Project Area produced water or the amount of oil and gas M&I water demand, and neither do they materially change any other oil and gas water use volumes in the Project Area during 2012-2035.

As shown in the final WSA (Appendix T-1), the increased amount of produced water reused for irrigation in 2012 and under future conditions slightly reduces the total regional demand for higher-quality water supplies, such as M&I or agricultural quality ground surface water assumed in the

DEIR. As discussed in the DEIR, Project Area water supplies have been significantly affected by continuing and severe drought conditions. The additional amount of treated produced water available for irrigation in the final WSA generates a small positive net water supply benefit, and slightly reduces the potential impacts associated with demands for higher quality ground or surface water, than the level assumed in the DEIR.

As discussed in GR-20-CCST concerns have been raised that treated produced water reused for agriculture could contain certain constituents, including well stimulation treatment chemicals, that are not currently subject to testing and monitoring requirements. Produced water reuse for agriculture is subject to regulation by the Central Valley Regional Water Quality Control Board (CVRWQCB). The CVRWQCB has convened a panel to consider food safety issues that may be associated with the use of produced water for irrigation. The DEIR requires compliance with laws and regulations, including CVRWQCB laws, regulations, waste discharge requirements or other permit terms and conditions that are and may become applicable to produced water reuse for irrigation in the future. As discussed in the DEIR, agricultural demand accounts for 2,667,687 acre-feet per year in the Project Area. An increase of 5,887 acre-feet from the 32,771 acre-foot level of produced water reuse for irrigation assumed in the DEIR represents just 1.4% (versus 1.23% at 32,771 acre-feet) of total annual Project area irrigation. The revised volume of produced water reuse for irrigation does not significantly affect the DEIR impact analysis and conclusions.

As shown in Table 7-15 and Table 7-16, the WSA revisions result in a reduction of the amount of produced water subject to injection well disposal under each of the future scenarios considered in the DEIR. The DEIR, GR Water-02, GR Water-06 [seismic analysis for produced water/CCST issue] discuss potential groundwater quality, seismic, hazard, and other potential impacts related to produced water well disposal. The DEIR requires that all project-related injection activity must comply with all applicable laws and regulations including all laws and regulations that protect underground sources of drinking water and groundwater quality. The volume of and potential impacts associated with produced water disposal injection attributable to the WSA revisions are either the same (2012) or lower (all three future scenarios) than analyzed in the DEIR. Consequently, the WSA revisions reduce the potential impacts associated with produced water well disposal and do not significantly affect the DEIR impact analysis and conclusions.

As shown in Table 7-15 and Table 7-16, the WSA revisions result in a slight increase in the amount of produced water land disposal in 2012 (+708 acre-feet) and in the future scenarios considered in the DEIR (+479 acre-feet in Scenario 1, +354 acre feet in Scenario 2, and +71 acre-feet in Scenario 3). The DEIR and GR Water-01 discuss potential ground and surface water quality and other impacts associated with produced water land disposal, including the ongoing surface disposal pond characterization and regulatory program implemented by the CVRWQCB in 2014. The DEIR requires that all project-related produced water land disposal must comply with all applicable laws and regulations, including all current or future laws and regulations that pertain to surface discharges in the Project Area. The volume of produced water land disposal attributable to the WSA revisions results in disposal volumes that are only 2.3% above the amounts assumed in the DEIR for 2012 and Scenarios 2 and 3, and 1.1% above the level for Scenario 1. These increases do not materially and significantly affect the DEIR impact analysis and conclusions.

The final WSA and final WQA do not change the Project Area water supply and demand analyses for normal, single dry, and multiple dry years. As discussed in the DIER, the Project Area has a significant supply deficit during dry years, and the project, even with mitigation intended to fully offset, if feasible, oil and gas use of higher quality water supplies by 2035, will contribute to significant and unavoidable impacts to regional water supplies. As a result, the final WSA and final WQA do not materially affect the DEIR analysis of water supply impacts, avoidance, minimization and mitigation measures.

At the request of DOGGR and the CVRWQCB, and additional analysis of produced water use was performed to account revised Public Resources Code Section 1786, which the agencies have indicated prohibits the surface disposal of any fluids from a well stimulation treatment, including produced water obtained after a well has been stimulated. The results of the analysis are included in the GR Water-05 and show that, in general, sufficient produced water from both stimulated and non-stimulated wells should be available in the Project Area for allocations consistent with the three 2035 scenarios considered in the DEIR.

Water-06: Response to Issue Raised in CCST Recommendations

Some commenters requested information and concerns about potential adverse impacts to shallow groundwater from WST activities. The California Council on Science and Technology's (CCST) July 2015 report on found that a significant amount of WST in California takes place in shallow wells that could be located close to drinking water aquifers. CCST suggested that WST operators should therefore be required to "provide adequate assurance that the expected fractures will not extend into [drinking water] aquifers and cause contamination." CCST also recommended that agencies and WST operators "develop protocols for increased monitoring, operational control, reporting, and preparedness." CCST 2015 at 34–38. Some commenters have questioned whether CCST's recommendations have been sufficiently addressed with respect to WST operators in Kern County.

As CCST explained, it found no documented instances of WST directly causing groundwater contamination in California. CCST 2015 at 34. Similarly, in the SB 4 EIR DOGGR acknowledged that, to date, no definitive studies have documented a subsurface release of contaminants affecting groundwater quality from WST in California. SB 4 Final EIR at 10.14-83. The U.S. Environmental Protection Agency (USEPA) has also issued a draft study which identified "mechanisms by which hydraulic fracturing activities have the potential to impact drinking water resources", but concluded that: "We did not find evidence that these mechanisms have led to widespread, systemic impacts on drinking water resources in the United States."

USEPA (June 2015), *Assessment of Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources*, p. ES-6; at http://alternativeenergy.procon.org/sourcefiles/epa-assessment-impacts-hydraulic-fracturing-june-2015.PDF.

In Kern County the majority of oil fields are present along the margins of the valley. Oil fields are typically defined by impermeable boundaries of lithified rock or faults (or both) that serve to contain fluids within the limits of the structure, and coupled with internal pumping programs that promote inward flow, serve to minimize any impact from migration of fluids outside of the boundary of the field into the adjacent alluvial aquifer. WST operations would likewise be managed within the field and be subject to the same impermeable boundary and inward pumping programs that would restrict movement of fluids outside the field boundary.

There have been no documented incidents of subsurface releases of WST fluid impacting groundwater. Hydraulic fracturing for shale gas production in other regions of the United States and Canada has been associated with some incidents of groundwater contamination; however those cases involved stray methane gas leaking into the groundwater, not WST fluid. Moreover, there is no evidence that fractures propagating from the zone of stimulation provided conduits for the methane gas. Rather, the few documented stray methane gas events were likely caused by poor well integrity allowing methane gas to migrate up the outer annulus of the wellbore and into shallow groundwater. The limited number of such incidents compared to extensive shale gas development led EPA to conclude that there was no evidence that hydraulic fracturing activities have caused widespread, systemic impacts to drinking water resources, as noted above.

Once released into shallow groundwater, methane tends to be rapidly consumed by microorganisms and attenuated. In addition, stray gas events appear to be spatially correlated with the presence of geologic hazards such as overlying pressured gas pockets, rather than the use of hydraulic fracturing. Similar geologic hazards are not present in the oil fields in California, which are depressurized and rely on artificial lift (mechanical pumping) for extraction.

CCST's recommendation for "protocols for increased monitoring, operational control, reporting, and preparedness" is addressed by regulations promulgated by DOGGR and the State Water Resources Control Board (State Water Board), as required by SB 4, to protect groundwater resources from potential contamination related to WST.

For example, through its *Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation*,[109] the State Water Board has instituted increased monitoring and reporting requirements. The State Water Board explained that its model criteria "outline the methods to be used for assessment, sampling, analytical testing, and reporting of water quality associated with [WST]." Model Criteria, p. 4. In addition to aquifers that are a potential source of drinking water, the State Water Board's model criteria also "consider the protection of water designated for any beneficial use" and therefore will protect a broader category of water than was considered by CCST. Model Criteria, p. 3. To obtain a WST permit WST operators will be required to have a groundwater monitoring plan that meets the State Water Board's criteria. 14 CCR § 1783.1(a)(27).

[109] http://www.waterboards.ca.gov/water_issues/programs/groundwater/sb4/docs/model_criteria_final_070715.pdf.

Other aspects of DOGGR's SB 4 regulations contain new measures for operational control and preparedness. For instance:

- 14 CCR § 1782 (General WST Requirements) requires operators to ensure that: well casing is sufficiently cemented; geologic and hydrologic isolation of the oil and gas formation is maintained; zones are isolated and sealed; WST fluids are only directed into the zones of interest; wellbore mechanical integrity is tested and maintained; WST fluids will not cause damage to well casing, tubing, cement or cause degradation to the well's mechanical integrity; any well breach occurring during WST is reported; and WST is conducted in compliance with applicable requirements of the Regional Water Quality Control Board (Regional Water Board) and other agencies. Section 1782 further requires that operators follow the intent of all well construction requirements, use good engineering practices and employ best industry standards. WST must be terminated if the conditions in section 1782 are not met.
- 14 CCR §§ 1783.2, 1783.3 (Notification, Water Testing) obligate WST operators to sample and test drinking and irrigation wells at the request of neighboring property owners.
- 14 CCR § 1784 (WST Area Analysis and Design) states that operators must: ensure the geologic and hydrologic isolation of the oil and gas formation; provide detailed well construction information for nearby wellbores; conduct a geologic evaluation to identify potential migration pathways for WST fluids; and design the WST so that treatment fluids and hydrocarbons do not migrate outside of the hydrocarbon formation.
- 14 CCR §§ 1784.1, 1784.2 (Pressure Testing, Cement Evaluation Prior to WST) mandate that, prior to commencing WST, operators pressure test cemented casing strings, tubing strings, pumps, and all equipment downstream of pumps. The operators are also required to conduct a cement evaluation on the well to undergo WST.
- 14 CCR § 1785 (Monitoring During WST) states that operators must monitor the pressure of the well annulus, tubing, and casing while WST is ongoing. If a breach is discovered, the operator must immediately shut-in the well, isolate the perforated interval, and notify DOGGR and the Regional Water Board.
- 14 CCR § Section 1787 (Monitoring After WST) requires operators to monitor each producing well that has undergone WST to identify potential problems that could endanger any underground source of protected water or hydrocarbon zone. If well failure is detected, the operator must notify DOGGR and the Regional Water Board and prevent contamination of underground sources of protected water, hydrocarbon zones, and surface waters in the area of the well.

Because DOGGR's final WST regulations (effective July 1, 2015), the State Water Board's final groundwater monitoring criteria (adopted July 7, 2015) and CCST's report (published July 9, 2015) were all being developed at the same time, CCST could not rely on these regulations and groundwater monitoring criteria when it was finalizing its analysis and recommendations. However, these new DOGGR WST regulations, and the new State Water Board monitoring criteria, specifically address the concerns raised by CCST. As EIR explains, all WST operators in Kern

County are required to comply with the SB 4 regulations and the State Water Board's groundwater monitoring criteria. *See also* MM 4.9-1 (applicants must comply with all applicable water quality protection laws and regulations). Additional information about the CCST report in relation to the Draft EIR is provided in GR-9.

Water-07: SB 1281 Industry Water Use Reports

"How do the new industry water use reports submitted to and published by the Division of Oil, Gas and Geothermal Resources under the new reporting provisions of SB 1281 compare to the information in the draft EIR?"

As discussed in DEIR Section 4.9, Senate Bill 1281 (SB 1281), effective January 2015, amended Sections 3226.3 and 3227 of the Public Resources Code to require that: (1) DOGGR provide the SWRCB with an annual "inventory of all unlined oil and gas field sumps"; and (2) well operators provide DOGGR with quarterly information regarding the source and disposition of water produced by or used in oil and gas production in addition to existing obligations to report gas and oil production and produced water information on a monthly basis. The first quarterly reports pursuant to SB 1281 were due from well operators by June 1, 2015.

In August 2015, DOGGR released a report entitled the "SB 1281 Water Report Summary" and four spreadsheets covering information submitted by oil well operators for the first quarter of 2015 (ftp://ftp.consrv.ca.gov/pub/oil/SB1281/2015%20Q1/SB1281_First_Quarter_2015_Summary_Report.pdf, accessed August 2015). The four spreadsheets include the submitted data on "Quarterly Water Production," "Quarterly Water Injection," and "Quarterly Other Water Allocation" as well as a "Quarterly Well Allocation List" (ftp://ftp.consrv.ca.gov/pub/oil/SB1281/2015%20Q1/Database%20Files/, accessed August 2015). The report indicates several operators were unable to submit the required reports by June 1, and that other submissions were returned by DOGGR to correct data format errors. According to DOGGR, the new SB 1281 requirements increase the information that operators must provide for each well from 2-4 to 121 data elements, and include as many as "144 new possible data elements" covering oil field water use. As a result, DOGGR has estimated that the August report includes information for approximately 59% of the produced water and 41% of the injected water in the state during the first quarter of 2015. DOGGR did not validate the accuracy of the operator reported data.

Due to the data and coverage issues identified in the DOGGR report, it is not possible to precisely compare the annual water use estimates for the Project Area with the partial statewide water use data for the first quarter of 2015 summarized in the DOGGR report. Certain of the reporting categories in the report also appear to overlap with some of the Project Area water uses discussed in the DEIR. The DEIR, for example, differentiates between the Project Area injection that reuses produced water for oil and gas production, such as enhanced oil recovery (EOR) steam or water injection, and injection for disposal purposes in Class II wells. The SB 1281 reporting format appears to group all water "injected into the subsurface of the same oil field and operator, from which it was produced" in a single "subsurface injection" category and does separately identify injection for production purposes and waste disposal. The DOGGR report includes a second produced water disposal category that is referenced as "sale/transfer oil field produced" water and that is defined in the SB

1281 report format as water "sold or transferred to another operator or oil field." As discussed in the DEIR, most produced water is usually either reused by operators for EOR and other production purposes or disposed in surface or subsurface facilities. The uses of the water volumes listed as having been sold or transferred to another operator or oil field in the SB 1281 report are not identified, but it appears likely that portions of this water are also injected for production purposes or subject to disposal.

Notwithstanding these considerations, the data summarized in the August report is broadly consistent with the relative proportion of produced water, water disposal and fresh (municipal and industrial) water use estimates for the Project Area. The following discussion utilizes the information summarized in Table 3, "Disposition methods of produced water, including water suitable for domestic or irrigation use" of the SB 1281 report. As discussed above, DOGGR has estimated that the produced water information for the first quarter of 2015 under the new SB 1281 reporting requirements covers the largest percentage (59%) of statewide activity for which information was available during this period.

A total of 65,279 acre-feet of produced water in the state was reported during the first quarter of 2015. Of that amount, 40,206 acre-feet, or 61% was subject to "subsurface injection" in the DOGGR data. The report also states that about 16,702 acre-feet, or 25.4% of the produced water was disposed by "sale/transfer for oil field use." As discussed above, a proportion of this water may also have been injected for production purposes or disposal. Assuming that half (8,351 acre-feet, or 12.7% of the total produced water in the category) of the "sale/transfer for oil field use" volume was reinjected, about 61% to 73.7% of the reported produced water volume could have been injected during this period. The DEIR estimates that 239,949 of produced water was generated in the Project Area during 2012. Of that amount, 173,383 acre-feet (88,688 acre feet for EOR and other production-related reuse, and 84,571 acre-feet of disposal in Class II injection wells), or 74% of the total amount of produced water, was reinjected in 2012. Consequently, subject to the data and nomenclature limitations discussed above, the ratios of the volume of produced water generated to the volume of produced water injection in the SB 1281 report and in the DEIR analysis are reasonably consistent.

A total of 691 acre-feet, or 1%, of produced water in the state was disposed into unlined surface sumps or ponds during the first quarter of 2015. As discussed in the DEIR and in Global Response 01 [Water Revisions] , about 30,931 acre-feet, or 13% of the produced water in the Project Area was disposed into surface ponds in 2012. The differences between the ratios of sump or pond disposal and produced water volumes in the SB 1281 report and the DEIR likely reflect several factors. The SB 1281 data provides a partial summary of statewide activities, and it is possible that the not yet available operator reports covering about 41% of the state will include a larger amount of surface water disposal. Surface pond use may be more prevalent in the Project Area than in other portions of the state that are included in the SB 1281 report. As discussed in the DEIR, in response to regulatory concerns, operators have been reducing the use of surface disposal ponds and increasingly using Class II injection wells. It is possible that the 2015 first quarter data in the SB 1281 report reflects the increased use of Class II injection wells since 2012. Finally, certain of the SB 1281 reporting

format categories, such as disposal by "Other (commercial disposal, industrial, etc.,)" and the "sale/transfer for oil field use," may include water that is eventually disposed to surface ponds.

A total of 6,469 acre-feet, or 10% of the produced water generated statewide in 2012 was subject to "sale/transfer for domestic use." The SB 1281 reporting category is defined as water "used for agriculture, irrigation, water replenishment, water banking, livestock, etc." As discussed in in the DEIR and in Global Response 07, about 38,658 acre-feet, or 16% of the produced water in the Project Area. Was reused for agriculture in 2012. Subject to the data and nomenclature limitations discussed above, and the fact that significant amounts of agricultural activity are conducted in the Eastern Subarea, where relatively high-quality produced water is available, the ratio produced water reused for agriculture in the SB 1281 report and in the DEIR analysis are reasonably consistent.

A total of 1,583 acre-feet, or 3.9% of the 40,206 acre-feet listed as subject to "subsurface injection" in the SB 1281 report was also identified as water "suitable for domestic or irrigation." As discussed in in the DEIR, about 7,279 acre-feet of higher-quality water that could be used for municipal and industrial (M&I) purposes was used in the Project Area for supplemental EOR steam production and injection purposes in 2012. The total amount of Project Area injection including the use of M&I quality water was 182,161 acre-feet. M&I water accounted for about 4.2% of this total. Subject to the data and nomenclature limitations discussed above, the ratios of higher-quality water used for injection in the SB 1281 report and in the DEIR are reasonably consistent.

Water-08: Produced Water Irrigation

A number of commenters have raised concerns regarding the use of treated oil field produced water to irrigate Central Valley crops. This Global Response is intended to address these concerns in a single response. Comments not addressed by this Global Response are addressed in individual responses to comments.

Use of Produced Water for Agricultural Irrigation in Kern County

As described in Chapter 4.9 – Hydrology and Water Quality (pp. 4.9-139-140) and Chapter 4.17 – Utilities and Service Systems (DEIR pp. 4.17-12-13, 20), approximately 234,959 acre feet (AF) of produced water was generated in the Project Area during the 2012 baseline period. Approximately 14% of this total (32,771 AF) was treated and supplied to the Cawelo Water District (CWD) for agricultural irrigation. Subsequent data provided to the Central Valley Regional Water Quality Control Board (CVRWQCB) indicated that the total amount of treated produced water provided to CWD was 32,491 AF, or slightly less than the more conservative estimate in the Draft EIR.

The treated produced water was supplied by Chevron and the Valley Water Management Company, totaling approximately 700,000 barrels of treated produced water per day. The produced water supplied to the CWD from oil field operations is treated before being supplied to CWD. CWD then blends this water with fresh water from other sources in CWD's "Reservoir B". The blended water is then sent through CWD's canal system, where additional fresh water is added and farmers are then able to draw water for irrigation.

The treated produced water entering and exiting "Reservoir B" is regulated by Waste Discharge Requirements (WDRs) established by the Central Valley Regional Water Quality Control Board (CVRWQCB), and those requirements are based on the Tulare Lake Basin Plan.

Further, since the 1980s, California Resources Corporation (CRC) has been transferring produced water to CWD via the Valley Water Management Company. In recent years, the total produced water transfers have been in the range of approximately 5,300-5,500 AFY. Additionally, CRC has entered into an agreement to transfer produced water to North Kern Water Storage District ranging from approximately 11,700 AFY up to approximately 21,200 AFY. These water transfers have undergone their own respective reviews and are not covered by this EIR.

Quantities of produced water used for agricultural irrigation are also addressed in the WSA (Appendix T), with minor corrections noted in revised Appendix T and in GR Water 5. New regulatory restrictions on surface disposal of produced water containing well stimulation treatment (WST) fluids are addressed in GR 1; these new regulations apply to the disposal of WST fluids in surface impoundments such as ponds and sumps, but would also be considered in evaluating treatment and irrigation uses of produced water containing WST fluids.

Los Angeles Times Coverage

As noted in the DEIR (p. 4.9-57), a Los Angeles Times article published May 3, 2015 focused on what it called "concern over the adequacy of safety measures in place to prevent contamination from toxic oil production chemicals" based on sample results reportedly obtained by a third party. (Cart, *Central Valley's growing concern: Crops raised with oil field water* (May 2, 2015) Los Angeles Times <http://www.latimes.com/local/california/la-me-drought-oil-water-20150503-story.html> [as of Aug. 26, 2015].) The validity of the sample results cited in the article has been contested. A subsequent article, published June 20, 2015, explained that subsequent testing of the treated produced water supplied to the CWD, which was submitted to the CVRWQCB, demonstrated that the tested samples contained traces of petroleum hydrocarbons, "but at concentrations considered safe for drinking and well below the maximum level" established by the CVRWQCB WDRs. (http://www.latimes.com/local/california/la-me-oil-water-tests-20150620-story.html). On July 1, 2015, the Los Angeles Times reported that the testing also confirmed "no traces of methylene chloride" in the water. (http://www.latimes.com/local/california/la-me-0702-chevron-water-20150702-story.html). According to this article, "all test results to date show that water supplied by Chevron [to CWD] is in compliance with the company's permit from the water board." The various data submitted to the CVRWQCB are available at:

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/valleywater_mgmtco/2015_0616_com_vwmc.pdf

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/valleywater_mgmtco/2015_0701_com_vwmc_add.pdf

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/valleywater_mgmtco/2015_0616_com_vwmc_lab_data.pdf

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/valleywater_mgmtco/2015_0701_com_vwmc_lab_data1.pdf

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/valleywater_mgmtco/2015_0701_com_vwmc_lab_data2.pdf

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/valleywater_mgmtco/2015_0701_com_vwmc_lab_data3.pdf

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/chevron/2015_0615_com_chevron_cawello.pdf

http://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/chevron/2015_0626_com_chevron_add.pdf

SB 4 Independent Scientific Assessment of Well Stimulation Treatments

Pursuant to SB 4, the California Natural Resources Agency commissioned the California Council on Science and Technology (CCST) to conduct an independent scientific assessment of well stimulation treatments, including hydraulic fracturing, in California. The purpose of the report was to synthesize and assess the available scientific information associated with well stimulation treatments in California. The review surveyed hydraulic fracturing, matrix acidizing, and acid fracturing as applied onshore and offshore for oil and gas production in the state. The study work scope was organized in three major areas: (1) Overview of Well Stimulation in California; (2) Impacts on water, air quality, greenhouse gases (GHGs), induced seismicity, ecology, traffic, noise; and (3) Case studies to assess environmental issues and qualitative hazards.

The CCST study identified the Kern River Oil Field as a location where hydraulic fracturing of wells has occurred. The study found that "produced water from oil fields that have been hydraulically fractured may contain hazardous chemicals and chemical by-products" and that the Kern River Oil Field is "the only … oil field where both hydraulic fracturing occurs and farmers use produced water for irrigation." (CCST Study, p. 45). Further the CCST study concluded that "required testing and treatment of produced water destined for reuse may not detect or remove chemicals associated with hydraulic fracturing and acid stimulations" and recommended that steps be taken to "[p]rotect irrigation water from contamination by hydraulic fracturing chemicals and stimulation reaction products."

Chevron has contested the CCST study's finding that Chevron is hydraulically fracturing wells in the Kern River Oil Field and the attendant implication that produced water from the Kern River Oil Field being sold to the CWD for agricultural irrigation may contain hydraulic fracturing fluids or related chemicals. [Chevron 2015]. Chevron claims that (1) it does not use hydraulic fracturing in the Kern River Oil Field; (2) the CCST misidentified Chevron wells as having been hydraulically fractured in 2012 and 2014; and (3) the CCST extrapolated that error based on the percentage of well files reviewed to incorrectly conclude that approximately two hydraulic fracturing operations occur per year.

On August 25, 2015, the Senate Natural Resources and Water and Assembly Natural Resources Committees convened for a joint informational hearing on *Hydraulic Fracturing and Well Stimulation Treatments in California – What the Science Says*. During the informational hearing, the CCST presented its findings and the Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR), and State Water Resources Control Board (SWRCB) were given the opportunity to respond to the issues raised by the CCST. Video of the hearing is available at: http://calchannel.granicus.com/MediaPlayer.php?view_id=7&clip_id=3148.

DOGGR Supervisor Steve Bohlen testified that existing regulations in place have given DOGGR a high degree of confidence in their monitoring of current well stimulation activities and understanding of the limited geographical scope where well stimulation occurs. He further testified that DOGGR has made staffing changes to assure that "clean water regulations are followed."

SWRCB Director Jonathan Bishop testified concerning the Board's developments relating to regulation of oil and gas activities, as well as on the recommendations from CCST. Given limited water supplies in the State due to the current drought, Director Bishop testified that the SWRCB is looking at treatment of produced water so that all water in the state can be used to the greatest extent. Director Bishop indicated that it is important to recognize that oil and gas production also extracts water which the state can put to use after treatment rather than injecting it. Regarding concerns over the use of treated water, Director Bishop indicated that testing and monitoring are already in place for water that is to be used or reused at the surface. Water used for beneficial uses has to have a permit from the regional boards, which places limits on constituents in the water and requires monitoring. SWRCB is evaluating whether it needs to provide more regulatory action.

Central Valley Regional Water Quality Control Board Technical Advisory Committee

The CVRWQCB has formed a technical advisory committee of food safety experts to examine the issue and analyze the recent test results on treated produced water provided to CWD. The group contains experts from the California Department of Public Health and the State Department of Food and Agriculture, and is advising CVRWQCB officials about food safety and any additional testing or requirements that may be needed. CVRWQCB officials have indicated that they are "working our way through the process", and that "[t]his is a priority issue for them." (Cart, *Central Valley's growing concern: Crops raised with oil field water* (May 2, 2015) Los Angeles Times <http://www.latimes.com/local/california/la-me-drought-oil-water-20150503-story.html> [as of Aug. 26, 2015].)

Mitigation Measure 4.8-16

To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report, this EIR has added MM 4.8-16, requiring toxicity testing as included in Section 7.1.4.

Conclusion

Current data concerning the treated produced water reused by CWD for agricultural irrigation demonstrates that the standards for such water established pursuant CVRWQCB-issued WDRs have been met. The CVRWQB, which has regulatory oversight concerning this matter, will continue to review and monitor these results and require additional testing as necessary. The CVRWQCB has also assembled a technical advisory committee of food quality experts to review the issue. Because the DEIR assumes that the same level of produced water will be available for reuse for agricultural irrigation throughout the Project term and that existing regulatory standards will continue to be followed, the Project does not result in a significant change to baseline conditions warranting additional mitigation.

Further, there is currently significant conflicting information about whether Chevron is undertaking hydraulic fracturing in the Kern River Oil Field that could result in fluid or chemicals from that activity being present in treated produced water used for agricultural irrigation. As described above, there is an ongoing regulatory dialogue concerning the need to promote increased reuse of treated produced water given the current drought, whether additional testing and monitoring of produced water is necessary, and what, if any, additional requirements or other steps are necessary. While this regulatory discussion continues, this EIR implements new MM 4.8-16, which further addresses this issue and supports the County's conclusion that potential impacts from reuse of produced water for agricultural irrigation is less than significant.

Alt-1: Alternatives Eliminated from Consideration

Several comments were submitted concerning the EIR's elimination of certain Project alternatives from detailed consideration in Draft EIR Chapter 6, *Alternatives*. This Global Response is intended to address these related concerns in a single response. Comments on these alternatives screened from detailed consideration that are not addressed in this Global Response are addressed the individual responses to comments.

Basis for Elimination of Drilling Ban on All Land Alternative

As explained on Draft EIR page 6-12, the Drilling Ban on All Lands Alternative would prohibit all oil and gas activities throughout the Project Area. The Draft EIR concludes that this alternative is legally infeasible due to existing legal restrictions on the County's authority to prohibit access to subsurface mineral interests without liability. Several comments challenge this conclusion on the basis of caselaw upholding drilling bans in other jurisdictions. As explained below, the commenters misconstrue the EIR. The Draft EIR does not conclude that the County lacks authority to enact a drilling ban throughout the Project Area, as commenters claim. Rather, the Draft EIR concludes that enactment of a drilling ban would imprudently subject the County to unreasonable legal liability.

CEQA does not require the Draft EIR to consider alternatives that are infeasible. 14 Cal. Code Regs. §§ 15126.6(a); 15126.6(f)(1). The term "feasible" is defined to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." 14 Cal. Code Regs. § 15364

(emphasis added). On this basis, the County may appropriately determine that an alternative is legally infeasible if it would conflict with applicable regulatory limitations. *See City of Maywood v. Los Angeles Unified School Dist.* (2012) 208 Cal.App.4th 362, 417. The County may also appropriately determine that an alternative is infeasible upon a showing that such alternative is not economically viable. 14 Cal. Code Regs. § 15126.6(f)(1); *see also Uphold Out Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 600; *San Franciscans Upholding The Downtown Plan v. City & County of San Francisco* (2002) 102 Cal.App.4th 656, 693. Here, the County's enactment of an outright ban on oil and gas activities throughout the Project Area is infeasible because it would conflict with applicable regulatory limitations and would imprudently expose the County to significant and unreasonable legal liability, as explained below.

There is no question that the County has broad police power authority to regulate land use. As some comments correctly point out, the California constitution authorizes cities and counties to "make and enforce all ordinances and regulations in respect to municipal affairs." On the basis of this authority, the California Supreme Court has upheld local zoning regulations that limit or ban oil and gas land uses. *See, e.g., Beverly Oil Co. v. City of Los Angeles* (1953) 40 Cal.2d 552, 558 ("*Beverly Oil*") (zoning restrictions on oil drilling "is not of itself an unreasonable means of accomplishing a legitimate objective within the police power of the city."); *Hermosa Beach Stop Oil Coalition v. City of Hermosa Beach* (2001) 86 Cal.App. 4th 534, 555 ("*Hermosa Beach*") ("Enactment of a city ordinance prohibiting exploration for and production of oil, unless arbitrary, is a valid exercise of the municipal power.") These cases, however, merely recognize a local agency's authority to ban oil drilling pursuant to the police power. Indeed, the Draft EIR, at page 6-23, expressly affirms the County's "broad discretion to regulate oil and gas activities within its jurisdiction" and California oil and gas law expressly reserves for cities and counties the right to "enact and enforce laws and regulations regulating the conduct and location of oil production activities." Cal. Pub. Res. Code § 3690.

The police power is not unlimited, however. Pursuant to the Fifth Amendment to the U.S. Constitution (applicable to the states through the Fourteenth Amendment), and Article I, Section 19 of the California Constitution, zoning regulations may not be so oppressive that they effect a taking of private property without just compensation. *See Kavanau v. Santa Monica Rent Control Bd.* (1997) 16 Cal.4th 761, 859. This principle of law was first established in the seminal case *Pennsylvania Coal Co. v. Mahon*, wherein the U.S. Supreme Court held that a land use regulation that "goes too far" may effect a taking of that property, even though title to such property remains in private hands. *See* (1922) 260 U.S. 393, 415. Notably, in *Pennsylvania Coal*, the Court determined that a land use regulation prohibiting extraction of privately owned subsurface minerals did indeed "go too far" and effected an unconstitutional taking without just compensation. *Id.*

Since *Pennsylvania Coal*, both the United States Supreme Court and the California Supreme Court have established that a regulation that deprives "all economically beneficial or productive use" of private property effects a *per se* taking of such property. *See Kavanau* at 774 (*citing Lucas v. South Carolina Coastal Council* (1992) 505 U.S. 1003, 1015). Indeed, a regulation that stops short of destroying all economically beneficial use of private property may nevertheless effect a taking depending on the economic impact of the regulation, the extent to which the regulation interferes

with distinct investment-backed expectations, and the character of the governmental action. *See Kavanau* at 775-776 (citing *Penn Cent. Transp. Co. v. N.Y.* (1978) 438 U.S. 104, 124). In either case, "the property owner may bring an inverse condemnation action, and if it prevails, the regulatory agency must either withdraw the regulation or pay just compensation. Even if the agency withdraws the regulation, the property owner may have the right to just compensation for the temporary taking while the regulation was in effect." *Id.* at 773

As recognized by the California Supreme Court, the owner of a mineral interest "has a property right in oil and gas beneath the surface" that includes "the exclusive right to drill[.] … This is a right which is as much entitled to protection as the property itself, and an undue restriction of the use thereof is as much a taking for constitutional purposes as appropriating or destroying it." *Bernstein v. Bush* (1947) 29 Cal.2d 773, 778 (internal citations omitted.) Thus, California courts have held that land use regulations that provide "no adequate means of protection or substitute for their right to extract oil" effects a compensable taking of private property. *See, e.g., Braly v. Board of Fire Com'rs. of City of Los Angeles* (1958) 157 Cal.App.2d 608, 616; *Bernstein v. Bush* (1947) 29 Cal.2d 773, 780. Similarly, federal law recognizes that owners of oil and gas interests "have the right to reduce to possession the oil and gas beneath the surface, and that they could not be absolutely deprived of that right without a taking of private property." *Ohio Oil Co. v. Indiana* (1900) 177 U.S. 190, 209. In this case, the Drilling Ban on All Lands Alternative, if adopted, would deprive the affected mineral owners the right to extract oil and gas beneath the surface, effectively denying them "all economically beneficial or productive use" of their private property. Thus, under *Kavanau* and *Lucas*, adoption of this alternative would expose the County to potentially substantial legal liability.

As explained in the Draft EIR, Section 4.11, *Mineral Resources*, Kern County leads the state in oil and natural gas production. Kern County produced 77% of California's in-state oil in 2012 and about 64% of the state's total natural gas. Kern County's Elk Hills oilfield is the state's top natural gas producer. Two other fields, South Belridge and Lost Hills, rank in the state's top five for gas production. The state's top five oil producing fields—Midway-Sunset, South Belridge, Kern River, Cymric, and Elk Hills—are located within the Project Area. Three of these fields—Midway-Sunset, South Belridge, and Kern River—are ranked in the top 10 producing oilfields in the nation. Specifically, Kern County produced 141.69 million barrels of oil and 143.16 million cubic feet of natural gas in 2012. The historic production of oil and natural gas in Kern County, from 2002 to 2012, is provided in Draft EIR Chapter 3, Project Description (Table 3-3). As of 2014, of the 100 administrative wellfields located within Kern County, 76 are active fields that continue to produce oil and natural gas.

Kern County is a leading oil-producing county in the nation, yielding approximately 145 million bbl of oil and 132 billion CF of gas annually, according to 2014 DOGGR data. These amounts represent 71% of California's oil production and 10% of the total U.S. oil production. Kern County produces 66% of the state's total gas production (KCEDF, 2015). The oil and gas industry has the highest gross domestic product and tax contribution level in the County. The industry generates significant regional economic activity. Extraction, production, refining, and petroleum product manufacturing result in highly tradable products that are consumed domestically and are also exported. These efforts produce high revenues, create high wage jobs, and contribute significant tax revenue to all

levels of government. The impact of the oil and gas industry is very far-reaching. The approximately $3.8 billion paid in 2013 to local oil and gas employees creates a significant "ripple effect" phenomenon in the local economy. Direct activity includes the materials purchased and the employees hired by the industry itself. Indirect effects are those which stem from the employment and business revenues motivated by the purchases made by the industry and any of its suppliers. Increased output generates new money in the community, resulting in increased spending on new homes, durable goods such as cars and appliances, plus additional spending on restaurants and entertainment options.

In 2009, oil reserves in Kern County were estimated at 1,395,171 mbbl, as shown in Table 7-17, below (DOGGR, 2009). Production information available from DOGGR between 2010 and 2014 shows that approximately 720 mbbl were extracted from oilfields in Kern County, for a total reserve of approximately 1,394,450 mbbl of oil, as shown in Table 7-18, below (DOGGR, 2010, 2011, 2012, 2013, 2014). At the current price of $50 per barrel of oil, the Kern County reserves estimated value is $62 billion, and at an average yearly (July 2014 – July 2015) price of $75.60 per barrel of oil the estimated value is $105 billion.

Table 7-17: 2009 Kern County Oil Reserves

District 4	
Kern County Oil Field	**2009 Reserves mbbl**
Buena Vista	5,460
Cymric	78,784
Elk Hills	62,301
Fruitvale	9,173
Kern Front	17,990
Kern River	569,417
Lost Hills	123,699
McKittirck	13,574
Mount Paso	6,344
Mountain View	659
North Belridge	17,460
Round Mt.	7,113
Semitropic	310
South Belridge	482,887
Total	**1,395,171**

Table 7-18: District 4 Production from 2010 to 2014

(bbl)
148,949,301
143,286,239
141,693,959

Total Kern County taxable property value for the fiscal year beginning July 1, 2015 is $89.2 billion, representing an $8.5 billion decrease or a 9% decline from the prior fiscal year. A decline in overall Kern County assessed property values was anticipated due to the recent plunge in oil and gas prices and underscores the role of oil and gas as an economic asset in Kern County. The mineral roll represented approximately one third of assessed values for the 2014-2015 tax year but is down to less than one quarter of the county's total assessment for the new fiscal year, 2015-2016 (Kern County Assessor Recorder, http://www.recorder.co.kern.ca.us/). Based on one quarter of the County's total assessment, approximate mineral roll represents a value of $22.3 billion in Kern County.

Kern County's oil and gas industry also significantly impacts the community through its philanthropic activity and contributions to local education efforts. More than $5.5 million was donated to more than 130 local non-profits and educational programs in 2014. Kern County's two community colleges, California State University - Bakersfield, and K-12 funding are the most frequent beneficiaries of the financial support. Social service non-profits (*e.g.*, the Homeless Center / Alliance Against Family Violence) and health-related organizations (*e.g.*, the American Heart Association) also rank among the top recipients (KCEDF, 2015). These economic benefits would be lost or severely curtailed if oil and gas drilling activities were banned throughout all or a significant portion of the Project Area, as contemplated by the Drilling Ban on All Lands Alternative.

As demonstrated by the above data, a complete ban of oil and gas activities within the Project Area would cause enormous economic impacts throughout the County and the state and would adversely impact the investment-backed expectations of Project Area mineral owners, including both individuals and companies. Even a moratorium on drilling would raise similar concerns regarding the County's ability compensate for lost value for the duration of the moratorium using General Fund proceeds derived in large part from taxes on oil and gas production. Mineral and petroleum resources are a fundamental element of Kern County's employment base and overall economy. As new recovery technologies come into use, petroleum extraction should continue its economic importance. Even as California ramps up state laws to promote renewable energy resources and alternative transportation fuels, experts continue to recognize that oil and gas production will continue to be critical, and domestic oil and gas production remains a vital national interest. In sum, a ban on oil and gas activity in Kern County is not feasible within the meaning of CEQA.

The Drilling Ban on All Lands Alternative was also eliminated from consideration because would not meet most of the Project objectives, as described on Draft EIR pages 6-9 through 6-10. Please also see Global Response 1, Ministerial Permit Process, and Global Response 2, Project v. Program EIR.

Basis for Elimination of the Drilling Ban on Agriculturally Productive Land Alternative

As explained on Draft EIR page 6-11, the Drilling Ban on Agriculturally Productive Land Alternative is identical to the Project, except that it would prohibit all oil and gas activities on land zoned either Exclusive Agricultural (A) or Limited Agricultural (A-2) if such land is being used for

agricultural production at the time of drilling permit application. These zoning districts comprise approximately 90% of the Project Area.

As explained in the Draft EIR, if this alternative were adopted, the owners of mineral rights underlying agricultural lands subject to the drilling ban would be forced to access such minerals, if at all, from adjacent lands that are not subject to the ban. This would entail the use of directional and horizontal drilling techniques, which may not be technologically or economically feasible, depending on geologic conditions. As explained in Draft EIR, Appendix U, Kern County Drilling and Hydraulic Fracturing Comparison Memo, faulting and folding in Kern County has created more complex geology with less lateral continuity that in most other oil and gas plays. In the Project Area, most reservoirs are contained within highly complex geologic settings that vary greatly (AECOM, 2015).

Reservoir geometry is often modified by complex structural environments where faulting creates isolated "rooms" within the geometry of the containing structure. This can be likened to a pane of glass that has been broken into various sized pieces and trying to place the well on the smallest piece on the bottom of a stack of ten layers. Additionally, while reservoir geometry is complicated by structural overprinting, the reservoir characteristic, notably porosity and correspondingly permeability, is controlled by subtle differences in the lithology of the rock matrix. This added complexity serves to greatly complicate the design of a well drilling and completion program, and requires flexibility in well design and drilling technique to provide safe, environmentally sound, and efficient oil production.

Drilling only horizontal wells in order to access the geologic structures beneath agricultural lands substantially limits the feasibility of the drilling program and securing the optimal completion geometry. Moreover, this limitation could lead to more horizontal wells being drilled, which in fact would add environmental impacts potentially to the point of being greater than if the drilling was allowed vertically on the agricultural land in the first place. Such increased impacts could include increased traffic and related air emissions, increased potential for injury, and increased or intensified habitat disruption posed by densely clustered well drilling pads that may be necessary to conduct only horizontal drilling operations surrounding agricultural lands. While horizontal drilling may be suitable in some conditions, it is overly restrictive and possibly more environmentally damaging to require that all wells be completed via horizontal drilling in proximity to agricultural lands.

In addition, where feasible, the directional and horizontal drilling assumed by this alternative is reasonably expected to require longer drilling periods to reach the mineral source than would be necessary to complete a vertical well. Longer drilling periods mean increased levels of construction-related emissions. It is therefore reasonable to assume that directional and horizontal well development activities under this alternative would cause greater emissions than would occur if the wells were drilled vertically under Project conditions. Thus, while this alternative would have the environmental benefit of impacting fewer acres of agriculturally productive land, it would may exacerbate overall emissions of criteria pollutants for which the air basin is in nonattainment. Moreover, is some cases, this alternative might cause land disturbance impacts to relatively undisturbed land cover types as compared to adjacent agriculturally productive land, in which case

this alternative could result in additional impacts to biological and cultural resources that would not occur were the well operator able to access overlying agricultural land for drilling purposes.

As discussed above, this alternative has the potential of reducing one significant Project impact (i.e., cumulative agricultural impacts), while exacerbating other significant Project impacts (e.g., cumulative air quality impacts, cumulative biological impacts, cumulative cultural impacts). Thus, on balance, this alternative would not offer significant environmental advantages, as compared to the Project, and is property eliminated from consideration in the EIR.

Given the unconventional geology of the Project Area, it is also reasonable to assume that, in some instances, the owners of mineral interests underlying agriculturally productive lands will not be able to feasibly exercise their mineral rights as a result of the drilling ban assumed by this alternative. In such cases, this alternative would arguably destroy all economically beneficial or productive use of such mineral interests, thus exposing the County to economic harm and unreasonable legal liability for the same reasons detailed in the above discussion of the Drilling Ban on All Lands Alternative. Accordingly, the Drilling Ban on Agriculturally Productive Land Alternative was eliminated for consideration on the additional basis that it is legally and economically infeasible.

Basis for Elimination of the Fewer Wells Within the Project Footprint Alternative

As explained on page 6-13 of the Draft EIR, the Fewer Wells Within the Project Footprint Alternative (the "Fewer Wells Alternative") would amend Chapter 19.98 of the Kern County Zoning Ordinance to cap the number of oil and gas drilling permits issued by the County at 1,500 per calendar year, an amount significantly less than the 2,697 new producing wells (3,647 total wells) the EIR evaluates as being be drilled in the Project Area on an annual basis over the next 20 years. As some comment's point out, though this alternative would cap the annual number of available permits at 1,500, it would allow for some level of industry grown each year, albeit less growth than would occur under Project conditions. This alternative was rejected for analysis, however, on the basis that it is legally infeasible due to legal restrictions on the County's authority to prohibit access to subsurface mineral interests without liability.

Under the Fewer Wells Alternative, up to 1,197 proposed wells may not qualify for drilling permits in any given calendar year. As explained above, California courts have held that land use regulations that provide "no adequate means of protection or substitute for their right to extract oil" effects a compensable taking of private property. *See, e.g., Braly v. Board of Fire Com'rs. of City of Los Angeles* (1958) 157 Cal.App.2d 608, 616; *Bernstein v. Bush* (1947) 29 Cal.2d 773, 780. Under the Fewer Wells alternative, once the annual permit cap has been reached in any calendar year, subsequent well permit applicants will have "no adequate means" to exercise their mineral rights and extract oil or gas for the remainder of that year. Though such applicants may qualify for a permit under the following year's cap, per *Kavanau*, property owners temporarily denied all economic beneficial use of their property by regulation "may have the right to just compensation for the temporary taking[,]" as explained above. *Kavanau*, 16 Cal.4th at 773. Therefore, adoption of the Fewer Wells Within the Project Footprint Alternative could expose the County to hundreds of lawsuits in any given year and potentially substantial just compensation claims. For this reason, this

alternative is appropriately eliminated from consideration on the basis that it is legally and economically infeasible.

Basis for Elimination of the Renewable Energy Alternatives

Draft EIR pages 6-14 through 6-16, sets forth two renewable energy alternatives, the Wind Energy Alternative and the Solar Energy Alternative. A number of comments state that the County improperly excluded these alternatives from consideration and that the County should require use of renewable energy for oil and gas activities potentially authorized by the Project.

As discussed in the Draft EIR and summarized below, both the Wind Energy Alternative and the Solar Energy Alternative were rejected for analysis on the basis that they would not offer significant environmental advantages over the Project, even if they would reduce overall Project emissions by reducing each well site's reliance on polluting fossil fuel combustion to power well operations. (DEIR, p. 6-15 – 6-16.)

Oil & Gas Field Operations Energy Requirements

Oil field operations are generally automated facilities that run 24 hours per day, 7 days per week. These operations have a steady daily energy demand comprised of cyclic demand periods interspersed in any given hour, and will have additional periodic pumping demands that arise when tank volumes cycle (such as stock tanks) and the tank contents are forwarded. Given the continuous operations, equipment will start and stop, as well as load and unload, according a well's particular pumping schedule. Motors in a field or facility are typically cyclic-load duty alternating current (AC) motors, controlled by pump-off timers while tanks may controlled by interlinked level control "on-off" relays. (Frick,et al, 1962, p9-35).

Site control and instrument power supplies must be capable of allowing control systems to continuously operate all critical electrical components to ensure that spill prevention interlocks will operate without failure. Electrical systems must be robust, easily maintained, and able to withstand high amperage events, full-load trips, frequency instability, overvoltage and undervoltage conditions, as well as general loss of power events. The power supply and the well's electrical and control systems must be compatible with the area's hazard designation, including any inverters, battery banks, and charge controllers. (Frick,et al, 1962, p9-35).

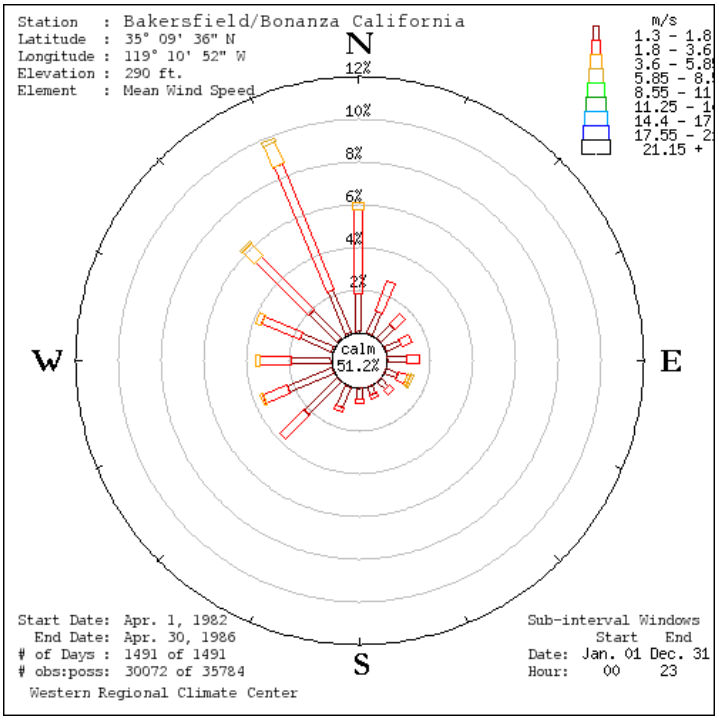
A new well, once installed and operating, must have starting and cyclic load following capability, with peak demand ranging from 200% to 275% of the well motors average energy consumption (actual average energy demand). (Frick,et al, 1962, p9-35). This cyclic loading and unloading is normally managed through the shared generation resources of the interconnected electricity grid, to which the vast majority of well fields are connected, which works to maintain the necessary system voltage and frequency stability. Therefore, according to electrical codes and CPUC guidelines and tariffs, any electrical interconnect to the grid must be designed to follow the cyclic loads of the new

oil well as if the generation is provided by the serving utility using the pre-existing generating fleet's capability, regardless of origin of the energy.[110] (NEC, 2014; CPUC GO95; PG&E Rule 16)

The Kern County-wide actual average per-well energy consumption is 236 kW-h/well-day or approximately 0.01MW on a demand basis. (Brandt, 2015) Thus, for the 2,697 new wells per year that could be developed pursuant to the Project, approximately 26.5 MW (baseload capacity) of energy would be required per year. The pumping unit cyclic peak demand is 2.75 times the average demand, or roughly 0.0275 MW. (Frick,1962)

Wind Energy

Wind energy, or electricity generated from wind-powered turbines, is a proven and available technology. However, power generated by wind turbines is, like solar power, highly variable. Both wind power and solar power are "non-firm" forms of renewable energy and thus are interruptible and not available on a continuous schedule. According to the California Energy Commission (CEC) wind resource potential for the area in the County is low (below 10.1 miles per hour) with the exception of Tehachapi, southeast of Bakersfield. (CEC, 2015.) Wind Turbine starting wind speeds are typically 3 to 4 meters per second or roughly 6 to 10 miles per hour. The Wind Rose for Bakersfield shows the lack of wind available in the Valley floor that exceeds the starting speed for wind turbines.



[110] National Electrical Code, Articles 90 through 830 (governing electrical design); California Public Utilities Commission (CPUC) General Order 95 (addressing utility side interconnections).

Given the limited opportunities for wind energy in the County, wind energy is less desirable in much of the County than solar for repowering purposes.

Further, even if the Project area had greater wind resource potential, development of adequate wind facilities to provide the necessary power for the oil and gas activities under the Project would result in significantly greater environmental impacts than the Project. As noted above, oil and gas field operations are 24/7 and have a steady daily demand for electricity. This relatively constant demand around-the-clock does not match well to wind which is driven by the diurnal cycle in the mountain regions surrounding the Central Valley (particularly Project study area). The oil fields in the study area are not in locations that are well suited to wind power generation therefore the generation cannot be installed at a new well site on a per new well basis. To be remotely feasible either on a cost-effectiveness basis or technical basis, wind generation energy must be transmitted by conventional grid systems from the wind generating region to the oil-field loads using traditional electrical infrastructure.

As noted, approximately 26.5 MW (baseload capacity) of electricity would be required to offset electricity needs for 2,697 new wells per year requires. Per CEC data, current wind turbines have an actual annual capacity of 25% of the rated capacity (based on actual energy produced). Thus, approximately 106 MW of wind energy capacity would need to be constructed to provide the necessary capacity to offset the energy demand of the oil and gas activities potentially authorized by the Project.[111] Assuming all wells that could be developed pursuant to the Project are developed and operated over the Project life, it would be necessary to construct a range of approximately 1,060 MW to 2,120 MW of wind turbine facilities, or up to one-third again of the 5,896 MW of installed wind turbine capacity in the entire state.

According to the American Wind Energy Association, as a general rule of thumb, it requires 60 acres of land to produce 1 megawatt (MW) of power capacity for land-based wind farms. Annually, in order to offset energy demand for activities potentially authorized by the Project, wind turbines would need to be constructed on 6,360 acres of land having the proper wind potential, or 127,200 acres of land for the life of the Project. These facilities would also require construction of new substations as well as transmission facilities in order to interconnect to the grid. Additional ground disturbance would be required for each wind turbine site, thus exacerbating environmental effects associated with well development under Project conditions. The related aesthetic impacts would be significant and unavoidable with conventional wind turbine technology. Communities in which large, utility scale wind developments have been constructed have also raised concerns about subsonic noise and avian mortality issues. (CEC, 2007.) Further, assuming such wind developments would be considered part of the Renewables Portfolio Standard, including a future RPS standard of 50%, the utility grid owner/operator would have to plan, develop, install, operate and rate-base the

[111] http://energyalmanac.ca.gov/electricity/electric_generation_capacity.html

necessary capital to provide the infrastructure to transmit the energy and maintain the system reliability.

Given the scope of the necessary development and the potential significant adverse impacts associated with wind development, further analysis of a wind energy alternative was screened out on the basis that it is infeasible.

Solar Energy

Solar photovoltaic (PV) electric generation is commercially available in the Project Area. The Solar Energy Alternative assumes that each new well site permitted in the Project Area would be developed in the same manner as would occur under the Project conditions, but also that each new well site would be developed with solar PV panels and related facilities in an amount sufficient to provide the electric capacity needed to power well operations at such site. (DEIR, p. 6-15.)

The relatively constant demand for energy necessary for oil and gas field operations, as described above, does not match well to solar as is the case with residential cooling, both of which are driven by solar cycles (particularly in the Kern County EIR Project study area). Generally, to provide continuous uninterrupted power for 24-hours per day consistent with accepted demand, a solar PV facility would have to have an ideal capacity four-to-five times larger than normal demand, depending on weather.

In a situation where sufficient solar PV capacity was constructed and interconnected to the electricity grid for reliability purposes, the solar PV system design capacity could be limited to only deliver the actual average energy 236 kW-h per well-day requirement. The ideal Kern County winter season solar output for fixed panels is 41% of the summer output; thus, as a minimum, the array must have roughly twice the number of panels to deliver equal service during the winter months.[112] CEC data indicates that, on average, all California solar PV facilities (including large scale tracking arrays) deliver at 21 % of their rated capacity.[113] Therefore, to ensure the complete offset of electrical energy use, the actual solar facility would need to be sized 4.5 times larger than the base load capacity of 0.0275 MW, resulting in a design capacity of .044 MW per hour. Based on industry standards of 6 to 8 acres of land per 1 MW of solar PV-generated, (NREL, 2013) powering the activities potentially authorized by the Project using solar PV technology would require 0.6 to 1 acres of arrays per new well, assuming a tie-in to the electricity grid.

Thus, in order to offset the total power demand for planned construction and operation of 2,697 wells per year, approximately 119 MW of solar PV capacity would have to be constructed annually on approximately 714 to 952 acres of land. For the life of the Project, assuming full build out of wells authorized by the Project, 2,373 MW of solar PV capacity would need to be constructed on approximately 14,238 to 18,984 acres of land. This scenario would also need sufficient electrical

[112] CEC EPBB Calculator, Azimuth =180 degrees, Tilt =18 degrees. Local Data indicates that the actual winter performance is 10% to 25%.
[113] http://energyalmanac.ca.gov/electricity/electric_generation_capacity.html

grid infrastructure to ensure grid reliability to comply with California Public Utility Commission and Federal Energy Regulatory Commission mandatory reliability criteria.

A "stand-alone" solar option that did not interconnect to the State's electricity grid would result in still greater impacts. The design sizing of a stand-alone solar array would require the ability to generate the peak demand of 649 kW-h/day (.27 MW) (year round including winter) and store 16 hours worth of the non-daytime energy as 432 kW-h (16/24*649 kW-h) stored during the peak generation period and available for any peak demand at night. Using the same assumptions described above concerning winter season solar output and rated capacity, a stand-alone solar array capacity would need to be sized using the peak of design of .28 MW (to ensure delivery of .028 MW in the winter), or 1.7 to 2.8 acres per new well. This would result in development of an additional 4,530 acres of land per year (.28 MW per well x 2,697 wells = 755 MW of solar array capacity x 6 acres per MW). This scenario would also need sufficient electrical grid infrastructure would be needed to ensure grid reliability to comply with California Public Utility Commission and Federal Energy Regulatory Commission mandatory reliability criteria.

Given the scope of the necessary development and the potential significant adverse impacts associated with solar development, further analysis of a solar energy alternative was screened out on the basis that it is infeasible.

Basis for Elimination of the Zero Net Gain Alternative

As explained on page 6-16 of the Draft EIR, the Zero Net Gain Alternative is identical to the Project, except that it would amend Chapter 19.98 of the Kern County Zoning Ordinance to also provide that no new oil or gas well drilling permits will be issued by the County, except to the extent that an equal number of existing oil and gas wells have first stopped production and have been abandoned in accordance with state law. The Draft EIR eliminated this alternative on the basis that it would not achieve most of the Applicant's project objectives.

Some comments reasonably concluded that, though this alternative would not increase oil and gas exploration and production in the County at the same rate as the Project, it would nevertheless provide for industry growth over time and would not substantially conflict with the basic objective to establish a primarily ministerial administrative process governing the issuance of County well permits. Other comments reasonably conclude that this alternative would also reduce the marginal harm resulting from the addition of thousands of new wells per year under Project conditions. Nevertheless, it also reasonable to conclude that this alternative would not increase employment opportunities and economic prosperity to the County's residents, business, and local government to the same extent as would the Project. Moreover, while this alternative might reduce some marginal impacts associated with new well development on an annual basis, many of the Project's environmental impacts would still occur under this alternative, though at a slower rate over a longer period of time.

Additionally, the Zero Net Gain Alternative is legally infeasible. Like the Fewer Wells Within the Project Footprint Alternative, the Zero Net Gain Alternative would impose a regulatory cap on the volume of oil and gas production in the Project Area by limiting the number of new well permits on

the basis of the number of new well abandonments. Under this regulatory scheme, some applicants may not qualify for drilling permits at any given time. As explained above, California courts have held that land use regulations that provide "no adequate means of protection or substitute for their right to extract oil" effects a compensable taking of private property. *See, e.g., Braly v. Board of Fire Com'rs. of City of Los Angeles* (1958) 157 Cal.App.2d 608, 616; *Bernstein v. Bush* (1947) 29 Cal.2d 773, 780. Under the Zero Net Gain Alternative, applicants denied well permits on the basis that issuance would violate the zero net gain standard will have "no adequate means" to exercise their mineral rights and extract oil or gas until a sufficient number of existing wells have been legally abandoned. As discussed above, property owners temporarily denied all economic beneficial use of their property by regulation "may have the right to just compensation for the temporary taking[,]" as explained above. *Kavanau,* 16 Cal.4th at 773. Therefore, adoption of the Zero Net Gain Alternative could expose the County to hundreds of lawsuits in any given year and potentially substantial just compensation claims. For this reason, the Zero Net Gain is appropriately eliminated from consideration in this EIR on the basis that it is legally and economically infeasible.

Alt-2: Alternatives Evaluated in Detail in the EIR

Several commenters questioned the Draft EIR's evaluation of one or more of the alternatives considered in detail. (Comments regarding alternatives that were screened from detailed analysis are addressed in GR Alt 1.) This response generally addresses comments on these Alternatives that were raised by multiple commenters; comments raised by a single commenter are addressed either in this response or in responses to specific comment letters.

Global Response to Certain Comments Regarding Alternative 1 - No Project Alternative

As required by CEQA Guideline § 15126.6(e), the EIR evaluates Alternative 1, the No Project Alternative, as set forth on pages 6-17 through 6-19 of the Draft EIR. The EIR determines that Alternative 1 is environmentally inferior to the Project. As explained in the EIR, the proposed Project would substantially amend sections of the Kern County Zoning Ordinance to update and extend to *all* Project Area oil and gas exploration and production facilities development standards and conditions designed to avoid or minimize environmental impacts associated with pre-drilling exploration, well drilling, and the operation of well and other oil and gas production-related equipment and facilities. The Project's proposed development standards and conditions include several new requirements that are more protective of the environment and human health and safety than those required by current County regulations, and they would avoid or minimize the impacts of oil and gas exploration and production related to land use, agricultural resources, biological resources, soils and geological resources, water resources, flooding, fire safety, odor management, noise, air quality, cultural resources, lighting, spill prevention and remediation measures, among other categories, as compared to "no project" conditions. The Project would also establish a new "Oil and Gas Conformity Review" procedure for County approval of future well drilling and operations to ensure compliance with the updated development standards and conditions, and to provide for ongoing tracking and compliance monitoring. If Alternative 1 were adopted, none of the Project's proposed development standards or conditions would be implemented in the County on a consistent basis for all new oil and gas wells in the future. Therefore, Alternative 1 would not achieve the environmental benefits offered by the Project.

Some comments assert that the EIR's description of the Alternative 1 is incomplete or inaccurate because it does not conclude that, under "no project" conditions, future oil and gas wells in the County will require a drilling permit issued by DOGGR and would thus be subject to individual environmental review conducted by DOGGR. The comments speculate that each well permitted by DOGGR would be subject to the mitigation measures set forth in DOGGR's 2015 statewide Well Stimulation Treatment EIR (SB 4 EIR). On this basis, some comments claim that the No Project Alternative would be environmentally superior to the Project.

Draft EIR page 6-17 clearly explains that future oil and gas wells constructed in the Project Area under "no project" conditions would be subject to the regulatory authority of both DOGGR and the County. Moreover, as explained in GR 9, the mitigation measures described in this EIR are consistent with, or more protective than, the mitigation measures described in the DOGGR EIR. Thus, there is no evidence that oil and gas wells constructed under "no project" conditions would be environmentally superior to wells constructed under Project conditions simply because they would presumably be subject to DOGGR's mitigation measures, rather than the mitigation measures described in this EIR. Indeed, the DOGGR EIR only mitigates for impacts related to well stimulation treatments, such as hydraulic fracturing, while this EIR mitigates for a far broader range of oil and gas activities. Moreover, DOGGR has never prepared an EIR for an individual well permit and, in fact, typically approves individual permits with either no CEQA review or on the basis of a negative declaration that imposes no mitigation requirements (other than mandating compliance with existing DOGGR regulations, which apply in any case). Similarly, there is no substantial evidence that DOGGR would, in the future, conduct a more thorough CEQA review for individual permits than it has in the past. Finally, there is no substantial evidence that future oil and gas activities in the Project Area would have reduced environmental impacts, as compared to Project conditions, simply by subjecting each oil and gas well to an individual CEQA review process, whether conducted by DOGGR or the County. Accordingly, there is no substantial evidence demonstrating that Alternative 1 is environmentally superior to the Project.

As further explained on Draft EIR page 6-19, Alternative 1 would not achieve the Project's basic objective. Under "no project" conditions, Project activities occur in many zoning districts within the Project Area without any ministerial or discretionary review, based on prior determinations regarding the general land use compatibility of continued oil and gas extraction activities and the sufficiency of third-party expert agency regulations to protect human health and safety, and the environment. The County directed that the current ordinances be updated to substantially expand the County's oversight and enforcement role, which under Project conditions would include over 100 new procedural and substantive requirements applicable to Project activities. The Board of Supervisors directed that this ordinance update process be procedurally structured to avoid imposing excessive administrative burdens, while assuring effective implementation and enforceability. This is the basic Project objective to be met. It goes without saying that this basic objective cannot be achieved if the Project is not approved and future well permits continue to be processed in accordance with existing zoning regulations.

Global Response to Certain Comments Regarding Alternative 2 - CUP Alternative

Alternative 2, the CUP Alternative is evaluated on Draft EIR pages 6-19 through 6-21. Under Alternative 2, all new oil and gas activities would be permitted in the Project Area only upon County's issuance of a conditional use permit. Under Alternative 2, development standards would be updated, but would only imposed if substantial evidence demonstrates they are required to reduce project impact below applicable significance thresholds. As explained in the Draft EIR, in many respects, the CUP Alternative would be environmentally inferior to the Project. There are two primary reasons for this conclusion: (i) the EIR uses highly conservative impact assumptions in order to present a "worst case" impact scenario based on best available evidence, and (ii) to reduce the "worst case" impacts to the extent feasible, the EIR establishes mandatory mitigation requirements that will be imposed on every individual well project without regard to whether any single we project would actually cause the impact for which mitigation is required hereunder.

As further discussed in Global Response 1, to ensure that this EIR presents a conservative analysis of the likely impacts of new wells constructed under Project conditions, this EIR makes a number of highly conservative assumptions in order to present a "worst case" impact scenario and to design feasible measures to mitigate such "worst case" impacts. The conservative assumptions carried forwarded in this EIR include but are not limited to the following:

- All new well activities in the County are assumed to occur on Project Area lands that are under the County's jurisdictional control and non-jurisdictional areas are addressed as part of the cumulative impact analysis;
- The EIR analysis assumes that ongoing environmental effects that are part of the baseline environmental conditions are instead new impacts caused by the Project that require mitigation;
- Project-related land disturbance is conservatively estimated based on existing land use disturbance associated with oil and gas activities, then further increased by 1.2 to 3 acres per well site (depending on Subarea) to provide a conservative assessment of potential impacts;
- Project-related land disturbance assumptions are also based on the conservative assumption that new well construction and operations will not utilize existing access roads and other oil and gas infrastructure to their full potential, especially in the more heavily developed Tier 1 areas, and will thus require additional disturbances;
- Future replacement or expansion of existing oil and gas facilities are conservatively assumed to result in new land disturbances, even though not all facility replacement and expansion activities will cause new land disturbances;
- The EIR conservatively assumes that, under Project conditions, 264 more well stimulation treatments will annually occur than actually occurred under baseline conditions, even though the number of future stimulation treatments is expected to be similar to baseline conditions;
- For the purpose of analyzing and mitigating agricultural impacts, the EIR conservatively assumes that all land disturbed by oil and gas activities within the Tier 2 area will be to unique and important farmlands, even though not all land within Tier 2 falls into those categories;

- For purposes of analyzing and mitigating air quality impacts, the EIR conservatively assumes that the number of wells to be built every in the Project Area will exceed the number of wells projected to be authorized under the Project;
- For the purposes of analyzing and mitigating impacts to wetland features, the EIR conservatively assumes that the Project's wetland disturbance area includes waters that are not regulated as wetlands, such as artificial ponds and drains used for agricultural, oil and gas operations, mining, and other industrial activities;
- Potential impacts to modeled special status species were conservatively characterized in terms of annual impacts to all identified habitat categories for each species analyzed within the Project Area, which includes urbanized, agricultural, or high-density oil and gas production areas where predicted habitat values have been reduced or eliminated;
- Potential impacts to non-modeled special status species were conservatively analyzed to assume that impacts will occur even in areas where there is an extremely low likelihood of species impact;
- The EIR conservatively assumes that all Project Area land located above 2,000 feet in elevation is high quality golden eagle and condor habitat, and that disturbance in these areas could result in significant impacts to the species without mitigation;
- To provide a conservative assessment of Project-related impacts to water supplies, the EIR assumes that all oil and gas M&I water use will be provided by groundwater, not surface water supplies, and will be of sufficient quality to potentially be utilized for agricultural, urban or other M&I activities;
- To provide a conservative estimate of Project-related impacts to water supplies, the EIR further assumes that State Water Project surface supplies that are sometimes available in wet years will never be available during the life of the Project;
- To provide a conservative estimate of Project-related impacts to water supplies, the EIR further assumes that future Central Valley Project (CVP) water supply delivery levels in the Project Area will only be sourced from Class 1 (firm) contract supplies under future conditions, even though other CVP water supplies may be available in wet years;
- To provide a conservative estimate of Project-related impacts to water supplies, the EIR further assumes that recycled water projects currently being considered by Project Area water suppliers will not produce recycled water to serve the Project, even though such supplies may in fact become available in the future;
- The EIR's assessment of potential flooding impacts conservatively assumes that a catastrophic failure of dam facilities would occur, if at all, under full capacity conditions, even though full capacity typically occurs only in wet years;
- The EIR conservatively assumes that all Project-related well construction will disturb land throughout the life of the well, even though the permanent footprint of most wells will be less than what is projected by the EIR; and

- The EIR's assessment of Project noise impacts conservatively assumes that that Project Area topography is flat, that there are no structures that will shield Project-related sounds sources, and that noise impacts will be generated by the largest operating drill rigs in operation in the United States even through such rigs are not commonly utilized in the Project Area.

Since the EIR's analysis of Project impacts is often based on conservative assumptions, the EIR's predicted level of Project-related impacts is more severe than will likely occur under Project conditions. Nevertheless, under Project conditions, future oil and gas activities will be required to mitigate for such "worst case" impacts scenarios, even if they won't individually cause every impact identified in the EIR.

To adequately reduce or avoid the conservative "worst case" impact scenario assumed by this EIR, future well facilities will be required to implement mitigation at levels above those that would be required if individual wells were permitted on a case-by-case basis subject to individual environmental review. Examples include, but are not limited to:

- MM 4.3-5: In order provide an extra margin of safety to protect the public health of nearby homes, schools, and other sensitive receptors under both single-well and multiple-well exposure scenarios, this mitigation measure imposes extremely conservative setback requirements. If individual wells were instead subject to discretionary approval, as contemplated by the CUP Alternative, potential impacts to sensitive receptors from emissions related to oil and gas activities would never warrant setback requirements as protective as those required by MM 4.3-5.
- MM 4.3-8: Pursuant to this mitigation measure, all permit applicants will be required to pay fees to fully offset emissions of oxides of nitrogen, reactive organic gases, and particulate matter of 10 microns or less in diameter (including as applicable mitigating for reactive organic gases by additive reductions of particulate matter of 10 microns or less in diameter) increase in these pollutants for facilities or equipment that are not otherwise required to offset emissions under a Joaquin Valley Air Pollution Control District rules, and for other vehicle and other mobile source emissions. If individual wells were instead subject to discretionary approval, as contemplated by the CUP Alternative, full offset of these emissions would not be required by law.
- MM 4.7-4: Pursuant to this mitigation measure, all permit applicants are required to fully offset all greenhouse gas emissions not otherwise covered by the state's cap-and-trade program or other mandatory greenhouse gas emission reduction measures by, for example, acquiring sufficient offset credits from the California Air Pollution Control Officers Association Exchange Register or other third party greenhouse gas reductions as verified by the San Joaquin Valley Air Pollution Control District. If individual wells were instead subject to discretionary approval, as contemplated by the CUP Alternative, full offset of these emissions would not be required by law.

As the above examples demonstrate, the mitigation program to be established by the Project will provide mitigation at levels in excess of that which would occur if new wells were subject to discretionary approval following individual environmental review. In this sense, the Project is

environmentally superior to Alternative 2 and will better serve regional conservation priorities, such as those described in SJVAPCD's Climate Change Action Plan and air quality attainment plans. Though some comments challenge this conclusion, none provide substantial evidence to support such claims.

The County currently contains approximately 75 active oil and gas fields, and over 2,500 wells are drilled in the County every year. It is not practical to subject every well permit to an individual discretionary approval process, or for environmental reviews to be conducted on every single well or groups of wells. The County lacks the resources to process thousands of oil and gas Negative Declarations and/or EIRs each year. The economic consequences for operators would be severe, delaying drilling for many months during the preparation of costly individualized CEQA documents. Moreover, such individualized review would be highly repetitive, as the thousands of Negative Declarations and EIRs would re-analyze the same impacts and prescribe the same mitigation for each new well or group of wells throughout the County. Accordingly, the basic objective of the Project and this EIR is to eliminate time-consuming and costly discretionary reviews of individual well and field development activities by establishing a ministerial site plan review process which incorporates mitigation identified in this EIR. As such, future County actions processing individual site plans will not trigger further CEQA review by the County. In addition, in the vast majority of cases, this process will avoid the need for responsible agencies to prepare additional CEQA documents for individual well or field development proposals when they are considering the discretionary decisions within their respective jurisdictions. Only if the criteria for supplemental CEQA review under CEQA Section 21166 are met would additional review be necessary. (14 Cal. Code Regs. §§ 15096(e)(3), 15162.) Such streamlined permitting is a permissible objective reflecting land use policy decisions within the authority of a county board of supervisors. *San Diego Citizenry Group v. County of San Diego*, 219 Cal.App.4th 1 (2013). This basic Project objective cannot be achieved by Alternative 2, the CUP Alternative. Nevertheless, for informational purposes, this alternative was fully evaluated in the EIR in response to prior expressions of public interest.

Global Response to Certain Comments Regarding Alternative 3 – Reduced Ground Disturbance Alternative

The Reduced Ground Disturbance Alternative was fully evaluated in the Draft EIR and, if adopted, would prohibit all new well drilling activities outside existing DOGGR-designated "Administrative Boundary" areas, and would require subsurface oil and gas to be extracted from surface equipment located within such Administrative Boundary Areas.

If this alternative were adopted, the owners of mineral rights underlying outside of Administrative Boundary areas could only access their mineral interests, if at all, from adjacent lands that are located within an Administrative Boundary area through the use of directional and horizontal drilling techniques, which may not be technologically or economically feasible, depending on geologic conditions and location (AECOM, 2015). Where feasible, the directional and horizontal drilling assumed by this alternative is reasonably expected to require longer drilling periods to reach the mineral source than would be necessary to complete a vertical well. Longer drilling periods mean increased levels of construction-related emissions. It is therefore reasonable to assume that directional and horizontal well development activities under this alternative would cause greater

emissions than would occur if the wells were drilled vertically under Project conditions. Thus, while this alternative would have the environmental benefit of impacting fewer acres of land, it would also exacerbate overall emissions of criteria pollutants for which the air basin is in nonattainment.

Given the size and unconventional geology of the Project Area, it is also reasonable to assume that, in some instances, the owners of mineral interests underlying lands outside of Administrative Boundary areas will not be able to feasibly exercise their mineral rights as a result of the drilling restrictions assumed by this alternative. In such cases, this alternative would arguably destroy all economically beneficial or productive use of such mineral interests, thus exposing the County to economic harm and unreasonable legal liability for the same reasons detailed in Global Response Alt-1's discussion of the Drilling Ban on All Lands Alternative. Accordingly, the Alternative 3 is legally infeasible.

Global Response to Certain Comments Regarding Alternative 4 - No Hydraulic Fracturing Alternative

The No Hydraulic Fracturing Alternative was fully evaluated in the Draft EIR at pages 6-23 through 6-24 and, if adopted, would amend the Chapter 19.98 of the Kern County Zoning Ordinance to prohibit hydraulic fracturing in the Project Area. However, the Draft EIR explains that "a local government's legal authority to regulate every step in the hydraulic fracturing process is the subject of legal disputes currently pending in certain California courts," but nevertheless evaluates the alternative under the assumption that "the County has sufficient legal authority" to ban hydraulic fracturing in the Project Area. Some commenters have requested further information about the scope of the County's authority to prohibit hydraulic fracturing or other well stimulation treatment (WST) techniques in the Project Area. As explained below, applicable law suggests that Kern County may not impose a ban on WST activities.

Local legislation that conflicts with state law is preempted and void. *Conejo Wellness Ctr., Inc. v. Agoura Hills* (2013) 214 Cal. App. 4th 1534, 1552. A conflict can occur if the local ordinance duplicates state law, contradicts state law or enters an area or field fully occupied by state law. *Id.* "Local legislation enters an area or field that is 'fully occupied' by state law when the Legislature has either expressly manifested its intent to fully occupy the area or has impliedly has done so." *Id.* "Implied preemption occurs when: (1) general law so completely covers the subject as to clearly indicate the matter is exclusively one of state concern; (2) general law partially covers the subject in terms clearly indicating a paramount state concern that will not tolerate further local action; or (3) general law partially covers the subject and the adverse effect of a local ordinance on transient citizens of the state outweighs the possible municipal benefit." *Big Creek Lumber Co. v. Santa Cruz* (2006) 38 Cal. 4th 1139, 1157–1158.

The California Attorney General has concluded that, through enactment of the comprehensive California oil and gas laws set forth in Division 3 of the Public Resources Code, commencing with section 3000, and its implementing regulations, the State had completely covered the field with respect to "down-hole or subsurface" oil and gas operations:

> In our view, the conservation and protection of the state's finite energy resources, by means of regulatory policy reviewed herein, transcends local boundaries and interests. Oil, gas and geothermal resources are flung far and wide around the state; to leave the simultaneous regulation of their development to various local entities would subject development of the state's fuel resources to [a] "checkerboard of regulations[.]" ... Such local regulation could obviously interfere with and frustrate the state's conservation and protection regulatory scheme reviewed above. This "checkerboard" problem seems highlighted by the fact that this state's deposits of energy resources do often extend under the boundaries of several local entities as, for example, in the Los Angeles basin. In our view, the drilling and production of energy resources represents an endeavor of commercial activity that commands uniform regulation. … The statutory and administrative regulatory scheme outlined above reveal to us a comprehensive purpose and scope broad enough to exclude local regulation in each instance where the [State Oil & Gas] Supervisor or his regulatory program approves or specifies plans of operation, methods, materials, procedures or equipment to be used by the operator or where activities are to be carried out under the direction of the Supervisor as part of the Supervisor's regulation for purposes of conservation or protection of resources.

59 Ops. Cal. Atty. Gen. 461, Opinion No. 76-32 (Aug. 24, 1976) at 477-478. On this basis, the Attorney General concluded that the state oil and gas laws "appear to occupy fully the underground phases of oil and gas activities" and that, "in all probability there will in our view be a [preemptive] conflict with state regulation when a local entity, attempting to regulate for a local purpose, directly or indirectly attempts to exercise control over subsurface activities."

With the recent enactment of SB 4 and DOGGR's permanent WST regulations, the level of complexity, detail, and comprehensive quality of the State oil and gas laws has only increased since the Attorney General first concluded that local down-hole regulation of oil and gas activities is preempted by state law. The complexity and specificity of SB 4 and its implementing regulations are described in detail on Draft EIR pages 4.9-108 through 4.9-109. This new mandatory regulatory program only reinforces the Attorney General's determination that the State's statutory and administrative regulatory scheme governing subsurface oil and gas activities presents "a comprehensive purpose and scope broad enough to exclude local regulation[.]" Accordingly, County regulations limiting subsurface WST operations would be preempted. Kern County retains its police power, and may enact laws in furtherance of public health, safety and the general welfare, including ordinances regulating oil and gas activities at the surface. However, the County is likely prohibited from enacting laws that ban or control WST operations in areas where oil and gas operations are allowed to take place. In addition, to the extent the No Hydraulic Fracturing Alternative would, if adopted, deny affected mineral rights holders all economically beneficial or productive use of such mineral rights, then such alternative would be infeasible for the same reasons described above for the Drilling Ban on Agriculturally Productive Land Alternative and the Drilling Ban on All Lands Alternative. For these reasons, it is reasonable for the County to determine that the No Hydraulic Fracturing Alternative is infeasible for purposes of CEQA, even though such alternative is fully evaluated in the Draft EIR.

Finally, approval of the No Hydraulic Fracturing alternative would likely cause an increase in greenhouse gas emissions, without a reduction in other adverse impacts. As explained by the California Council on Science & Technology (CCST) in its recent study, *An Independent Scientific Assessment of Well Stimulation in California*, "[t]he majority of impacts associated with hydraulic fracturing are caused by the indirect impacts of oil and gas production enabled by the hydraulic fracturing." According to the CCST, "all oil and gas development causes similar impacts whether the oil is produced with well stimulation or not." The exception to this general rule, however, concerns greenhouse gas emissions.

According to CCST:

> Fields with lighter oil result in low emissions per barrel of crude produced, while fields with heavier oil have higher emissions because of the need for steam injection during production as well as more intensive refining needed to produce useful fuels such as gasoline. Well stimulation generally applies to reservoirs with lighter oil and consequently smaller greenhouse gas burdens per unit of oil. Oil and gas from San Joaquin Basin reservoirs using hydraulic fracturing have a relatively smaller carbon footprint than oil and gas from reservoirs such as those in the Kern River field that use steam flooding. If well stimulation were disallowed and consumption of oil and gas in California did not decline, more oil and gas would be required from non-stimulated California fields …, possibly with higher emissions per barrel. Consequently, overall greenhouse gas emission due to production could increase if well stimulation were stopped in California.

Thus, if well stimulation were disallowed, as contemplated by the No Hydraulic Fracturing Alternative, more oil and gas would be required from non-stimulated California fields. This would likely result in an overall increase in greenhouse gas emissions, without an overall increase in other adverse environmental impacts. Accordingly, the No Hydraulic Fracturing Alternative would be environmentally inferior to the Project. It is well settled that an EIR need not consider alternatives that do not offer significant environmental advantages in comparison to the Project. 14 Cal. Code Regs. § 15126.6(b).

Global Response to Certain Comments Regarding Alternative 5 – Low-Emission Enhanced Oil Recovery (EOR) Technology Alternative

Some commenters suggested that Alternative 5, the Low-Emission Enhanced Oil Recovery (EOR) Alternative, should be adopted instead of the Project because it is the environmentally superior alternative. Further review suggests that Alternative 5 is infeasible within the meaning of CEQA Guidelines § 15364. A lead agency may choose not to adopt the environmentally superior alternative if it is infeasible. CEQA Guidelines § 15126.6.

Under Alternative 5 all new and replacement steam generators for thermal EOR activities would be required to install low-emission steam generation technology. However, low-emission steam generation technologies are still in the demonstration and prototype phase. ClearSign Duplex (CSD) technology, which is referenced as a possible technology in Alternative 5, involves ceramic tile and burner modification. One operator (Aera) is conducting pilot testing of CSD. At least one other

operator (Chevron) is considering pilot testing low-emission steam generation technologies. All technologies currently under consideration require additional testing and validation in actual operating conditions and environments before they can be considered field-proven.

Long-term effectiveness and commercial viability of either technology still remain to be determined, and no company has deployed either technology to date. Furthermore, because the technologies are still in development, the cost of installing the equipment is high compared to the resulting emissions decreases. As such, the technology is not yet readily available on a commercial scale for implementation in oil and gas production in Kern County. The commenters have not provided any evidence suggesting that low-emission steam generation technology is economically or technologically feasible at this time. For these reasons, a finding of infeasibility is appropriate (CEQA Guidelines § 15126.6(f)(1)).

The technological infeasibility of Alternative 5 is further demonstrated by the current Best Available Control Technology (BACT) Guideline for oilfield steam generators in the San Joaquin Valley Air Pollution Control District (SJVAPCD). The federal Clean Air Act requires implementation of BACT, defined as as an emission limitation that the relevant permitting entity "determines is achievable." 42 USC § 7479. Similarly, the SJVAPCD defines BACT as the most stringent emission limitation or control technique (1) achieved in practice; (2) contained in any State Implementation Plan, if presently achievable; (3) contained in an applicable New Source Performance Standard; (4) "Any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found … to be cost effective and technologically feasible …" Rule 2201, Section 3.10. The SJVAPCD BACT guideline was last updated in March of 2014 and currently requires 6 ppm NOx at 3% O_2 for steam generators that operate at 85 MMBtu/hr; and 7 ppm NOx at 3% O_2 for steam generators that operate at less than 85 MMBtu/hr.[114] By comparison, the low-emission steam generation technology contemplated by Alternative 5 would be expected to achieve rates comparable to or lower than 5 ppm NOx at 3% O_2 for steam generators operating at 55 MMBtu/hr. The fact that the rates in the current SJVAPCD BACT guideline are higher than what is contemplated by Alternative 5 further supports the conclusion that the technology required by Alternative 5 has not yet been achieved in practice, has not been shown to be presently achievable and is not technologically feasible. Alternative 5 was therefore properly rejected as an alternative. Moreover, at such time as the SJVAPCD determines that low-emission steam generation technology has become feasible, it would be expected to update its BACT guidelines accordingly.

Global Response to Certain Comments Regarding Alternative 6 – Recycled Water Alternative

As explained in Draft EIR pages 6-26 through 6-28, Alternative 6, the Recycled Water Alternative, would require well permit applicants to treat an amount of produced water that is currently being disposed of via underground injection will which is equivalent to the mount of M&I water used in the applicant's operations. Under Alternative 6, such produced water would be required to be

[114] http://www.valleyair.org/busind/pto/bact/bactLoader.htm.

treated, recycled and put to an alternate use such as agricultural irrigation. Further analysis of Alternative 6 in response, in part, to comments on the Draft EIR suggests that this alternative would not be feasible. The reuse of treated produced water would, in many cases, significantly increase costs, and could result in increased chemical use, longer and more intensive surface activities, and the need for additional permitting processes to avoid adverse secondary environmental impacts. Moreover, in comments on the Draft EIR, DOGGR has expressed concerned that the reuse of produced water, as contemplated by this alternative, may contribute to land subsidence in the Project Area, as explained below.

Produced water is currently used for some oilfield activities, such as discharge for dust suppression, but increasing that use beyond existing levels would require additional permitting and approvals to avoid impacts to biological, water and other resources. While the oil and gas industry in Kern County has been working with the Regional Water Quality Control Boards to increase the treatment and use of produced water for dust suppression and other oilfield activities, there are regulatory hurdles to increasing use of produced water and it is uncertain whether and to what extent additional use of produced water will be permitted by the Boards. As such, a requirement to substitute produced water, as contemplated by Alternative 6, may be legally infeasible.

While oil and gas operators may be able to utilize additional produced water for some oilfield activities – as contemplated by Mitigation Measures 4.17-2, 4.17-3 and 4.17 – not all oilfield activities are able to use produced water. For some oilfield activities, such as drilling and abandonment work, the use of fresh water is required to properly formulate the cement mixtures that are needed to safely drill and abandon wells. Using produced water for these activities would jeopardize operators' ability to comply with well specifications provided for in DOGGR regulations.

Certain enhanced oil recovery (EOR) operations, such as steam generation, can require higher-quality water supplies than are typically obtained from treated produced water in order to avoid equipment corrosion or damage and potential chemical interactions. Use of produced water in these operations can also lead to increased need for equipment maintenance due to, for example, silica buildup or tube failures in boilers. Even when produced water can be used in EOR operations, water losses in the oil production cycle—due to losses on the surface, in the geological zones, or otherwise—typically necessitate the use of some fresh or brackish "make up" water from a surface or subsurface source. Depending on the nature of the operation, "make up" water often represents between 10 and 25 percent of the water used.

Additionally, the lack of infrastructure linking sources of produced water to the locations where water may be used, particularly in cases of new exploration, can result in increased truck trips and other more significant impacts associated with transporting produced water to operation sites. For example, pilot EOR projects typically cannot use recycled water due to the early stage of project development, which results in a lack of available recycled water. Furthermore, the treatment of water for reuse requires specialized equipment, consumes energy, and generates waste. In many cases, operators have also contracted with local water purveyors to utilize some supply of purchased water over a long-term contract; cancellation of such contracts would also create negative financial impacts for the region.

In addition, the use of produced water specifically for well stimulation treatments would significantly increase chemical use as well as costs. Chemicals used in fracture treatments impart viscosity for proppant transport and fracture geometry creation and improve post-treatment production results by minimizing polymer plugging and other phenomena detrimental to production. Using produced water instead of fresh water as a base fluid for fracture treatments would increase the chemical volumes needed to fulfill these functions. Produced water use for fracture treatments could require as much as a five-fold increase in buffering agents, and additional chelating agents, clay and scale inhibitors, and surfactants to prevent emulsions and reduce surface tension may also be needed to minimize production complications that would be caused by the use of produced water. While produced water could be pre-treated to require fewer chemicals during the fracture treatment itself, such pre-treatment conditioning would also involve more chemicals, equipment, or both, to obtain water sufficient for use in the fracture treatment. Because of these complications, a typical fracturing operation would become significantly more expensive, and often uneconomic.

In addition, for some types of well stimulation, such as matrix acid stimulation, it is technologically infeasible to utilize produced water. Typically, matrix acid stimulation employs hydrofluoric acid (HF acid), which can only be mixed with fresh water. If HF acid comes into contact with formation brine, insoluble precipitants form, limiting the effectiveness of the acid stimulation system by plugging pore throats in the reservoir pore network. Such plugging can completely counteract the effects of the stimulation treatment. The reduction in the effectiveness of the treatment would require more frequent treatments, larger treatments, or both, which would lead to a significant increase in use of chemicals, emissions and heavy vehicle traffic hauling hazardous chemicals.

Finally, in its comment letter on the Draft EIR, DOGGR expresses its concern that the treatment and reuse of produced water for agricultural or other uses may adversely affect the balance between production and injection that needs to be maintained to prevent subsidence in the Project Area. DOGGR is mandated to prevent subsidence. It is concerned that, if produced fluids are redirected to other beneficial uses, there may not be fluid available to put to use in subsidence abatement. The County concurs with DOGGR's view that alternative uses of produced water should not be at the expense of other considerations that equally important, such as subsidence management.

In sum, while operators are working to increase their use of produced water for oil and gas operations in Kern County, issues ranging from harms caused by chemical interactions to the lack of availability of produced water at certain sites, as well as subsidence management, suggests that Alternative 6 is infeasible.

7.2.2 State Agencies

1 San Joaquin Valley Air Pollution Control District

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

September 11, 2015

Lorelei H. Oviatt
County of Kern
Planning and Community Development Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Project: Draft Environmental Impact Report for "Revisions to the Kern County Zoning Ordinance – 2015, Focused on Oil and Gas Local Permitting"

SJVAPCD CEQA Reference No: 20150630

Dear Ms. Oviatt:

0001-1

The San Joaquin Valley Unified Air Pollution Control District (SJVAPCD) has reviewed the Draft Environmental Impact Report (Draft EIR) for "Revisions to the Kern County Zoning Ordinance – 2015, Focused on Oil and Gas Local Permitting." The Draft EIR prepared by Kern County evaluates the impacts from revisions to the Kern County Zoning Ordinance to implement a new permit process for oil and gas activities. The revisions include new site development standards, review processes for all oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County, California (Project).

0001-2

The SJVAPCD commends Kern County on this innovative and groundbreaking approach to addressing environmental impacts from growth in the oil and gas production industry in Kern County. We recognize the ambitious nature of the effort, and are pleased to work with Kern County to carry the concept through to successful completion. In that spirit, we offer the following comments to assist in the effort to appropriately analyze and address a necessarily complex assessment of air quality impacts.

1) Emissions Not Addressed Through Permits

0001-3

The Draft EIR should be clarified that only operational emissions exceeding the SJVAPCD's offset thresholds from equipment subject to District Rule 2201 will be required to be offset through SJVAPCD air permits.

SJVAPCD rules do not require offsets for construction emissions, including emissions associated with well construction and new facility construction. District Rule 2201 (New and Modified Stationary Source Review Rule) requires offsets only for operational emissions from permitted stationary sources exceeding the offset thresholds.

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

www.valleyair.org www.healthyairliving.com

Printed on recycled paper.

0001-4

Furthermore, SJVAPCD rules do not require offsets for construction and operational emissions from equipment subject to portable equipment registrations or permit-exempt equipment registrations. Therefore, the Draft EIR (page 4.3-82) should be clarified as follows:

> *In summary, emissions from the new facility and well construction at a Project level would result in emissions levels that would exceed SJVAPCD Construction Emissions Threshold. Only the ~~new facility~~ ~~construction~~ operational emissions from equipment subject to SJVAPCD Rule 2201 (New Source Review) that exceeds the SJVPACD's offset thresholds would be required to be ~~off-set~~ offset because it would be a condition of the SJVAPCD air permit. Although ~~offset all~~ permitted stationary source operational ~~construction~~ emissions that are above ~~baseline~~ SJVAPCD's thresholds of significance would be offset through SJVAPCD Rule 2201 (New Source Review), other equipment and activities are exempt. Specifically, SJVAPCD rules do not require offsets for construction and operational emissions from equipment subject to portable equipment registrations or permit-exempt equipment registrations. In addition, new facility construction and well construction emissions have no offset requirements. Since these emissions exceed the SJVAPCD Construction Emissions Threshold and would not be offset, they would result in a cumulatively considerable net increase of criteria pollutants for which the Project region is nonattainment and therefore the construction impacts would be significant.*

2) Clarify OG-ERA Mitigation

0001-5

The Draft EIR should be revised to clarify that all criteria pollutant emissions not offset by SJVAPCD rules and regulations will be fully mitigated to a level of no net increase under the OG-ERA. The SJVAPCD looks forward to continuing to work with Kern County to clearly identify emissions and emission sources that are subject to this mitigation process, prior to the finalization of the EIR.

Mitigation Measure 4.3-8 in the Draft EIR should be revised as follows:

> *For criteria emissions ~~Project facilities or equipment that are~~ not required to be offset ~~emissions~~ under a District rule as described in MM 4.3-1, and for Project vehicle and other mobile source emissions, the County will enter into an emission reduction agreement with the San Joaquin Valley Air Pollution Control District, pursuant to which the Applicant shall pay fees to fully offset Project emissions of oxides of nitrogen, reactive organic gases, and particulate matter of 10 microns or less in diameter (including as applicable mitigating for reactive organic gases by additive reductions of particulate matter of 10 microns or less in diameter) (collectively,*

0001-5 Continued

"designated criteria emissions") to avoid any net increase in these pollutants.

The air quality mitigation fee shall be paid to the County as part of the Site Plan review and approval process, and shall be used to reduce designated criteria emissions to fully offset Project emissions that are not otherwise required to be fully offset by District permit rules and regulations.

3) Alternative Mitigation to OG-ERA

SJVAPCD recommends that Mitigation Measure 4.3-8 alternative mitigation be implemented through a SJVAPCD-approved process.

0001-6

Mitigation Measure 4.3-8 includes an alternative mitigation option under the OG-ERA. Over the years, the SJVAPCD has built a reputation for excellence in the implementation of its incentive emissions reduction programs, as highlighted in multiple audits by state agencies that lauded the SJVAPCD's incentive programs for their efficiency and effectiveness. The SJVAPCD also has a long and successful history of working collaboratively with local land use agencies (including Kern County) in verifying emission estimates, and collaborating on effective emission reduction mitigation measures. Therefore, the SJVAPCD recommends that this alternative mitigation option be done through a SJVAPCD-approved process. The SJVAPCD recommends the language in Mitigation Measure 4.3-8 be revised as follows:

As an alternative to paying the fee, an Applicant may reduce emissions for one or more designated criteria emissions through actual reductions in air emissions from other Applicant sources, as submitted to the County and subsequently validated by the District. This Project offset requirement alternative shall be enforced by the County and verified by the San Joaquin Valley Air Pollution Control District, and must be approved in advance by the San Joaquin Valley Air Pollution Control District.

4) OG-ERA Implementation

The Draft EIR should be revised throughout to reflect the SJVAPCD's primacy in choosing reduction projects, in consultation with Kern County, and the mechanism for updating the cost of the reductions.

0001-7

The SJVAPCD recommends two mitigation options under the OG-ERA: 1) allowing an applicant to pay a calculated fee to the SJVAPCD to fund emission reduction projects through its Incentive Program, or 2) allowing an applicant to propose their own emission reduction projects through a SJVAPCD approved process in lieu of paying a calculated mitigation fee.

0001-8

The SJVAPCD has developed Incentive Programs around several core principles, including cost-effectiveness, integrity, effective program administration, excellent customer service, and efficient use of resources, fiscal transparency and public accountability. When the SJVAPCD spends mitigation funds through its Incentive Program, the goal is to achieve emission reductions closest to the proposed project while also maintaining cost effectiveness. The implementation of these principles has resulted in a consistently low cost for emissions reductions achieved – a fact that Kern County is relying upon when establishing a cost of $6974 (actually, the EIR should be updated throughout to reflect the SJVAPCD 's annual ISR report for 2014 - $6987 is the correct number) per ton of reductions achieved.

0001-9

To achieve the reductions necessary to mitigate the air quality impacts of future growth in the oil and gas sector in Kern County, the SJVAPCD must be able to choose the most cost effective emissions reduction projects available that will positively impact the location of the increased emissions.

0001-10

Therefore, the SJVAPCD recommends the Draft EIR (page 4.3-100) be revised to reflect implementation of the OG-ERA as follows:

> *The mandated emission reductions will be achieved by a menu of options that range from paying a calculated mitigation fee for use in doing emission reduction projects through a grant-type program, to applicant's proposing and achieving their own emission reduction projects through a SJVAPCD-approved process in lieu ~~changing equipment on existing operations or proposing projects for implementation instead~~ of paying the fee. The first pathway, the mitigation fee, will involve paying a calculated mitigation fee to the County on each permit for implementation of the OG-ERA. The mitigation fee shall be placed in a fund, established by the Board of Supervisors, with an additional administrative fee collected for the SJVAPCD. Expenditure of the mitigation funds shall be for certified air quality reduction projects managed ~~jointly~~ by ~~Kern County and~~ the SJVAPCD, in close consultation with Kern County. Final determination of air quality reductions achieved shall be under the determination of the SJVAPCD~~; however,~~ Furthermore, selection of specific projects shall be determined by the SJVAPCD in consultation with Kern County~~Kern County in consultation with District~~. Projects of equal cost-effectiveness to off-set criteria pollutants under the OG-ERA would be given priority for within Kern County valley locations ~~and be implemented on a yearly basis. Multi-year phased projects could also be funded.~~ The fee will be based and tiered to address different configurations of equipment that could be used, as well as other variables such as the depth of the well at standard depths of 3,000, 5,000, and 10,000 feet. The fee shall be adjusted as of January 1 of each year, and shall be tied to the prior year's average cost effectiveness, as published in the SJVAPCD's "Annual Report on the District's Indirect*

0001-10 Continued

Source Review Program" (i.e., the cost of $6974 per ton used in this EIR shall be updated annually, accordingly).

5) Greenhouse Gas Emissions

0001-11

The SJVAPCD would like the EIR to clarify how the SJVAPCD determines significance of greenhouse gas emissions impacts.

Mitigation Measure 4.7-1 requires applicants with permitted stationary sources to comply with the Cap-and-Trade regulation and implement applicable best performance standards (BPS) for oil and gas production activities. The SJVAPCD considers any source subject to cap and trade (http://www.valleyair.org/policies_per/Policies/APR-2025.pdf) to be less than significant for GHG impacts, without requiring the implementation of additional emission reduction measure such as BPS.

6) Greenhouse Gas Emission Reduction Agreement

0001-12

The SJVAPCD recommends Mitigation Measure 4.7-4 be revised to clarify requirements for fully mitigating greenhouse gas emission impacts.

Mitigation Measure 4.7-4 provides mitigation options for fully mitigating greenhouse gas emission impacts and requires the SJVAPCD to verify. The SJVAPCD does not have statutory authority for regulating greenhouse gas emission impacts but can provide any necessary guidance Kern may need. As such, SJVAPCD verification is not necessary.

0001-13

Furthermore, the SJVAPCD appreciates the County providing the option of fully mitigating greenhouse gas emission impacts under an emission reduction agreement. However, the SJVAPCD does not yet have an established incentive program for generating greenhouse gas emission reductions to provide the option to enter into an emission reduction agreement. The SJVAPCD is currently exploring options for such a GHG mitigation program, and the EIR should allow its use in the future.

0001-14

Therefore, the SJVAPCD recommends Mitigation Measure 4.7-4 be revised as follows:

> *Each Applicant shall offset all greenhouse gas emissions not covered by the Cap-and-Trade program or other mandatory greenhouse gas emission reduction measures through Applicant reductions of greenhouse gas emissions as verified by ~~the San Joaquin Valley Air Pollution Control District~~ Kern County, acquisition of offset credits from the California Air Pollution Control Officers Association Exchange Register or other third party*

0001-14 Continued

greenhouse gas reductions as verified by ~~the San Joaquin Valley Air Pollution Control District~~ Kern County, or through inclusion in an Emission Reduction Agreement, to offset Project-related greenhouse gas emission that are not included in the Cap-and-Trade program to assure that no net increase in greenhouse gas emissions from the Project.

0001-15

7) Health Risk Assessment

Kern County has informed the SJVAPCD that the final EIR will contain a Health Risk Assessment (HRA) to identify the risks to potential sensitive receptors, and which will follow SJVAPCD guidance and policies.

0001-16

The SJVAPCD provides the following comments accordingly:

Diesel Exhaust

The Slope factor developed by the Office of Environmental Health Hazard Assessment (OEHHA) for diesel exhaust is based on the aerometric diameter of 10 microns (PM10). Therefore, using an aerometric diameter of 2.5 microns (PM2.5) to consider diesel particulate matter (DPM) would assure that calculated emissions and the potential impact to nearby residence(s) are accurate.

0001-17

Receptor Gridding

Based on the information provided, the receptor gridding used in the model was limited to only 250 meters away. The SJVAPCD requires that a receptor grid be used sufficient to ensure that the maximum impact is found. As found in the SJVAPCD's guidance, the following grid system should be used in the revised Health Risk Assessment:

- 25 m spacing on the facility boundary
- 25 m spacing from facility boundary to 100 m
- 50 m spacing from 100 to 250 m
- 100 m spacing from 250 to 500 m
- 250 m spacing from 500 to 1,000 m
- 500 m spacing from 1,000 to 2,000 m

0001-18

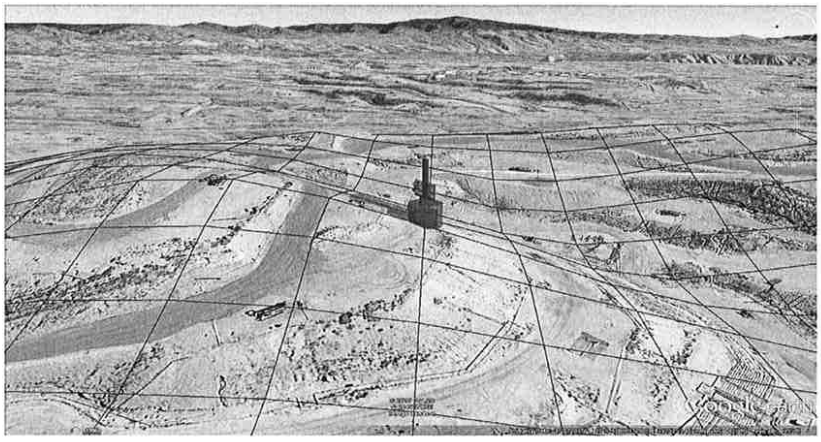
Terrain Characteristics

The terrain characteristics used in the three modeling scenarios were within the following areas: 1) Midway Sunset Oilfield, 2) Kern River Oilfield, and 3) North Shafter Oilfield. While the two of the three areas selected are located within the major oilfield and the third is located in a new oilfield, there is no assurance that the sites chosen have terrain that would result in a higher risk in the specified oilfield. For example, two of the locations selected are basically flat within the receptor gridding used. Only one scenario provided any elevation, and in that case, placing all the units near the top of the hill

0001-18
Continued

may not be the best scenario to determine the maximum impact in elevated terrain (see Figure 1 below).

Figure 1: Eastern Location – Kern River



Meteorological Data

0001-19

In reviewing the model inputs used to derive the results for the study, it was noted that not only a single meteorological dataset was used. The SJVAPCD provides AERMOD ready meteorological datasets for several areas in Kern County including those areas where the proposed scenarios were conducted. The table below presents the meteorological datasets available that should have been considered when conducting the modeling scenarios.

Table 1 – Kern County Meteorological Datasets

District	Location	Station ID	Elevation (m)	No. of Years
SJVAPCD	Arvin	MM5	267	5
SJVAPCD	Bakersfield	23155	149	5
SJVAPCD	Fellows	MM5	472	5
SJVAPCD	Missouri Triangle	MM5	268	5
SJVAPCD	Wasco	MM5	77	5

0001-20

Dispersion Model Inputs (AERMOD)

A review of the dispersion model inputs indicated that the input parameters for two types of point sources are outside the range of acceptable parameters. Below is a table identifying the model input used compared to those used by the SJVAPCD when conducting modeling runs for similar sources. Specifically, the modeled exit velocities are significantly outside the normal range, which can drastically affect modeled results.

Table 2 – Project Model Inputs Compared to SJVAPCD

		Height [m]	Diameter [m]	Exit_Temp [K]	Exit_Vel [m/s]
440 hp Diesel ICE	DRL03	4.572	0.1524	672.04	10
	SJVAPCD	2.85	0.18	761.9	71.23
1,000 hp NG ICE	ICE01	6.096	0.6096	727.59	9.144
	SJVAPCD	6.78	0.35	745.19	63.9

0001-21

Additionally, other sources were identified in the model inputs that were not described in the model write-up from Environmental Compliance Solutions Inc. (model name DRL01 and DRL02). The SJVAPCD is uncertain why these sources are included in the modeling runs especially since DRL01 was modeled as an "area" source 20 feet by 65.62 feet and DRL02 was modeled as a "volume" source 30 feet off the ground. Please provide an additional explanation of these sources in the revised Health Risk Assessment.

0001-22

HARP 2 Inputs

Risk Scenario (70- versus 30- year exposure): Based on a review of the HARP2 output files provided, the runs were conducted June 8, 2015. It's uncertain why a 30-year exposure duration was selected for this analysis. The SJVAPCD has been working with the regulated community and lead agencies in establishing a new threshold of significance for CEQA HRAs with a 70-year exposure duration. The SJVAPCD finalized its policy for implementation of the new OEHHA guidance on May 28, 2015 (District APR-1906). The SJVAPCD recommends that a 70-year risk assessment be conducted to ensure that estimates of risk conducted for permitting actions and those done for CEQA actions are comparable. That does not mean that within a scenario, adjustments cannot be made. For example, when looking at the drilling operation within the production lifecycle of the Project a short term HRA of one year (third trimester to one-year old) could have been evaluated and added to the HRA for the other time period(s) to get the total impact. The HARP2 program allows for this type of scenario.

The SJVAPCD's minimum required toxicological pathways must also be used when conducting HARP2 runs. Specifically, the SJVAPCD enables the inhalation, soil ingestion, dermal absorption, mother's milk, and homegrown crops toxicological pathways for residential and other sensitive receptors. The HARP2 runs must activate the homegrown crop toxicological pathway. 0001-23

SJVAPCD's *CEQA Significance Threshold for Assessing Health Impacts* 0001-24

As noted above, the SJVAPCD's guidance also establishes a cancer risk significance threshold for CEQA of 20-in-a-million. The significance threshold of 10-in-a-million is no longer used by the SJVAPCD to determine if a project under CEQA is considered significant.

The SJVAPCD strongly recommends that the 20-in-a-million risk threshold be used in conjunction with the 70-year exposure period, consistent with SJVAPCD-adopted policy.

General Comments 0001-25

Co-locating all sources in reference to a single location may not result in the maximum concentration especially when different source types and a limited number of receptors are used – dispersion characteristics can be drastically different amongst differing source types. This is true when comparing impacts from point and area source types where point sources tend to have their maximum impacts further away while area and volume source tend to be closer to the emissions release. Therefore, different distance/separations between source types could produce higher risk estimates, such as co-locating area sources at an appropriate point, and co-locating point sources at an appropriate point.

The HRA seeks to establish minimum go-no-go offset distances such that a site would not be permitted if the nearest sensitive receptor is closer to the site than the offset distance. The SJVAPCD suggests that such offset distances be used as a guideline, or screening level. Individual projects that locate further than the offset distance from receptors may proceed, but individual projects that locate closer than the offset distance should be required to perform a site-specific HRA using SJVAPCD approved procedures, and receive SJVAPCD approval of the site specific HRA. 0001-26

Such site-specific HRAs that demonstrate no significant impact from air toxics should be allowed to proceed with permitting processes as if they were outside of the offset distance. The EIR should be updated with an appropriate mitigation measure that allows this more refined process to determine health risk of a proposed project. 0001-27

0001-28

The SJVAPCD appreciates the opportunity to comment on the Draft EIR for this innovative and groundbreaking effort to address environmental issues associated with growth in the oil and gas industry in the San Joaquin Valley. If you have any questions or require further information, please call Mark Montelongo at (559) 230-5905.

Sincerely,

Arnaud Marjollet
Director of Permit Services



Chay Thao
Program Manager

AM: mm

0001-1

The comment is a general introduction. No response is necessary and it is noted for the record.

0001-2

The comment is a general introduction. No response is necessary and it is noted for the record.

0001-3

Please see GR Air-1, regarding air permitting. The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-4

Please see GR Air-1, regarding air permitting. The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-5

Please see GR Air-2 regarding the Emission Reduction Agreement. The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-5 cont'd

0001-6

Please see GR Air-2 regarding the Emission Reduction Agreement. The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-7

Please see GR Air-2 regarding the OG-ERA. The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-8

Please see GR Air-2 regarding the OG-ERA. The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-9

Please see GR Air-2 regarding the OG-ERA. The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-10

The proposed textual changes are noted for the record and were incorporated into the FEIR.

0001-10 cont'd

0001-11

The comment is noted for the record. Please also see GR GHG-1.

0001-12

It is noted that SJVAPCD does not have statutory authority for regulating GHGs and thus does not require verification by the District for GHG offsets under MM 4.7-4. Please see GR GHG-1 for a discussion of MM 4.7-4 and the Project's GHG analysis.

0001-13

It is noted that SJVAPCD does not have statutory authority for regulating GHGs and thus does not require verification by the District for GHG offsets under MM 4.7-4. Please see GR GHG-1 for a discussion of MM 4.7-4 and the Project's GHG analysis.

0001-14

The proposed change to MM 4.7-4 is noted for the record and was incorporated into the FEIR.

0001-14 cont'd

0001-15

The comment is a general introduction and it is noted for the record. The FEIR contains a revised HRA completed in accordance with the District's guidance and policies. Please see GR-6 for a discussion of this HRA. The revised HRA can be found in Appendix M-1 of the FEIR.

0001-16

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-17

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-18

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-18 cont'd

0001-19

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-20

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-21

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-22

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-23

Please see GR Air-6 regarding the revised Health Risk Assessment completed according to the District's comments. The revised Health Risk Assessment is included for informational purposes as Appendix M-1. Please also see GR Air-7 for an explanation of the HARP model.

0001-24

Please see GR Air-6 regarding the revised Health Risk Assessment performed according to these comments. The revised Health Risk Assessment is included as Appendix M-1, and it uses the requested 20 in a million risk threshold for informational purposes. However, the FEIR continues to use the 10 in on million risk threshold for purposes of maintaining the setback established in MM 4.3-5 (367 feet for a 10,000 foot well in 2015) as this provides a conservative analysis.

0001-25

In response to the District's comments, the various sources of emissions were spread out throughout a well pad in the revised HRA in Appendix M-1. Please see GR Air-6 for more information on the revised HRA prepared in response to the District's requests.

0001-26

MM 4.3-5(c) has been modified in the final FEIR as follows:

"c. If the above setbacks cannot be met, and for existing wells, the Applicant shall provide a site-specific or other risk assessment to the SJVAPCD, which may include implementation of one or more of the following risk minimization measures, or such measures that are demonstrated by the Applicant to the SJVAPCD, to achieve a level of risk less than the threshold risk level, and shall provide confirmation from the SJVAPCD that the activity that is the subject of the application will not exceed the risk threshold:"

0001-27

MM 4.3-5(c) has been modified in the final FEIR as follows:

"c. If the above setbacks cannot be met, and for existing wells, the Applicant shall provide a site-specific or other risk assessment to the SJVAPCD, which may include implementation of one or more of the following risk minimization measures, or such measures that are demonstrated by the Applicant to the SJVAPCD, to achieve a level of risk less than the threshold risk level, and shall provide confirmation from the SJVAPCD that the activity that is the subject of the application will not exceed the risk threshold:"

0001-28

The comment is a general conclusion. No response is necessary and it is noted for the record.

2 California Department of Conservation Division of Oil, Gas, and Geothermal Resources

State of California • Natural Resources Agency
Department of Conservation
Division of Oil, Gas, and Geothermal Resources
801 K Street • MS 18-05
Sacramento, CA 95814
(916) 445-9686 • FAX (916) 319-9533

Edmund G. Brown Jr., *Governor*
Steven R. Bohlen, Ph.D., *State Oil and Gas Supervisor*

September 11, 2015

VIA ELECTRONIC & REGULAR MAIL

Kern County
Planning and Community Development Department
Attn: Christopher B. Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301

E-Mail: mynkC@co.kern.ca.us

Re: Comments on the Draft EIR re Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting (SCH No. 2013081079)

Dear Mr. Mynk:

This letter and associated attachments provide comments from the California Department of Conservation (DOC), through its Division of Oil, Gas, and Geothermal Resources (DOGGR), on the proposed Revisions to the Kern County Zoning Ordinance – 2015 C ("Project") and the County's associated Draft Environmental Impact Report (DEIR). 0002-1

DOGGR submits this letter to request additional information, to seek clarification, to provide substantive comments on the adequacy of the DEIR, to provide information relevant to DOGGR's function as a responsible agency, and to offer recommendations based on the recently completed, statutorily mandated Independent Scientific Study on the subject of well stimulation. Of particular note, this letter serves to inform Kern County that the DEIR, in its current form, does not include all of the information that DOGGR would ideally like to have when it acts in the future on various oil and gas permits as a responsible agency consistent with the California Environmental Quality Act (CEQA) (Public Resources Code, § 21000 et seq.), and the CEQA Guidelines (Cal. Code Regs., tit.14, § 15000 et seq.). Through this letter, DOGGR intends to identify for the County areas in which additional information will be necessary or desirable for the Final EIR to meet all of DOGGR's needs. 0002-2

As you know, pursuant to Senate Bill 4 (SB 4) (Stats. 2013, ch. 313, § 2) and follow-up legislation (Stats. 2014, ch. 35, § 130), the DOC was required by statute, through DOGGR, to prepare an EIR "to provide the public with detailed information regarding any potential environmental impacts of well stimulation in the state." (Pub. Resources Code, § 3161, subd. (b)(3).) DOGGR evaluated the impacts of existing and potential future oil and gas well stimulation treatments occurring within California in an EIR entitled "Analysis of Oil and Gas Well Stimulation Treatments in California" (State Clearinghouse Number 2013112046) ("SB 4 EIR"). The Draft EIR was made available on January 14, 2015. The public review period for the Draft EIR ended on March 16, 2015, and the Final EIR was certified on July 1, 2015, as required by SB 4. 0002-3

As explained in the SB 4 EIR and in Oil and Gas Supervisor Dr. Steven Bohlen's "Certification Statement," DOGGR has an obligation to make local lead agencies processing oil and gas projects 0002-4

that will likely involve well stimulation aware of all of the generic mitigation measures in the SB 4 EIR. (See Exhibit 1 [SB 4 EIR's mitigation measures, as set forth in DOGGR's "Mitigation Policy Manual for Well Stimulation Treatment Permits"[1]].) As further explained in those documents, DOGGR is willing to work with such local agencies, where necessary, to try to formulate mutually acceptable mitigation measures for specific well stimulation treatment permits. The generic measures developed by DOGGR to date are intended to set standards that DOGGR believes should be satisfied, where relevant and necessary, for all such permits. By making local lead agencies such as Kern County aware of these generic measures, DOGGR intends to ensure that the mitigation measures for well stimulation treatment permits achieve protections consistent with DOGGR's mandate to supervise oil and gas well operations "so as to prevent, as far as possible, damage to life, health, property, and natural resources." (See Pub. Resources Code Section 3106, subd. (a).) The mitigation measures set forth in the SB 4 Final EIR create good standards against which local lead agencies and DOGGR can measure the capability of proposed mitigations to satisfy that mandate for specific projects.

0002-4
Continued

Although this interagency communication reflects DOGGR's own notions about how best to ensure environmentally acceptable outcomes, this kind of input from a responsible agency to a lead agency is expressly contemplated by CEQA. Public Resources Code section 21081.6, subdivision (c), provides, in pertinent part, as follows:

> Prior to the close of the public review period for a draft environmental impact report or mitigated negative declaration, a responsible agency … shall either submit to the lead agency complete and detailed performance objectives for mitigation measures which would address the significant effects on the environment identified by the responsible agency…, or refer the lead agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a lead agency by a responsible agency… shall be limited to measures which mitigate impacts to resources which are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance by a responsible agency… with that requirement shall not limit the authority of the responsible agency…, or the authority of the lead agency, to approve, condition, or deny projects as provided by [CEQA] or any other provision of law.

0002-5

Another purpose of this letter is to offer suggestions to the County beyond those already found in DOGGR's SB 4 Final EIR. Because the final two volumes of the Independent Scientific Study conducted pursuant to SB 4 by the California Council on Science and Technology (CCST) were not available prior to the certification of the SB 4 Final EIR, DOGGR committed in Steven Bohlen's Certification Statement to reviewing the final Independent Scientific Study ("CCST Study") and considering whether any of its conclusions justified formulating additional generic mitigation measures for well stimulation treatment permits or additional permanent regulations addressing well stimulation. DOGGR recognizes that Volumes II and III of the CCST Study were not available to the County during its preparation of the DEIR. Since DOGGR has now had time to review these final two volumes, DOGGR is sharing with the County some of the CCST Study conclusions and recommendations that are relevant to the County's proposed project and are of particular importance to DOGGR.

0002-6

[1] / Exhibit 1 is the July 2015 version of the Mitigation Policy Manual, which may be revised as needed in the future.

0002-7

DOGGR also notes that there is an ongoing effort by an interagency working group to fully consider the findings and recommendations of the CCST Study. Established on July 22, 2015, by Governor Jerry Brown, the interagency working group consists of policy and technical staff from nine state agencies and departments:

- California Natural Resources Agency
- California Environmental Protection Agency
- Department of Fish and Wildlife
- Department of Public Health
- Office of Environmental Health Hazard Assessment
- Department of Toxic Substances Control
- California Air Resources Board
- Department of Conservation
- California Department of Industrial Relations.

Before the end of 2015, the interagency working group is scheduled to provide the public with a plan for the full implementation of certain recommendations in the CCST Study, as well as a map of the process for further analyzing and considering other recommendations in the Study. The plan will provide a timeline that identifies the agencies charged with implementation of a certain recommendation and the method (e.g. rulemaking) for implementation. To avoid duplicative efforts or conflicting approaches, DOGGR's comments do not endorse a particular plan of action for addressing the concerns raised in the CCST Study. DOGGR's comments simply bring to the County's attention the existence of additional data that can be addressed in the County's Final EIR. Based on the foregoing, DOGGR's comments, discussed in detail below and in the attached technical comments, generally fall into two categories: (1) comments on, and requests for additional information or clarification with respect to, the DEIR; and (2) comments relating to the reconciliation of the mitigation measures in County's DEIR with mitigation measures in DOGGR's SB 4 Final EIR.

I. COMMENTS ON THE COUNTY'S DRAFT EIR

0002-8

In this section, DOGGR raises various issues with regard to the County's DEIR, including requests for additional information or clarification. Some of these comments refer to the CCST Study as a source of additional data for the County to consider. These comments are not intended to imply that the County's DEIR is legally inadequate for not including the conclusions and recommendations of the CCST Study, as DOGGR recognizes that Volumes II and III of the CCST Study were not available to the County during its preparation of the DEIR. Rather, these comments simply bring to the County's attention the existence of additional data that can be addressed in the County's Final EIR. Please also see Exhibit 2 for technical comments from DOC and DOGGR staff.

A. Projections of project-related water use

0002-9

The County's DEIR developed three scenarios or "projections of project-related water use in 2035" that "focus on potential variation in the amount of surface pond disposal, injection well disposal, and reuse of produced water that could occur under future conditions." (DEIR, pp. 4.9-125 to 4.9-126.) In Scenario 1 (Pro-Rata Increase), "produced water land disposal" is projected to increase from 30,233 acre-feet per year (AFY) in 2012 to 41,806 AFY by 2035. (DEIR, p. 4.9-126.) In

contrast, Scenario 2 shows 15,112 AFY in 2035, and Scenario 3 shows 3,022 AFY in 2035. (DEIR, p. 4.9-126.)

0002-9 Continued

It is important for the County's analysis of project-related water use and wastewater disposal to consider the balance that needs to be achieved between various important uses of water, such as groundwater recharge, irrigation, and subsidence abatement. As explained below, DOGGR is seeking additional information and clarification about the DEIR's three scenarios.

0002-10

First, the DEIR's three scenarios do not appear to address the amount of produced fluids from well stimulation treatment (WST) wells that would be shifted from disposal into evaporation and percolation ponds to injection wells. As explained in the SB 4 EIR, new permanent regulations prohibit the storage or disposal of well stimulation fluids, additives, and produced water from a well that has had a well stimulation treatment in sumps, ponds, or pits. (SB 4 Final EIR, Vol. II, p. 10.14-84 [citing 14 CCR § 1786 (a)(4)].) Under regulation Section 1786, produced fluid from a well that has had a well stimulation treatment can never be stored, disposed, or managed in sumps, ponds, or pits. The produced fluid volumes in the DEIR's three scenarios do not consider the WST fluid prohibition in new permanent regulations, which will affect the volumes of fluids that will need to be managed through other means, mainly (we anticipate) through injection wells. This volume will not be available for groundwater recharge by percolation pits. If managed by irrigation use, the cleanup of WST chemical contaminants will create an impact, since treated waste will be generated and necessitate disposal. The generated waste could be hazardous. Given the intent to use produced fluids for beneficial uses, such as, groundwater recharge, irrigation, and subsidence abatement, how does the County propose to address the risk of WST chemical dispersal through these alternative uses?

0002-11

0002-12

0002-13

Second, the DEIR's discussion of water use and wastewater disposal needs to better address the issue of subsidence. In one place, the DEIR explained:

0002-14

> Land subsidence is the gradual, local settling or sinking of the earth's surface with little or no horizontal motion. Subsidence is normally the result of gas, oil or water extraction, hydrocompaction, or peat oxidation, not the result of landslide or ground failure. The southern part of the planning area has been undergoing gradual land subsidence, with up to 4 feet of subsidence over a 40-year period.

(DEIR, p. 4.6-45.)[2] In another place, the DEIR states that groundwater extraction resulted in more than 8 feet of subsidence in the north-central portion of the Kern County Subbasin, and 9 feet in the south-central area between 1926 and 1970. (DEIR, p. 4.9-9.) As explained elsewhere in the DEIR:

0002-15

> Land subsidence of less than 1 foot from oilfield withdrawals is known to occur in a few isolated areas in southwest Kern County. Generally, the extent and rate of oil and gas extraction subsidence is significantly less than subsidence caused by groundwater use. . . . DOGGR monitors subsidence in oil and gas fields and regulates oil and gas withdrawal and re-pressurizing of each oilfield. If oilfield subsidence is observed, well operators are required to stabilize the ground by injecting additional produced water or reducing the volume of produced water being pumped during field operations.

---

[2] / Please see Exhibit 2 for comments about the accuracy of this quote

(DEIR, p. 4.6-19 to -20.)[3] To address this potential impact, the DEIR includes MM 4.6-4, which requires the applicant comply with a DOGGR approved re-pressuring plan as required by "Division 3, Chapter 1, Article 5.5 of the Public Resources Code, commencing with Section 3315." (DEIR, p. 4.6-58.) Please explain how the DEIR's three scenarios of water use and wastewater disposal takes into account MM 4.6-4 and the potential impact of subsidence. The FEIR should discuss whether increased use of produced water for irrigation outside the Project area affects the balance that needs to be maintained to prevent more subsidence in the Project area. DOGGR is mandated to prevent subsidence. The means by which subsidence is abated is either by balancing production and injection, or by requiring injection and re-pressurization. If produced fluids are redirected to other "beneficial uses," there may not be fluid available to put to use in subsidence abatement. Alternative uses of produced fluids should not be at the expense of other considerations that are just as important.

0002-16
0002-17
0002-18

Third, please clarify how the DEIR's projections for how much water will be used by well stimulation treatments is taken into account in the three scenarios. Although the DEIR and Appendix T provide figures for past water use in the Project Area and estimates for future water use, it is unclear what percentage of those figures are attributable to use for well stimulation treatments. (DEIR, pp. 4.9-20, 4.9-125; Appendix T, pp. 70-71, 74.) Please see the SB 4 EIR's discussion of "Estimated Water Use for Unconventional Well Stimulation Treatments in the Monterey Formation," which explained that exploratory Monterey Formation treatments could take significantly more water (up to 20 AF per treatment) than the typical well stimulation treatments that might only use about 0.38 AF per treatment in Kern County. (SB 4 Final EIR, Vol. II, pp. 10.14-79 to -80; County's DEIR, p. 4.9-20.)

0002-19
0002-20

Finally, please explain which of the three scenarios has been chosen as the most likely outcome. Please explain how the proposed mitigation measures are adequate to address impacts under all three scenarios. Please explain how the DEIR's mitigation will address impacts even though there is a wide variation in how much produced water land disposal is projected under the three scenarios. The DEIR should evaluate the usage of produced water and ensure that one usage does not negatively affect other equally important needs.

0002-21

B. Health Risk Assessments and impacts on sensitive receptors

0002-22

Toxic air contaminants are air pollutants that, even when present in relatively low concentrations, "may lead to serious illness or increased mortality," such as "birth defects, neurological damage, cancer, and death." (SB 4 Final EIR, Vol. II, p. 10.3-5; see also CCST Study, Summary Report, p. 60, fn. 15.) The SB 4 EIR recognized that "[p]roject-level or site-specific health risk assessment may be necessary to determine whether concentrations of [Toxic Air Contaminants] would occur at excessive levels downwind of new oil and gas fields or sites experiencing extensive well stimulation treatment." (SB 4 Final EIR, Vol. II, p. 10.3-38.) According to the SB 4 EIR, the "greatest need for site-specific health risk assessment would [be] for activities occurring near particularly sensitive land uses (for example within 1,500 feet [of uses]) such as residences, worksites, schools, daycare centers, playgrounds, or medical facilities." (SB 4 Final EIR, Vol. II, p. 10.3-38.) This is because "[m]any of the constituents used in and emitted by oil and gas development can damage health, and place disproportionate risks on sensitive populations, including children, pregnant women, the elderly, and those with pre-existing respiratory and cardiovascular conditions." (CCST Study, Summary Report, p. 62.)

---

[3] / Please see Exhibit 2 for comments about the accuracy of this quote.

The SB 4 EIR was a programmatic EIR focused, among other things, on air quality impacts from well stimulation treatments. As a result, the SB 4 EIR included a flexible mitigation measure (MM AQ-3a) that would require an applicant for a well stimulation permit to "Comply with Local Air District Protocols Relating to the Preparation of Prepare a Health Risk Assessment and Implement Emission Controls." (SB 4 Final EIR, Vol. II, p. 10.3-38 to -40.) But the CCST Study noted that it is oil and gas "production in general aside from well stimulation that may cause an impact," and that "a full understanding of health risks caused by proximity to production wells will require studying all types of production wells, not just those that have undergone hydraulic fracturing." (CCST Study, Summary Report, p. 62; see also CCST Study, Vol. II, p. 325.) According to the CCST Study, oil and gas production in the San Joaquin Valley accounts for "about 30% of sulfur oxides and 8% of anthropogenic volatile organic compound (VOC) emissions." (CCST Study, Summary Report, p. 60.) In particular, oil and gas facilities are responsible for over 70% of total hydrogen sulfide emissions in the San Joaquin Valley. (*Ibid.*)

0002-23

The County's DEIR includes a Health Risk Assessment (HRA) to evaluate "potential calculated cancer risk and acute and chronic health risk from toxic emissions associated with well construction, drilling, and completion as well as oil and gas processing equipment." (DEIR, Appendix M: Health Risk Assessment Proposed Drill and Oil and Gas Operations, p. 2.) As explained in more detail below, DOGGR is seeking more information and clarification about the HRA from the County:

1. It appears the impact of constructing, drilling, and operation of one well at a time was assessed. There may be times, however, when multiple wells will be constructed, drilled, and operating concurrently. The HRA should take into consideration these cumulative impacts. As the CCST Study explained, "the threshold of emissions for any single well to have an acceptable impact is smaller than the threshold for a well among a grouping of wells." (CCST Study, Vol. III, p. 328.) For example, the threshold in the Shafter area "for a well among the group would be about one hundredth of the threshold for a single well, based on a proximity of 1.6 km." (*Ibid.*)

0002-24

0002-25

2. The DEIR states that the HRA was conducted by the County Application Technical Committee. (DEIR, p. 4.3-103.) Appendix M states that the HRA was prepared by Environmental Compliance Solutions, Inc. in Santa Monica. Was the HRA done in consultation with the local San Joaquin Air Pollution Control District? Please include this information in the Final EIR.

0002-26

3. Were emissions from well stimulation activities included in the HRA? If the answer is yes, please explain in the Final EIR how emissions from well stimulation activities were quantified and included in the analysis of the HRA. If not, please revise the assessment as it appears in the Final EIR to include emissions from these activities. Additionally, the County's rules should provide that, if an oil or gas project is larger than what was assessed in the HRA is proposed, a site-specific HRA should be conducted to identify any additional potential health impacts.

0002-27

0002-28

4. The HRA refers to an "Appendix B" that includes the "exact equipment list for each of the seven phases [of well drilling] and their associated emissions." (DEIR, Appendix M, p. 5.) Unfortunately, Appendices B, C, and D to the HRA were not made publicly available with the HRA. The HRA also references a "Scope of Work" that includes the "equipment list and

0002-29

parameters" used to calculate operational equipment emissions. (DEIR, Appendix M, p. 6.) This Scope of Work was also not made publicly available with the HRA. Please include these missing items in the Final EIR for consideration by the public and sister agencies. 0002-30

5. Finally, the CCST Study includes Table 5.6-1, which shows the proximity of children, seniors, and people from minority groups to all active wells and hydraulically fractured wells in the San Joaquin Basin. (CCST Study, Vol. III, p. 327.) The County's DEIR and HRA does not include similar data specific to Kern County. Please provide such information in the Final EIR. 0002-31

Relying upon the HRA, the County's DEIR includes MM 4.3-5, which states in relevant part: 0002-32

> The Site Plan Application shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 3,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines).
> a. If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required.
> b. If there are sensitive receptors within the potential impact area, then additional information must be provided showing the setback from the closest edge of the well pad to the property line of the nearest sensitive receptor. The minimum distances shall be as follows:

Well Depth (Feet)	Minimum Setback Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)
Western Subarea	
10,000	367
5,000	116
2,000	NA
Central Subarea	
10,000	367
5,000	116
2,000	NA
Eastern Subarea	
10,000	296
5,000	NA
2,000	NA

(DEIR, pp. 4.3-110 to -112.) Are there other mitigation measures that impose relevant setbacks? Please explain in the Final EIR how the setbacks in MM 4.12-2 (mitigating noise impacts) interacts with the setbacks in MM 4.3-5. 0002-33

Both MM 4.3-5 and MM 4.12-2 apply only to new oil and gas wells and not to existing wells. Please explain if there are any relevant setbacks for redrilled or reworked wells or for well stimulation treatments that are proposed for existing wells. 0002-34

In addition, the CCST Study reports that the risk to public health due to air pollution from production wells only declines to background levels at distances more than one to two km (0.6 to 1.2 mi) from the well. (CCST Study, Vol. III, p. 324.) Please explain in the Final EIR how the County's final approach will be consistent with, or at least take into account, the information and studies referenced in the CCST Study related to this issue. 0002-35

Lastly, DOGGR requested the Office of Environmental Health Hazard Assessment (OEHHA) within the California Environmental Protection Agency to review the HRA. SB 4 mandated OEHHA to work with science team on the CCST Study; among many issues, OEHHA was very much involved with the conclusions and recommendations related to assessing public health as a function of proximity to oil and gas development. OEHHA's memo to the DOGGR is attached as Exhibit 3. OEHHA's comments included the following: 0002-36

1. The risk assessment did not include sufficient discussion of the toxic air emissions inventory that it used as input to the air dispersion analysis, and therefore it is unclear whether the emission estimates generated for the study are accurate and representative of potential emissions from the proposed project. In order to be health-protective, it would be preferential to develop and use reasonable, high-end emission estimates to compensate for uncertainty and variability in the data underlying the emissions estimates. 0002-37

2. Although Section 4.3 of the DEIR evaluated impacts due to criteria air pollutants, and Appendix M did the same for Toxic Air Contaminants (TACs), one gap in the analysis remains related to the localized non-cancer air impact of $PM_{2.5}$ and PM_{10} emissions from new oil and gas activities. This gap occurs because criteria air pollution, unlike TAC pollution, is normally analyzed and controlled (or offset) at a regional geographic scale. However, smaller sources of criteria air pollutants may, in certain cases, produce significant localized air impacts to fence line receptors. This possibility exists especially for $PM_{2.5}$ in Kern County since the San Joaquin Valley is out of attainment with the $PM_{2.5}$ standards. According to Table 4.3-9 of the DEIR, an increase of > 1.2 $\mu g/m^3$ in the 24-hour ambient air concentration of $PM_{2.5}$ would represent a significant air impact. 0002-38

   While the Appendix M risk assessment looked at long-term exposures and impacts (cancer risk to a maximally exposed individual) due to diesel particulate emissions, there is a remaining question as to whether 24-hour concentrations of $PM_{2.5}$ would be acceptable with respect to non-cancer health risks. Addressing this gap in the analysis could result in a revision of the proposed setbacks. Also note that this type of regulatory gap may exist for other criteria air pollutants although it likely is most significant for PM pollution due to the elevated PM levels in the San Joaquin Valley. 0002-39

3. Another analysis gap relates to potential localized air impacts from accidental spills. Spills of various oil and gas production-related fluids have been occurring on a regular basis in Kern County, as indicated in the following table (extracted from Table 4.8-6 of the DEIR). The DEIR also describes 57 crude oil spills ranging from 5 to 53,550 gallons that were 0002-40

reported for PHMSA[4]-regulated pipelines between 2002 and 2009.

The DEIR concluded that in spite of current regulations, accidental spills still represent a significant potential impact of the proposed project. Thus, it seems reasonable to question whether an acute air hazard could be created by vapor emissions from such accidental spills of hazardous fluids. This analysis was not carried out in the DEIR or the Appendix M risk assessment. 0002-41

Spills in Kern County Oilfields between January 2009 and June 2014 Not Associated with PHMSA-Regulated Pipelines 0002-42

	Number of Spills	Range of the Spill Volume (Gallons)	Average Spill Volume (Gallons)
Oil	403	0.126 - 27,300	1,126
Produced Water	263	2.1 - 126,000	6,888
Acid	9	33.2 - 7,333	2,633
Diesel	2	1,323 - 2,688	2,003

4. Some chemicals specific to well stimulation processes were not covered in the risk assessment. For example, proppant materials frequently contain crystalline silica, and elevated air concentrations of silica have been measured during fracking operations in studies conducted in other states. If this is also the case in California, then fence line receptors could be exposed to silica particulate and this should be evaluated. Another example specific to well stimulation is the operational or accidental release of highly hazardous materials such as hydrogen fluoride (or its chemical precursors) and hydrogen chloride. 0002-43 0002-44

5. The risk assessment assumed that well construction, drilling, and completion would last 23 days on average, whereas the DEIR noted that these activities could last longer than 60 days (see pg. 3-41 of the DEIR). Using a more conservative well-development period of 60 days or more might indicate the need for increased setback values. 0002-45

6. Mitigating measures (MMs) are proposed for potential air impacts to sensitive receptors. However, MM 4.3-5 also states that, "If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required." We could not find a complete definition of "sensitive receptor" in the DEIR. However, the OEHHA risk methodology used in the Appendix M risk assessment is designed to protect the general public (including sensitive individuals), as well as offsite workers. We recommend that the DEIR clarify the use of the term "sensitive receptor" to include the general public and offsite 0002-46

[4] PHMSA: Pipeline and Hazardous Materials Safety Administration.

workers, some of whom may be sensitive to the adverse effects of air pollution. 0002-47

7. The air dispersion modeling used meteorological data from a single site in Bakersfield to model air impacts over the entire 3700 square mile project area of Kern County. We did not look closely at the air dispersion model but wonder if this meteorological data is representative of dispersion conditions throughout the region of interest. For example, Bakersfield is a relatively urbanized area and may experience more air turbulence and pollutant mixing effects than rural areas. It may be appropriate to use multiple meteorological datasets to better characterize the high-end air pollution levels, particularly in rural areas. 0002-48

8. Section 3, page 3-47 defines "sumps" and "evaporation and percolation ponds" as separate installations. Appendix A to the risk assessment provides a list of devices analyzed and their estimated air emissions. Sumps are included in this list but we did not find emissions estimates for evaporation and percolation ponds. These potential air pollution sources should be included in the risk assessment. 0002-49

Please address these issues in the Final EIR and in any subsequent or updated version of the HRA. 0002-50

C. Underground Injection Control (UIC)

In general, DOGGR recommends that the DEIR augment the discussion and analysis of activities and associated impacts related to the Underground Injection Control (UIC) program. The subject areas referred to below are recommended to be considered for additional analysis or augmentation in the DEIR. 0002-51

With an expanded description of physical activities associated with UIC operations in the County (including the number of wells drilled for injection and associated production), the impacts resulting from those activities can be more fully disclosed and analyzed in the EIR. Also, a discussion of DOGGR's current and future regulations would be appropriate in order to provide information regarding how such regulations work to avoid or mitigate impacts resulting from UIC activities. In particular, a more thorough discussion and analysis of how the requirements of sections 1724.7 and 1724.10 of Title 14 of the California Code of Regulations, and related regulatory practices, act to prevent, mitigate or monitor certain potential impacts would be helpful to interested members of the public and to decision-makers. Last, the County should consider the regulatory goals identified by DOGGR in connection with its process to promulgate new regulations for its UIC program. Information about these goals can be found at: 0002-52 0002-53 0002-54

ftp://ftp.consrv.ca.gov/pub/oil/UIC%20Files/UIC%20Regulations/Phase%201%20%20Workshop%20Notice%20and%20Discussion%20Paper.pdf

With the above stated, DOGGR draws the County's specific attention to the following areas: 0002-55

Depth of Injection

DOGGR encourages the County to make a clear distinction between the different types of injection activities according to depth, and to analyze the impacts accordingly. For example, disposal wells should be analyzed separately from enhanced recovery operations, which should be analyzed differently than certain cyclic steam operations.

0002-55 Continued

Confinement of Injected Fluids

DOGGR encourages the County to augment the DEIR to analyze vertical confinement and lateral confinement of fluids for projects injecting into exempted groundwater zones with Total Dissolved Salts levels that are less than 10,000 mg/l. This issue has been raised, in conjunction with DOGGR, by both the U.S. Environmental Protection Agency and the State Water Resources Control Board (SWRCB). Modeling and/or monitoring may need to be required to ensure both vertical and lateral confinement in certain situations. This issue was also raised in the CCST Study. The groundwater monitoring criteria developed by the SWRCB regarding well stimulation activities may only apply to areas subject to well stimulation activity and not necessarily to those areas with UIC activity but not well stimulation activity.

0002-56

Shallow Thermal Diatomite

Shallow thermal diatomite (STD) is a significant hydrocarbon-bearing resource for the State, roughly making up 20% of the State's production. Although this is a significant resource, STD extraction operations have had, and continue to have, significant impacts to the environment. These impacts include: potential air emissions from surface expressions; oil-bearing formation water coming to the surface through surface expressions and seeps; high and low energy well and non-well blowouts (eruptions); subsidence and associated casing damage; and ground stability issues causing health and safety concerns to field personnel. DOGGR encourages the County to augment its current analysis or include additional analysis of the issues associated with shallow thermal diatomite extraction activities, including consideration of controls to limit injection pressures and/or injection volumes in order to minimize the risk of potential breakout to the surface of injected fluids and/or hydrocarbons. In working with DOGGR, some oil operators have voluntarily implemented reduced injection volumes and pressures in their steaming cycles and engage in continuous monitoring of well and line pressures.

0002-57

0002-58

Waste Gas Disposal

There are over 120 waste gas disposal wells in Kern County injecting a gas mixture with over 75% CO2 and H2S into currently producing hydrocarbon zones and other underground formations. H2S and CO2 are normal emissions in the oilfield. In some fields, there may be larger emissions because of the nature of the hydrocarbons being produced in that field. Many of these wells are injecting hazardous and corrosive fluids into the sub-surface of oil fields after piping this material over several miles through the surface of the field. DOGGR encourages the County to augment its current analysis or include additional analysis of the issues associated with waste gas transport and disposal activities. The County, either independently or in consultation with the Department of Industrial Relations or other agencies, could consider certain measures such as permanent fencing, warning signage and controlled entry in and around gas disposal wells, permanent H2S detectors in the well areas and compressor areas handling the waste gas streams, and adequate identification of conveyance pipelines.

0002-59

CO2 Injection in Enhance Oil Recovery (EOR)

0002-60

To DOGGR's knowledge, there are currently no carbon dioxide injection activities for EOR operations in Kern County. CO2 injection is used in certain oil reservoirs to promote the flow of oil into production. There is a possibility that this type of injection activity may occur in the future when large volumes of CO2 become available and economical. CO2 in large volumes and concentrations is a toxic gas that, when mixed with water to form carbonic acid, may impact well casing and pipeline integrity, or result in other impacts. This extraction method and associated activities and impacts should be considered by the County's EIR.

Subsidence

0002-61

DOGGR encourages the County to include additional information and analysis regarding subsidence in the oilfield potentially resulting from UIC activities to the discussion appearing in the DEIR at page 4.6-19. The County should consider expanding the analysis of past surface impacts that may occur in subsidence areas such as to roads, infrastructure, and natural habitats. Below surface, oil wells are also affected by subsidence. Ground movement may damage well casings and cement. Periodic testing of wells may be needed in certain areas to monitor well/casing integrity. The County might also consider requiring operators to be proactive in implementing remedial measures in subsidence-prone areas to ensure containment of injection fluids in the zone of injection. The DEIR's analysis of this issue could include additional information regarding abandonment or plugging of wells when signs of casing damage are observed, reinjection of produced water, and monitoring of production and injection volumes to monitor reservoir pressure balance.

0002-62

0002-63

Induced Seismicity

0002-64

DOGGR encourages the County to expand the discussion in the DEIR regarding UIC activities (waste water disposal, EOR, stimulation of injection wells or producing wells utilized in an UIC project) and the possible interplay, if any, with induced seismicity.

D. Surface disposal of wastewater (percolation or evaporation ponds and sumps[5])

0002-65

One of the "conclusions and recommendations" in the CCST Study's San Joaquin Basin Case Study chapter states: "Analysis of available data suggests the concentrations of hydraulic fracturing fluid constituents in produced water from fields with substantial hydraulic fracturing are sufficiently high that it should not be disposed of by percolation, because of the risk of groundwater

[5] / According to the CVRWQCB, they use the word "ponds" for unlined impoundments for disposal of produced water by both evaporation and percolation. They use "sumps" for unlined impoundments to contain drilling fluid and cuttings while drilling a well. In this letter, "ponds" and "pits" are used synonymously. And references to "percolation ponds" can also be seen as references to evaporation ponds.

contamination this creates." (CCST Study, Vol. III, p. 338.) As explained in more detail below, DOGGR is seeking more information and clarification on this topic from the County.

0002-65 Continued

According to the County's DEIR, produced water is managed in several different ways, including disposal in percolation pond facilities. (DEIR, p. 4.8-82.) For example, 30,233 acre-feet (AF) of produced water "was disposed in the Project Area-produced water ponds in 2012." (DEIR, p. 4.9-69.) Almost all of these ponds are unlined, earthen ponds that range from two to five acres in size and "can be as shallow as five feet deep." (DEIR, pp. 3-64, 4.9-69.) In March 2015, the Central Valley Regional Water Quality Control Board (CVRWQCB) identified 370 active and permitted ponds, 208 active ponds that were not issued any permits, and 355 inactive ponds. (DEIR, p. 4.9-69.) Elsewhere, the DEIR explains that there are 933 produced water ponds in the CVRWQCB, and only approximately 500 of these ponds have been issued Waste Discharge Requirements (WDRs). (DEIR, p. 4.9-102.)

0002-66

The County's DEIR states that the CVRWQCB "has indicated that it will issue enforcement orders to oil and gas disposal pond facilities as necessary to bring them into compliance with applicable laws and regulations." (DEIR, p. 4.9-103.) The DEIR also states that the CVRWQCB will not complete its "review program" until November 2016. (DEIR, p. 4.9-103.) Please update this discussion in the Final EIR with any additional relevant information about when these enforcement orders will be issued and what these orders would impose as requirements.

0002-67

In one place, the DEIR states that produced water is not considered a hazardous waste (p. 4.8-82). But in another place the DEIR explains that "produced water could be classified either as 'nonhazardous solid waste' [27 CCR § 20220(a)] or 'designated waste' [27 CCR § 20210; Water Code, § 13173]" depending on "the characteristics of the formation from which the water is produced." (DEIR, p. 2.9-103.) The California Water Code defines "designated waste" as either

> (a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 25143 of the Health and Safety Code.
>
> (b) Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

0002-68

(Water Code, § 13173.) Please identify in the Final EIR any regulations or enforceable orders that require produced water to be tested so that "designated waste" can be separated from nonhazardous waste. (See DEIR, p. 3-59 [describing how pipeline gathering systems collect and transport produced water, with "[e]xcess produced water" disposed of in percolation ponds].)

0002-69

According to the CCST Study, "treatment of water produced in most fields is typically handled in central facilities, leading to the assumption that all the produced water from the stimulated pools is commingled with produced water from the entire field." (CCST Study, Vol. III, p. 290.) In fact, "records from 2011 to mid-2014 show that percolation pits received produced water from hydraulically fractured wells" in the following fields in Kern County: Elk Hills, South Belridge, North Belridge, Lost Hills, and Buena Vista. (CCST Study, Summary Report, p. 42; CCST Study, Vol. III, p. 17.) As noted above, regulation Section 1786 prohibits produced fluid from a well that has had a

0002-70

well stimulation treatment from being stored, disposed, or managed in sumps or pits. But, according to the CCST Study, unless sampling of sumps or pits is required, well stimulation fluids may still end up in sumps or percolation pits because "most stimulation-fluid returns are commingled and co-managed with water from the oil reservoir as produced water." (CCST Study, Vol. III, p. 290.) Moreover, a "higher fraction of the hydraulic fracturing fluid constituent mass returns in water produced after the hydraulic fracturing operation" in California than in other parts of the country. (CCST Study, Vol. III, p. 292 ["Fracturing fluids in California typically have the highest viscosity of fracturing fluid formulations available . . . . Consequently, it is likely there is less interaction between hydraulic fracturing fluid and reservoir rock in California than elsewhere in the country on average."].) In addition, the County's DEIR acknowledges that "stimulation fluids have been impermissibly discharged to drilling ponds, and certain recently posted flowback fluid testing results apparently indicate high levels of benzene and other chemicals returning to the wellhead after treatment." (DEIR, pp. 4.9-145, 4.9-93 ["benzene has been detected in produced water drawn from hydrocarbon bearing formations"].) Benzene is of particular concern, as it is a known human carcinogen and has a relatively high solubility. (SB 4 Final EIR, Vol. II, p. 10.13-12.) "Calculations show that, if benzene is poured into water, about 1.2 mL (or about one-fifth of a teaspoon) of pure benzene can contaminate one acre-foot of water (325,851 U.S. gallons) to the California MCL of 1.0 ppb." (SB 4 Final EIR, Vol. II, p. 10.13-12.) To address potential hydrology and water quality impacts (Impact 4.9-1: Violate Any Water Quality Standards or Waste Discharge Requirements), the County's DEIR sets forth six mitigation measures, including MM 4.9-3 and MM 4.9-5. (DEIR, p. 4.9-147.) In essence, these two mitigation measures simply require the applicant and oil field operator to comply with regulations issued by DOGGR, the State Water Resources Control Board (SWRCB), and the CVRWQCB. Please discuss in the Final EIR the specific regulations that are relevant and explain how these and other mitigation measures can adequately mitigate potential impacts to less than significant levels, at least until such time as new requirements from SWRCB and CVRWQCB are developed and in place.

0002-70
Continued

0002-71

Because the SB 4 EIR did not have the benefit of the findings and conclusions of the CCST Study, the SB 4 EIR did analyze potential contamination from existing percolation pits. As explained above, DOGGR is committed to reviewing the CCST Study and charting a path forward on its recommendations by way of the charge of the interagency working group. The CCST Study identifies serious concerns related to the use of percolation pits, including the potential for well stimulation treatment fluid to contaminate groundwater. DOGGR raises the above concerns in an effort to request additional information and clarification from the County. DOGGR also welcomes specific mitigation measures from the County that would ultimately be implemented by DOGGR or other appropriate state agencies.

0002-72

E. Reuse of produced water for agricultural irrigation

0002-73

Another conclusion of the CCST Study's San Joaquin Basin Case Study is that "hydraulic fracturing should not be allowed in fields that supply produced water for use in the environment, such as irrigation" or, alternatively, that "use of produced water for irrigation from fields with hydraulic fracturing should be prohibited." (CCST Study, Vol. III, p. 338.) The CCST Study explains that the "ban should continue until or unless testing the produced water specifically for hydraulic fracturing chemicals and breakdown products shows non-hazardous concentrations, or required water treatment reduces concentrations to non-hazardous levels." (CCST Study, Summary Report, p. 46; CCST Study, Vol. III, p. 20.) As explained in more detail below, DOGGR is seeking more information and clarification on this topic from the County.

0002-74

According to the County's DEIR, the Cawelo Water District in the Eastern Subarea has been reusing produced water for agricultural irrigation and is the only water district currently permitted to do so. (DEIR, pp. 4.9-139, 4.17-58.) In 2012, approximately 32,771 AF of produced water was "treated by oil and gas operators . . . to remove certain constituents, including oil and grease and dissolved solids" and then "conveyed through a system of canals and pipelines to Cawelo Water District reservoirs," where it is "blended to further reduce constituent concentrations, and discharged for irrigation." (DEIR, p. 4.9-139.)

As noted above, the County's DEIR evaluated three scenarios to "focus on potential variation in the amount of surface pond disposal, injection well disposal, and reuse of produced water that could occur under future conditions." (DEIR, pp. 4.9-125 to 4.9-126.) Under Scenarios 1 and 2, 32,771 AFY of produced water would continue to be reused for agricultural irrigation by 2035. (DEIR, p. 4.9-126.) But under Scenario 3 (Full M&I Water Use Offset and 90% Surface Disposal Reduction), the amount of produced water reused for agricultural irrigation would increase to 44,532 AFY. (DEIR, p. 4.9-126.)

0002-75

The DEIR acknowledges that the produced water reused for irrigation purposes, "in certain instances, has exceeded the allowable limits for arsenic and oil and grease." The DEIR explains that the CVRWQCB issues permits for the reuse of produced water for agricultural irrigation and that these permits "require water quality monitoring, and corrective action, including percolation into water banking facilities to filter arsenic from the banked water." (DEIR, p. 4.9-139.) DOGGR is interested in hearing from the County how it believes the CVRWQCB or other appropriate state or local agency should mitigate this potential impact.

0002-76
0002-77

DOGGR is also interested in hearing from the County as to whether the reuse of produced water for agricultural irrigation should be restricted to oil fields without ongoing or a past history of well stimulation activity. According to the CCST Study, two established oil fields where hydraulic fracturing has occurred have been permitted to reuse produced water for agricultural irrigation: the Mount Poso and the Kern River fields. (CCST Study, Summary Report, p. 45; CCST Study, Vol. III, p. 299.) The CCST Study also reported that its authors were unable to "find policies or procedures that would necessarily exclude produced water from hydraulically fractured wells from use in irrigation." (CCST Study, Summary Report, p. 45; CCST Study, Vol. III, p. 19.) The SB 4 EIR did not have the benefit of the CCST Study's conclusions and findings, and the discussion of irrigation with produced water was not developed in detail in the SB 4 EIR. (See, e.g., SB 4 Final EIR, Vol. II, p. 10.22-19.)

0002-78

The DEIR states that the Kern-Tulare Water District (KTWD) in the Western Subarea has initiated the CEQA review process for the potential use of up to 8,000 AFY of produced water. (DEIR, pp. 4.17-58, 4.9-140.) The Kern-Tulare Water District's Oil Field Water Reuse project's CEQA notice of preparation (NOP) describes the project as follows:

> The project is the construction and operation of an oil field produced water conveyance system. The District is currently partnering with local oil producers to acquire up to 8,000 acre-feet (AF) per year of produced water for delivery to crops in the District. The produced water would first be treated to remove residual hydrocarbons before it leaves the oil fields. The treated water would then be transported from the oil fields through 12- and 15-inch underground pipelines to two proposed reservoirs with ~1,200 AF of total storage capacity. From the two new reservoirs, water would be transported in 18-and 24-inch pipeline to the District's

> existing Big 4 Reservoir, from which it will be distributed to irrigated agriculture within the District. As part of the Project, three new agricultural turnouts would be constructed to facilitate conveyance of the water.

(February 9, 2015, KTWD's NOP, SCH # 2015021024, available at http://www.ceqanet.ca.gov/DocDescription.asp?DocPK=688636 [last visited August 3, 2015].)

0002-78 Continued

The "treatment" referenced in KTWD's project description is similar to the basic three-step process for treatment as described in the County's DEIR. (See DEIR, pp. 3-55 to 3-56.) It is unclear if KTWD's EIR will ultimately impose additional testing and treatment requirements as mitigation measures.

0002-79

The DEIR also acknowledges that "the reuse of additional produced water, particularly supplies with lower quality than available in the Eastern Subarea, could require more intensive, technically demanding, and more costly forms of treatment" and that those "treatment requirements could have other environmental effects related to increased energy use and air quality and greenhouse gas (GHG) emissions, or post-treatment waste stream disposal." (DEIR, p. 4.17-58.)

Please explain in the Final EIR whether the County does or does not intend for its EIR to cover the potential future reuse of produced water for irrigation. Has the County been informed that Cawelo Water District has in the past or would in the future complete an EIR for its continued reuse of produced water for agricultural irrigation? If the County intends for other EIRs completed by water districts to provide more complete CEQA analysis of impacts from this activity, then please explain in the Final EIR how the County's project-level EIR accounts for the impacts of wastewater disposal under its project where all three scenarios assume some level of reuse for irrigation purposes as a means of wastewater disposal.

0002-80

0002-81

The CCST Study concluded that "there has been and is currently no regulatory control on produced water from hydraulically fractured wells being used for irrigation and groundwater recharge." (CCST Study, p. 300.) The CCST Study also concluded that:

0002-82

> [T]he current practice of treatment and dilution of produced water utilized for irrigation may not be sufficient to reduce concentrations of all stimulation constituents to levels that are less than acutely toxic, or even to levels less than what can cause chronic effects for aquatic species on a continuous basis. In addition, the human exposure pathway involving consumption of food irrigated with produced water containing hydraulic fracturing fluid constituents is not considered. (CCST Study, Vol. III, p. 301.)

Please provide in the Final EIR any additional information that would support or contradict the CCST Study's conclusions. For example, does the County have reason to believe that the reuse of produced water for irrigation purposes would be limited to non-food crops? Who would be responsible for imposing this limitation?

0002-83

The DEIR's MM 4.17-2 advocates for increased reuse of produced water for agricultural irrigation. MM 4.17-2 asserts that "produced water treated and used for agricultural irrigation or other activities shall be tested and monitored to assure compliance with applicable standards for such agricultural irrigation or other uses." (DEIR, p. 4.17-59.) Please provide in the Final EIR information regarding who will test and monitor the water, and what the applicable standards will be.

0002-84

F. Groundwater quantity impacts

0002-85

The SB 4 EIR concluded that Impact GW-1 ("Cause or contribute to overdraft conditions") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.14-96.) As the SB 4 EIR explained, "[a]ll of the oil and gas fields within Kern County, and therefore all of the reported hydraulic fracturing jobs between June 2012 and June 2013, are located within the Kern County [groundwater] subbasin, which has a [CASGEM] ranking of 5." (*Id.* at p. 10.14-121.) This means that "any increase in groundwater use for well stimulation [in the Kern County subbasin] would have a significant impact unless effective mitigation measures are developed, such as those that limit the amount and location of fresh groundwater use." (*Id.* at p. 10.14-82.) To mitigate Impact GW-1, the SB 4 EIR recommended several measures, including MM GW-1b, which requires the applicant to "fund an independent review that evaluates the potential for any proposed use of groundwater to cause or substantially contribute to an 'Undesirable result'" (as defined in the Sustainable Groundwater Management Act), so that DOGGR can "ensure that the use of such groundwater will not cause or substantially contribute to" an undesirable result. (*Id.* at p. 10.14-99.)

0002-86

In contrast, the County's DEIR concluded that Impact 4.9-2 ("Substantially Deplete Groundwater Supplies . . . such that there would be a Net Deficit in Aquifer Volume or a Lowering of the Local Groundwater Table Level . . .") would be significant and unavoidable even with the mitigation measures proposed in the DEIR. (DEIR, p. 4.7-38.) Please explain if and why the County concluded that avoidance of "undesirable results" was infeasible and whether the County believes that its own approach is substantially consistent with DOGGR's approach in MM GW-1b.

0002-87

The County's DEIR includes several mitigation measures that address groundwater impacts and water supplies: MM 4.9-1 through MM 4.9-6 and MM 4.17-2 through MM 4.17-4. (DEIR, p. 4.9-146 to -147, 4.9-155, 4.17-59 to -60.) In particular, MM 4.17-2 provides as follows:

> Applicant shall increase the re-use of produced water, and reduce its use of municipal and industrial-quality ground or surface water use to the extent feasible. By the end of 2016, the Applicants shall review water use data submitted to Division of Oil Gas and Geothermal Resources under Senate Bill 1281 and identify the five biggest oil industry users of municipal and industrial water by volume. The five biggest oil industry users of municipal and industrial water shall work together to develop and implement a plan identifying new measures to reduce municipal and industrial water use by 2020. The plan shall address the following activities, as appropriate: steam generation; drilling and completions (including hydraulic fracturing); dust control; compaction activities related to construction; and landscaping. Through the KernFLOWS initiative or other efforts (e.g., Groundwater Sustainability Agency), the five biggest oil industry users of municipal-and-industrial water shall also work with local agricultural producers and water districts to identify new opportunities to increase the use of produced water for agricultural irrigation and other activities, as appropriate. Any produced water treated and used for agricultural irrigation or other activities shall be tested and monitored to assure compliance with applicable standards for such agricultural irrigation or other uses.

DOGGR understands that the point of this measure is to require the County's oil and gas industry to create enough "new water" for agricultural irrigation and other uses to fully offset the industry's historic and otherwise anticipated use of municipal and industrial-quality ground and surface water. Thus, although oil and gas wells using high quality groundwater will contribute to ongoing overdraft conditions, new facilities for the treatment of produced water will create even more "new water" for agricultural irrigation and other uses. If this understanding is correct, then DOGGR suggests that the County add the following language at the end of MM-4.17-2, so that it includes an enforceable CEQA performance measure:

0002-87 Continued

0002-88

> Through all of these efforts, sufficient amounts of produced water shall be made suitable and available for agricultural uses or other non-oil and gas uses within the County to fully offset all increases from oil and gas activities in the County over baseline (2015) conditions in the use of groundwater otherwise potentially suitable for use as drinking water or for agricultural irrigation.

0002-89

The CCST Study explains that the "largest demand for low-salinity water in hydraulic-fracturing-enabled production is not for making fracturing fluids, but rather for EOR [enhanced oil recovery]." (CCST Study, Vol. III, p. 285.) If more low-salinity produced water could be used to satisfy the water demand in other fields, then the need for supply of potential high-quality water would be reduced. (*Id.* at p. 285.) The CCST Study uses the Elk Hills field as an illustrative example. In the Elk Hills field in 2013, approximately 1.1 million m^3 of low-salinity water was disposed of by injection in 2013 at the same time that approximately 2.3 million m^3 was supplied from outside sources for EOR in hydraulic-fracture-enabled pools. (*Id.* at p. 286.) The CCST Study states that "it should be possible to treat the low-salinity water disposed of in Elk Hills so that it can instead be used for EOR." (*Id.* at p. 286.) Additionally, "if it is not practical to improve the water sufficiently with treatment," then the low-salinity water disposed by injection in surrounding fields "may be of sufficient quality for this use." (*Id.* at 287.) Finally, the CCST Study notes that there "may be additional low-salinity water resource opportunities [e.g., water disposed of in unlined pits] in the San Joaquin Basin oil fields, because the quality of the water produced in each field is not coded in DOGGR's data, only the quality of the water disposed of by injection." (*Id.* at p. 287.)

0002-90

One of the seven SB 4 EIR mitigation measures that DOGGR intends to convert into formal regulations is MM GW-1a, which is concerned with identifying alternative sources of water (including produced water) for well stimulation treatments. MM GW-1a requires the applicant for a well stimulation permit to "conduct a feasibility study to determine if recycled water or alternative water sources (including produced water, flowback water, or saline groundwater) may effectively be used for well stimulation." (SB 4 Final EIR, Vol. II, p. 10.14-96.) The DEIR states that "[t]he extent to which oilfield operators can feasibly increase produced water reuse and decrease M&I demand is uncertain." (DEIR, pp. 4.9-128; see also DEIR, p. 4.9-20 [approximately 9% of the statewide well stimulation treatment water supply during January to September 2014 was obtained by reusing produced water].) Does the County have reason to believe that reuse of produced water for WST and/or EOR is infeasible in Kern County? Please provide in the Final EIR an explanation and any relevant supporting evidence.

0002-91

0002-92

G. Limiting chemicals used in well stimulation treatments to an "approved" list of chemicals with known toxicity profiles

0002-93

Both the SB 4 EIR and the CCST Study identified significant gaps in information about the toxicity, biodegradability, and concentration of a majority of the chemicals used in hydraulic fracturing. (SB

4 Final EIR, Vol. II, pp. 10.13-8 to -12; CCST Study, Summary Report, pp. 34-37; CCST Study, Vol. III, p. 336 [data gaps include the "concentration of well stimulation chemicals, their degradation products, and natural constituents mobilized by stimulation in produced water streams from central treatment plants"].) As the CCST Study reported, the "toxicity and biodegradability of more than half the chemicals used in hydraulic fracturing [in California] remains uninvestigated, unmeasured, and unknown." (CCST, Summary Report, p. 34.) Because of this uncertainty, the CCST Study recommended that the chemicals used in hydraulic fracturing be limited "to those on an approved list that would consist only of those chemicals with known and acceptable environmental hazard profiles." (CCST Study, Summary Report, p. 36.)

0002-93
Continued

The County's DEIR admits that "[u]nauthorized releases [of hydraulic fracturing fluids] have occurred and would likely continue to occur during well stimulation activities." (DEIR, p. 4.8-78.) The SB 4 EIR explained that:

> If a well stimulation fluid release were to occur, it would be difficult to anticipate the fate of the released chemicals in the environment because many individual chemical compounds within well stimulation fluids lack sufficient mobility and toxicity data. California drinking water maximum contaminant levels (MCLs) do not exist for many of the chemicals known to be used in hydraulic fracturing. Available data indicate that many hydraulic fracturing chemical compounds are either highly soluble or miscible in water and/or have densities greater than water. Certain constituent mixtures are considered either proprietary or are described only as chemical classes, hindering a more complete understanding of potential transport/fate of some fluid constituents. In addition, some chemicals may be transformed (degraded) by hydrolysis and, in some cases, degradation (daughter) products are not known. Daughter products may be more hazardous than the parent chemicals.

(SB 4 Final EIR, Vol. II, p. 10.13-27.)

0002-94

The SB 4 EIR included several mitigation measures to address potential impacts from the release of well stimulation fluids into the environment. (See SB 4 Final EIR, Vol., II, chapters 10.13 [Hazards and Hazardous Materials], 10.14 [Groundwater Resources], 10.15 [Surface Water Resources], 10.21 [Risk of Upset/Public and Worker Safety].) One of the mitigation measures in the SB 4 EIR requires applicants for well stimulation treatment permits to "implement a strategy of reducing the inventory of the hazardous materials with the aim to reduce the total mass of potential accidental releases, and thus, also the consequences and effects for workers and public in the surroundings." (SB 4 Final EIR, Vol. II, p. 10.21-60 [MM RSK-2a: Reduce the Inventory/Volumes Handled with the Hazardous Chemicals].) This mitigation measure, prepared without the benefit of the final CCST volumes, does not go as far as the CCST Study recommends.

0002-95

0002-96

Since the County's Final EIR will be prepared subsequent to the release of the final CCST Study, whereas the SB 4 EIR was not, DOGGR brings this issue to the County's attention and asks for additional information in the Final EIR about the County's analysis and conclusions on this issue.

0002-97

II. RECONCILIATION OF THE MITIGATION MEASURES IN THE COUNTY'S DEIR WITH THOSE IN THE SB 4 EIR

0002-98

DOGGR chose early in the SB 4 process to use the SB 4 EIR in a manner that should provide practical real-world benefits. DOGGR's main goals were to provide programmatic analysis that would be useful in processing future applications for well stimulation treatment permits and to develop mitigation measures that, with possible modifications for specific projects, could be imposed on such permits as necessary, appropriate, and feasible under the various circumstances facing individual permit applicants.

As required by SB 4, the "project" analyzed in the SB 4 EIR is well stimulation in the State of California and all physical acts that are associated with hydraulic fracturing, acid fracturing, and acid matrix stimulation as they apply to both existing and future oil and gas wells within the State. (Pub. Resources Code, §§ 3157, 3161.) Because the final regulations required by SB 4 were to become effective on July 1, 2015, the EIR's analysis assumed that well stimulation treatments would be performed in a manner consistent with those regulations. (Pub. Resources Code, § 3161, subd. (a).) In those instances where the regulations were found to not minimize potentially significant environmental effects, the SB 4 EIR recommended mitigation measures to lessen these impacts to the extent feasible.

0002-99

As responsible agency for permitting oil and gas well drilling and operations, DOGGR wants to work with Kern County to ensure adequate mitigation for all impacts that can be seen as direct or reasonably foreseeable indirect effects of well stimulation treatment. As explained in more detail below, where the County's proposed mitigation measures are not as comprehensive or robust as DOGGR believes is necessary, DOGGR may use its regulatory power outside of CEQA to impose conditions of approval on well stimulation treatment permits to ensure that they are adequately protective, as determined by DOGGR. Such regulatory authority derives both from SB 4 itself, which requires DOGGR to "evaluate the quantifiable risk of the well stimulation treatment" under consideration, and from DOGGR's more general legal mandate to supervise oil and gas well operations "so as to prevent, as far as possible, damage to life, health, property, and natural resources[.]" (Pub. Resources Code, §§ 3160, subd. (d)(3)(C), 3106, subd. (a).) The imposition of additional conditions of approval can be done without challenging the adequacy of the County's EIR, and without preparing a formal supplemental EIR or other CEQA document beyond what the County has prepared.

0002-100

0002-101

This reservation of authority should not be understood, however, to mean that DOGGR does not accept any of the mitigation measures as formulated by the County. Rather, DOGGR appreciates that the County has discretionary authority over aspects of larger oil or gas projects that will involve well stimulation treatments. As noted earlier, the mitigation measures in the SB 4 EIR establish some standards for future mitigation that DOGGR could impose as permit conditions. The comments below seek to make the County aware of these standards in formulating mitigation measures for the County's Project. As indicated below, DOGGR has identified some instances in which the County's measures are not as rigorous as DOGGR's generic measures, but has identified other instances in which the County's measures do appear to be "substantially consistent" with the measures in the SB 4 Final EIR.

0002-102

First, there are several mitigation measures in the SB 4 EIR for which DOGGR can identify substantially consistent measures in the County's DEIR:

- MM AQ-2c (Reduce Emissions from Dust-Causing Activities
- MM BIOT-1c (Replace or Offset Loss of Sensitive Habitat)
- MM GHG-2a (Require Applicant Enter into Mitigation Programs or Agreements for GHG Emissions Not Covered by or Exempt from ARB's Cap and Trade Program)
- MM GW-6a (Require Wastewater Disposal Wells to Inject Only Into Exempted Aquifers or Protect Groundwater)
- MM AES-1b (Minimize Lighting Visibility Offsite)
- MM AGF-1c (Compensate for Loss of Important Farmland)
- MM NOI-1a (Control Noise Levels Near Sensitive Land Uses)
- MM PUB-1a (Assess Public Service Ratios and Ensure Adequate Compensation)
- MM TR-2a (Repair Roadway Damage)

0002-102 Continued

DOGGR does not have any further comments on these mitigation measures.

0002-103

Second, for the remaining mitigation measures in the County's DEIR, DOGGR notes that the County appears to have taken a somewhat different approach to mitigating impacts than the approach found in the SB 4 EIR. This does not mean that DOGGR has found the remaining mitigation measures to *all* be inconsistent with SB 4 EIR. Rather, DOGGR is simply taking this opportunity to bring the SB 4 EIR mitigation measures to the County's attention; DOGGR has attached Exhibit 1 (July 2015 Mitigation Policy Manual) to serve this purpose.

0002-104

Seven of the SB 4 EIR mitigation measures will be converted into formal regulations: MMs GW-1a (Use Alternative Water Sources to the Extent Feasible), GW-4b (Install a Well Seal across Protected Groundwater for New Wells Subject to Well Stimulation Treatments), SWR-1b (Surface Water Protection), GEO-1a (Avoid Active Faults if Necessary), GEO-1b (Implement an Appropriate Setback if Necessary), GEO-1e (Include an Earthquake Response Plan within the Spill Contingency Plan), and HAZ-1a (Ensure that Spill Contingency Plan Provides Adequate Protection Against Leaks or Discharges of Dangerous Fluids and Other Potentially Dangerous Materials). Some, but not all, of these measures are discussed below.

Finally, in the sections below, DOGGR is providing more detailed comments about a few SB 4 EIR mitigation measures that DOGGR found to be missing from and overlooked by the County's DEIR. These mitigation measures are especially important because they relate to public safety and/or the protection of natural resources.

0002-105

A. Mitigation Measure GEO-1d (Conduct Ground Monitoring)

The SB 4 EIR concluded that Impact GEO-1 ("Expose people or structures to potential substantial adverse effects as a result of rupture of a known fault, seismically induced groundshaking, and/or ground failure") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.11-37.) As the SB 4 EIR explained:

0002-106

> Because there is the potential for well stimulation activities to occur in a seismically active area, they could be impacted by moderate to occasionally strong ground shaking from faults, as well as background shaking from other seismic active nearby areas. Strong seismic activity could impact the operations of the well stimulation and exceed standard design stresses that could result in damage or collapse of stimulation infrastructure, exposing people to injury or death. . . . Active and

> abandoned recovery and disposal wells could also be impacted by seismic activity, such as degradation in the seals or plugs of abandoned wells that could potentially allow migration of materials to overlying zones sensitive to such materials (e.g., usable groundwater zones or confined spaces that accumulate gases). Impacts to infrastructure may also result in damage to infrastructure carrying hazardous materials and the spilling of materials such as fuels and lubricants, hydraulic fracturing or drilling fluids.

0002-106 Continued

(*Ibid.*) One of the mitigation measures recommended by the SB 4 EIR to mitigate Impact GEO-1 is MM GEO-1d, which requires the applicant to "conduct ground monitoring to characterize as-built [formation] fracture geometries prior to, during, and post-hydraulic fracturing" if the well stimulation would occur in an urban area. (*Id.* at p. 10.11-42.)

0002-107

The CCST Study concluded that the abundant faults in the San Joaquin Basin present potential paths for leakage out of hydraulically fractured pools. (CCST Study, Vol. III, pp. 315-318.) The CCST Study estimated that there is a "3.6% probability of a hydraulic fracture encountering an unknown fault with sufficient extent to encounter a USDW" in the western San Joaquin Basin (North and South Belridge, and Lost and Elk Hills). (*Id.* at pp. 316-317.) Given that over 1,500 wells are hydraulically fractured each year in the western San Joaquin Basin (representing 90% of all hydraulic fracturing in the San Joaquin Basin), "it is possible that tens of hydraulic fractures encounter such a fault each year." (*Id.* at p. 317.) The CCST Study notes that more research is needed "to better understand fault permeabilities and how they might be affected by high fluid pressure if intersected by a hydraulic fracture." (*Id.* at p. 318.) Therefore, the CCST Study recommended that "site characterization efforts [be] designed to ensure a reasonable chance of detecting existing faults of a given size before a hydraulic fracturing operation is conducted." (*Id.* at p. 318.) MM GEO-1d in the SB 4 EIR, if revised to apply even outside of urban areas, would serve this purpose well because it would require the characterization of formation fracture geometries prior to hydraulic fracturing.

0002-108

The County's DEIR concluded that Impacts 4.6-1 ("Expose People or Structures to Substantial Adverse Effects . . . Involving the Rupture of a Known Earthquake Fault"), 4.6-2 (". . . Involving Strong Seismic Ground Shaking"), and 4.6-3 (". . . Involving Seismic-Related Ground Failure, Including Liquefaction") were potentially significant and required mitigation. (DEIR, p. 4.6-52 to 4.6-56.) The County's MM 4.6-1 and MM 4.6-2 do not include requirements that are substantively similar to those in SB 4 EIR's MM GEO-1d.

B. Mitigation Measure GEO-1e (Include an Earthquake Response Plan within the Spill Response Plan)

As noted above, the SB 4 EIR concluded that Impact GEO-1 was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.11-37.) One of the mitigation measures recommended by the SB 4 EIR to mitigate Impact GEO-1 is MM GEO-1e, which requires the applicant to demonstrate to DOGGR's satisfaction that the spill contingency plan "adequately addresses the consequences of an earthquake occurring during the well stimulation process, for however many well stimulation treatments are proposed to occur simultaneously at any given time." (*Id.* at pp. 10.11-42 to -43.)

0002-109

The CCST Study concluded that the process of hydraulic fracturing is not likely to cause earthquakes of concern. (CCST Study, Summary Report, p. 48.) But the CCST Study also noted that "it can be very difficult to distinguish California's frequent natural earthquakes from those

0002-110

possibly caused by [waste] water injection into the subsurface." (*Id.* at p. 48.) Because California has frequent naturally occurring earthquakes, seismologists "have a hard time determining if any of these earthquakes were actually induced" by disposal of wastewater and produced water into deep injection wells. (*Id.* at p. 48). Figure S.3-7 shows the location of over 1,000 water disposal wells that are located with 1.5 mile of a mapped active fault, and more than 150 wells within 650 feet of a mapped active fault. (*Id.* at p. 49 [showing six central and southern California basins, with the San Joaquin Basin being the largest].) According to the CCST Study, the "state could likely manage and mitigate potential induced seismicity, by adopting protocols to modify an injection operation when and if seismic activity is detected." (*Id.* at p. 50.)

0002-110
Continued

MM GEO-1e in the SB 4 EIR is designed to address both naturally occurring earthquakes and any seismic events that may be potentially induced by wastewater injection. The County's MM 4.6-1 and MM 4.6-2 do not include requirements that are substantively similar to those in SB 4 EIR's MM GEO-1e.

C. Mitigation Measure GW-4a (Demonstrate that Wells within the ADSA Have Effective Cement Well Seals and Monitor Wells during Well Stimulation Treatments)

0002-111

The SB 4 EIR concluded that Impact GW-4 ("Migration of well stimulation fluids or formation fluids including gas to protected groundwater through non-existent or ineffective annular well seals") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.14-105.) To mitigate this impact, the SB 4 EIR included MM GW-4a, which:

> require[s] the operator to specifically monitor certain DOGGR-selected wells within the ADSA during a well stimulation treatment to demonstrate that the wells are not serving as a conduit for upward migration of formation fluids or gas, either through the annular space, well bore, or the well casing, into the protected groundwater zone. DOGGR shall select which wells within the ADSA are required for monitoring, but at a minimum, these wells will include: (1) wells that have been stimulated previously, (2) idle wells, and (3) other accessible wells if deemed necessary by DOGGR.

(*Id.* at p. 10.14-105.) These requirements go beyond existing regulations. The SB 4 EIR concluded that Mitigation Measures HAZ-1a, GW-4a, GW-4b, GW-4c, GW-5a, GW-6a, and GW-7a, along with the requirements of the proposed permanent SB 4 regulations reduce the impacts to groundwater quality to less than significant levels. (*Id.* at p. 10.14-105.)

0002-112

The CCST Study concluded that leakage of well stimulation fluids could occur via an existing "offset" well "that is intersected by a hydraulic fracture generated from a neighboring well." (CCST Study, Vol. III, p. 313.) The CCST Study concluded that there is a frequency of "about one intersection [with an offset well] per 50 hydraulically fractured wells." (*Id.* at p. 313.) Fluids from induced fractures could leak via the offset well if the well is "transmissive, or becomes transmissive as a result of the hydraulic fracture intersection." (*Id.* at p. 313.) Because hydraulic fracturing operations in San Joaquin Basin are "largely located in reservoirs with high well density that have been in production for a long time," there may be "many older offset wells in the vicinity of hydraulic fracturing operations, and these wells may not always be designed for, or have the integrity to withstand, the high pressures used in hydraulic fracturing." (*Id.* at p. 313.)

The County's DEIR concluded that Impacts 4.9-1 ("Violate any Water Quality Standards or Waste Discharge Requirements") and 4.9-6 ("Otherwise Substantially Degrade Water Quality") were potentially significant and required mitigation. (DEIR, p. 4.9-145, 4.9-160.) The County's MMs 4.9-1 to 4.9-6 do not include requirements that are substantively similar to those in SB 4 EIR's MM GW-4a. 0002-113

D. Mitigation Measure GW-4b (Install a Well Seal Across Protected Groundwater for New Wells Subject to Well Stimulation Treatments) 0002-114

As noted above, the SB 4 EIR concluded that Impact GW-4 was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.14-105.) One of the mitigation measures recommended by the SB 4 EIR to mitigate this impact is MM GW-4b, which requires an

> applicant [to] demonstrate to DOGGR's satisfaction that a well used for well stimulation treatments contains an annular 500-foot cement seal extending across the base of protected groundwater and that the integrity of the seal will prevent unintended migration of fluid. This applies to all new wells that will be subjected to well stimulation. For new shallow wells drilled in areas where protected groundwater is present, this requirement is amended to require cementing the entire casing string from the bottom of the well to the surface.

(*Id.* at p. 10.14-106.)

As the CCST Study explained, "DOGGR's groundwater protection program has been oriented to fresh groundwater, defined as having TDS of 3,000 mg/L or less." (CCST Study, Vol. III, p. 314.) Thus, in the past, "wells in California have not been constructed to be protective of groundwater that is of USDW [underground sources of drinking water] quality but above the 3,000 mg/L TDS limit." (*Id.* at p. 314.) This means that "surface casings have been set and cemented below the 3,000 mg/L TDS limit rather than below the 10,000 mg/L TDS limit, which may create a leakage hazard." (*Id.* at p. 314.) To address this potential impact, the CCST Study recommends that future wells "be constructed with casings extending through USDW," which may "require the addition of an intermediate casing, depending upon the depth separation between the base of groundwater with less than 3,000 mg/L and groundwater with less than 10,000 mg/L TDS." (*Id.* at p. 314.) 0002-115

The SB 4 EIR confirms the information summarized in the CCST Study. Existing regulations include well construction requirements (see 14 CCR §§ 1722.2 - 1722.6) that require cement placement in surface casing from the base of the casing to the surface and preferably through the freshwater zone (3,000 mg/L TDS). (SB 4 Final EIR, Vol. II, p. 10.14-107.) DOGGR regulations also require the use of a second string of casing if the surface casing does not extend through the base of freshwater (3,000 mg/L TDS). But, under existing regulations, the depth of subsequent casing strings might not extend through the zone of protected groundwater. MM GW-4b requires a seal across the base of protected groundwater (<10,000 mg/L TDS) for all new wells subject to well stimulation treatment. The County's MM MMs 4.9-1 to 4.9-6 do not include requirements that are substantively similar to those in SB 4 EIR's MM GW-4b. 0002-116

E. Mitigation Measure GW-4c (Install Methane Sensors on Wells Subject to Well Stimulation Treatments)

0002-117

As noted above, the SB 4 EIR concluded that Impact GW-4 was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.14-105.) One of the mitigation measures recommended by the SB 4 EIR to mitigate this impact is MM GW-4c, which requires

> that the applicant install a methane sensor to monitor potential leaks or venting of methane gas. In order to provide additional monitoring for potential migration up ineffective well seals, wells shall be equipped with a devices approved by DOGGR to allow for continuous monitoring at the wellhead for methane migration up the well annular space. As part of the permit application, the applicant shall propose a monitoring program for DOGGR approval that provides details on sensor manufacturer, installation, calibration, settings/units, and measurements. Gas detectors shall be operated (1) before the test to determine variability in baseline readings, (2) for the complete duration of the test, and (3) for a specified time period after the test has been completed, as specified by DOGGR.

(*Id.* at p. 10.14-108.)

0002-118

As the SB 4 EIR explains, "[n]umerous studies in shale gas regions have demonstrated upward gas migration within or around the well into shallow aquifers due to uncemented annular space, poor cement bonding, and/or ineffective cementing practices." (SB 4 Final EIR, Vol. II, p. 10.14-86.) Potential causes of leakage in the annular space include: "a lack of cement, poor bonding with the borehole, channels within the cement, fracturing or cavitation within the seal, or deterioration of the seal over time." (*Id.* at p. 10.14-86.) When methane migrates into an aquifer, it "can change the redox conditions which can cause microbial methane oxidation and consumption of oxygen," and can also "degrade water quality and cause geochemical reactions, such as the dissolution of trace metals (e.g., arsenic and iron), and radioactive elements into aquifers." (*Id.* at p. 10.14-87.) In other words, "the introduction of methane into an aquifer can lead to an increase in dissolved arsenic and iron concentrations in groundwater."

The County's MM MMs 4.9-1 to 4.9-6, and MM 4.7-3 do not include requirements that are substantively similar to those in SB 4 EIR's MM GW-4c.

F. Mitigation Measure GW-5a (Conduct Surface Geophysical Surveys or Apply Other Field Methods to Locate Improperly Abandoned Wells and Mitigate)

0002-119

The SB 4 EIR concluded that Impact GW-5 ("Migration of well stimulation fluids or formation fluids including gas into protected groundwater through damaged or improperly abandoned wells") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.14-109.) As the SB 4 EIR explained:

> Poorly abandoned wells within the ADSA could provide a conduit for upward migration of well stimulation fluids (including gas) to potentially reach protected groundwater. The proposed permanent SB 4 regulations require an operator to identify any existing wells/wellbores within twice the area of the ADSA and design the test such that geologic and hydrologic isolation of the formation can be demonstrated. However, there may be wells that are undocumented, and whose

0002-120

> condition and/or location is unknown. A field program needs to be conducted to locate older and abandoned wells within the ADSA to ensure that poorly abandoned wells do not provide a conduit for migration of well stimulation fluids.

0002-121

(*Id.* at p. 10.14-109.) To mitigate this potential impact, the SB 4 EIR included MM GW-5a, which requires that an "applicant demonstrate to DOGGR's satisfaction that a record review has been conducted and, if warranted, require a surface geophysical survey or use other suitable field methods to locate any improperly abandoned wells within the ADSA of the well to be stimulated." (*Id.* at p. 10.14-109.) Under MM GW-5a, if conduit wells are located, the applicant must mitigate the potential pathway in a manner approved by DOGGR, and that mitigation could include modifying the design of the well stimulation treatment or moving the location of a proposed treatment to another well. (*Id.* at p. 10.14-109.)

0002-122

The County's DEIR concluded that Impacts 4.9-1 ("Violate any Water Quality Standards or Waste Discharge Requirements") and 4.9-6 ("Otherwise Substantially Degrade Water Quality") were potentially significant and required mitigation. (DEIR, p. 4.9-145, 4.9-160.) The County's MMs 4.9-1 to 4.9-6 do not include requirements that are substantively similar to those in SB 4 EIR's MM GW-5a.

0002-123

G. Mitigation Measure GW-7a (Add a Tracer to Well Stimulation Treatment Fluids or Develop a Reasonable Method to Distinguish Well Stimulation Treatment Fluids in the Environment)

The SB 4 EIR concluded that Impact GW-7 ("Inability to identify specific impacts to groundwater quality from well stimulation activity") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.14-111.) As the SB 4 EIR explained, it "will be difficult for any groundwater monitoring program to differentiate impacts from well stimulation treatments from those resulting from other activities." (*Id.* at p. 10.14-111.) To mitigate this impact, the SB 4 EIR included MM GW-7a, which requires that

> the applicant provide for a tracer or some other reasonable method to allow well stimulation fluids to be distinguished from other fluids or chemicals. This could consist of an added tracer using an inert constituent that could be used to identify the presence of well stimulation fluids. Alternatively, it could be an intrinsic tracer, or some naturally occurring component that makes the well stimulation fluids chemically unique

0002-124

(*Id.* at p. 10.14-112.) The requirements in MM GW-7a are not duplicative of requirements in the Draft Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation, as developed by the State Water Resources Control Board (April 29, 2015). The Draft Model Criteria anticipates that tracers may be used and requires that such tracers be analyzed in groundwater samples. Requirements of MM GW-7a are consistent with the Draft Model Criteria and are complementary to the groundwater monitoring requirements.

The County's DEIR did not specifically analyze an impact that is similar to Impact GW-7 in the SB 4 EIR. The County's mitigation measures do not include requirements that are substantively similar to those in SB 4 EIR's MM GW-7a.

0002-125

H. Mitigation Measure HAZ-1b (Require the Operator to Conduct an Annual Inventory of its Well Stimulation Equipment and Report of the Aged Infrastructure and its Likelihood of Failure Leading to Spills or Leaks to DOGGR)

The SB 4 EIR concluded that Impact HAZ-1 ("Release hazardous materials into the environment from a spill or leak") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.13-31.) As the SB 4 EIR explained, when an oil and gas field has been active for more than 50 years, "some of the infrastructure within the field, such as tanks and pipelines, may be old" and "be subject to increased metal fatigue and/or corrosion." (*Id.* at pp. 11.13-12 [discussing Wilmington Oil and Gas Field], 11.13-14 [same conclusion for Inglewood Oil and Gas Field], 11.13-18 [same for Sespe Oil and Gas Field].) Aged infrastructure are at a higher risk for "spills, leaks or ruptures of hazardous materials." (*Id.* at pp. 11.13-12, 11.13-14, 11.13-18.) Additionally, lack of proper seals, inadequate seal or poor cement bonds with bore walls, channels within cement, deterioration of annular seals over time, or fracturing or cavitation of enclosing walls can cause leakage through the annular space between the casing and formation.

As the County's DEIR noted, oil drilling has a long history in Kern County. The first commercially developed oilfield in Kern County (the McKittrick Field) was developed in 1898. And the Kern River Field was established in 1899. (DEIR, p. 3-15.) Similar to the Wilmington, Inglewood, and Sespe Oil and Gas Fields analyzed in the SB 4 EIR, Kern County has oil fields that have been active for more than 50 years. Therefore, MM HAZ-1b in the SB 4 EIR is relevant and applicable to Kern County. (See DEIR, p. 3-17 [County has over 100 active or abandoned oil fields].)

0002-127

The CCST Study concluded that chronic leaks caused by defects or deficiencies in well seals "may not ever be observed, or, if observed, do not necessarily trigger immediate mitigation action in practice." (CCST Study, Vol. III, p. 308.) While locating monitoring wells "closer to stimulated wells would increase the likelihood of detection," the probability of detecting a leak "would still depend on a monitoring well being in a zone into which a leak occurs, along a flow line from where leaking fluid entered the zone, and in sufficiently close proximity to where the leak entered the zone to allow its detection within a reasonable time of when the leak occurred." (*Id.* at p. 311.) The CCST Study also notes that California-specific considerations such as seismic activity and "land subsidence related to groundwater extraction and oil production" could result in a higher chronic well leakage frequency. (*Id.* at p. 312.)

The County's DEIR concluded that Impacts 4.8-1 ("Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials") and 4.8-2 ("Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment") were potentially significant and required mitigation. (DEIR, pp. 4.8-83, 4.8-92.) The County's MM 4.8-1 through MM 4.8-14 do not include requirements that are substantively similar to those in SB 4 EIR's MM HAZ-1b.

I. Mitigation Measure SWR-1b (Surface Water Protection)

0002-128

The SB 4 EIR concluded that Impact SWR-1 ("Violate water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade or diminish surface water quality") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.15-39.) As the SB 4 EIR explained, water quality could be adversely affected through:

0002-128
Continued

- Introduction of diesel fuel, gasoline, lubrication oil, hydraulic fluids, anti-freeze, transmission fluid, lubricating grease, trash and other items during construction of new wells.
- Spills during on-site refueling and equipment maintenance activities, leaks from defective or poorly maintained equipment, spills of chemicals used in the drilling process, blowouts, or improper disposal and containment of drilling mud during drilling of new wells.
- Spills of hydraulic fracturing fluid additives, acids, inhibitors, surfactants, diesel fuel, gasoline, lubrication oil, hydraulic fluids, anti-freeze, transmission fluid, lubricating grease, and trash during the hydraulic fracturing process.
- Spills of flowback fluids and overflush from hydraulic fracturing and acid treatments.
- Disposal of treated flowback fluids and overflush from hydraulic fracturing and acid treatments directly into surface waters.

(*Id.* at p. 10.15-34.) To mitigate this potential impact, the SB 4 EIR included MM SWR-1b, which requires the applicant to "submit to DOGGR maps, photographs, and other information, prepared by a qualified hydrologist acceptable to DOGGR, that describe or show any perennial, intermittent or ephemeral streams or other water bodies within 300 feet of the proposed well stimulation treatment and of any surface disturbance associated with the proposed stimulation treatment." (*Id.* at p. 10.15-41.) The required information includes: (a) water body name, if applicable; (b) characteristics (stream, pond, lake, wetland); (c) whether the water body is perennial, intermittent or ephemeral; (d) normal summer and winter flow rate, if available, or estimated; (e) habitat characteristics; (f) distance and ground slope between the well pad and water body; (g) contributing watershed area; and (h) expected drainage patterns at the location of the proposed well stimulation treatment. (*Id.* at p. 10.15-41.) "In cases where surface water is expected to be present at the time of well stimulation, a 100-foot setback is required unless such a setback cannot feasibly be achieved or is unnecessary to avoid significant effects on potentially affected water bodies." (*Id.* at p. 10.15-39.)

0002-129

0002-130

The County's DEIR did not analyze surface water impacts separately from groundwater impacts. As noted above, the County's DEIR concluded that Impacts 4.9-1 ("Violate any Water Quality Standards or Waste Discharge Requirements") and 4.9-6 ("Otherwise Substantially Degrade Water Quality") were potentially significant and required mitigation. (DEIR, p. 4.9-145, 4.9-160.) The County's MMs 4.9-1 to 4.9-6 do not include requirements that are substantively similar to those in SB 4 EIR's MM SWR-1b.

J. Mitigation Measure RSK-2a (Reduce the Inventory/ Volumes Handled with the Hazardous Chemicals)

0002-131

The SB 4 EIR concluded that Impact RSK-2 ("Create a hazard to the public, workers or environment through a reasonably foresee-able accidental release of hazardous materials due to a hose leak or connection leak while pumping well stimulation treatment fluids") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.21-59.) As the SB 4 EIR explained:

> Processing and handling hazardous materials, including hazardous wastes, could lead to accidental releases impacting public and/or worker health and safety. The state of the art for bonded flexible pipes study conducted by the Petroleum Safety

0002-131
Continued

> Authority (PSA) of Norway in 2009, states that the oil and gas industry has worked extensively with mitigating actions; however, incidents are still reported. The majority of the incidents are caused by hose misuse or improper maintenance. Some of the examples below describe the main causes of hose failure, based on the state of the art study conducted for PSA:
>
> - Hoses have burst due to pressure surge (pressure hammering) several times higher than the hose design pressure
> - Hoses have failed due to cover damage resulting in corrosion and fatigue of armoring
> - Hoses have been used after handling defects such as crushing or excessive tension
> - Hoses have been exposed to chemicals which they have not been designed for
> - Leakage of hose joints

(*Id.* at pp. 10.21-58 to -59.) To mitigate this impact, the SB 4 EIR included MM RSK-2a, which requires "the applicant to implement a strategy of reducing the inventory of the hazardous materials with the aim to reduce the total mass of potential accidental releases, and thus, also the consequences and effects for workers and public in the surroundings." (*Id.* at p. 10.21-60.)

0002-132

The County's DEIR did not analyze "risk" separately from hazards and hazardous materials impacts. The County's DEIR concluded that Impacts 4.8-1 ("Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials") and 4.8-2 ("Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment") were potentially significant and required mitigation. (DEIR, pp. 4.8-83, 4.8-92.) The County's MM 4.8-1 through MM 4.8-14 do not include requirements that are substantively similar to those in SB 4 EIR's MM RSK-2a.

K. Mitigation Measure RSK-7a (Use Alternative Proppant (e.g., Sintered Bauxite, Ceramics, Resins) or Use Alternative Proppant Delivery System

0002-133

The SB 4 EIR concluded that Impact RSK-7 ("Expose workers and public to hazardous levels of airborne silica during the use of proppant") was potentially significant. (SB 4 Final EIR, Vol. II, p. 10.21-70.) As the SB 4 EIR explained:

> Silica sand is often used as a proppant in most of the hydraulic fracturing operations. The National Institute for Occupational Safety and Health (NIOSH) identifies exposure to airborne silica as a potential health hazard to workers conducting hydraulic fracturing operations. Breathing silica could produce silicosis, which potentially leads to lung disease causing inflammation and reducing the lungs ability to take oxygen.

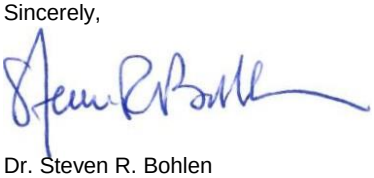
(*Id.* at p. 10.21-70.) To mitigate this impact, the SB 4 EIR included MM RSK-7a, which suggests the use of an alternate to silica sand as a proppant and encourages the selection of appropriate materials that lack any harmful properties. (*Id.* at p. 10.21-71.) Additionally, MM RSK-7a requires "the use of an alternative proppant delivery system that is a closed system and results in less dust and truck traffic than traditional methods." (*Id.* at p. 10.21-71.)

The County's DEIR did not analyze "risk" separately from hazards and hazardous materials impacts. The County's DEIR concluded that Impacts 4.8-1 ("Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials") and 4.8-2 ("Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment") were potentially significant and required mitigation. (DEIR, pp. 4.8-83, 4.8-92.) The County's MM 4.8-1 through MM 4.8-14 do not include requirements that are substantively similar to those in SB 4 EIR's MM RSK-7a. The County should include specific standards to address health concerns related to exposure and inhalation hazards from silica dust during well stimulation treatment operations where proppant is used. 0002-134

CONCLUSION 0002-135

DOGGR appreciates the opportunity to provide these comments and looks forward to the County's responses. DOGGR will be happy to continue working with County staff to obtain additional information on subjects important to DOGGR as a responsible agency.

Sincerely,



Dr. Steven R. Bohlen
State Oil and Gas Supervisor
Division of Oil, Gas and Geothermal Resources

Attachments:

Exhibit 1: Mitigation Policy Manual for Well Stimulation Treatment Permits

Exhibit 2: Technical comments from DOC and DOGGR staff

Exhibit 3: OEHHA's comments on Kern County's Health Risk Assessment

Kern County DEIR Page/Section/MM	Comment	
General Comments		
	1. The Hydrologic description identifies the Corcoran Clay as the boundary between shallow and deep aquifers in the west and central area, and the mechanism of groundwater recharge from the Sierra and the Kern River. The document would benefit from more detail on how the geologic and hydrologic environments interact and contribute to or influence the impacts from oil and gas development regionally.	0002-136
	2. Projected future oil and gas activity is based only on current practice with the assumption that future development will follow the same trends. Projected oil and gas activity uses 2012 numbers for new drills, plugging and abandonments, and well stimulation. Projected produced fluid management uses 2012 figures although there has been a significant change resulting from Well Stimulation Treatment regulations. For example, the EIR does not take into consideration the prohibition of produced fluid from WST wells into surface impoundments: sumps, and pits.	0002-137
	3. Since produced fluid from WST wells is prohibited from going to surface sumps and pits, all of the sections in the Kern EIR that reference alternative use of produced fluid for injection and irrigation purposes and management by surface percolation ponds will need to be adjusted. The amounts and percent increases also need to take into consideration this change in fluid management. These sections in the Kern EIR can be found in comments on Section 4.9 below.	0002-138
Chapter 2 Introduction		
Pg. 2-26	Compliance with regulations is a requirement whether or not the proposed action would be implemented and should not be described as mitigation that is unique to the project. Additionally, significant impacts can and sometimes do occur despite regulations.	0002-139
Chapter 3 Project Description		
Pg. 3-2	"*This EIR provides project-level CEQA coverage on which DOGGR can rely, as a Responsible Agency, for permitting of oil and gas activities, including well stimulation treatment, in the Project Area within Kern County*." DOGGR does not believe that the draft EIR contains sufficient detail to qualify as providing for project-level coverage for all of the oil and gas approvals that DOGGR might be called upon to make. DOGGR is hopeful, however, that, in responding to DOGGR's requests for additional information for inclusion in the Final EIR, the County will be able to supply sufficient information to make the document sufficient for DOGGR's use as a responsible agency.	0002-140

Kern County DEIR Page/Section/MM	Comment	
Pg. 3-28	Mitigation Self-Certification: Please provide a more detailed description of the Self-Certification process. The section would benefit from a detailed discussion of the method by which operator compliance would be ensured. Will self-certification data be available to the public to view?	0002-141
Pg. 3-30, 3-32	Section 3.5 mentions that no more than 2,697 producing wells would be drilled in a single year under this CEQA review. However, the impacts of oil and gas activity is not just the drilling of production wells but also should include the drilling of injection wells. According to our published Weekly Summary Reports the Division has received the following: Drill Year / Drill Notices Received / Permits Issued 2010 / 2758 / N/A 2011 / 3427 / 3143 2012 / 3083 / 3164 2013 / 3997 / 3411 2014 / 3678 / 2790 If these numbers continue, the EIR evaluation may not adequately address impacts caused by the amount of drilling activity in the County.	0002-142
Pg. 3-52	Decommissioning and Abandonment paragraph 4 item 1: Sentence 3 states that DOGGR regulates sumps. Although the Division does have some minor regulations, as cited in the document, to deal with some aspects of sumps, sumps are permitted by the Regional Water Quality Control Board.	0002-143
Pg. 3-53	Reactivation of Idle Wells: The Division would like the definition of an idle well to be based on its regulations: Section 3008(d) defines “Idle well” as any well that has not produced oil or natural gas or has not been used for injection for six consecutive months of continuous operation during the last five or more years. An idle well does not include an active observation well.	0002-144
Attachment A: Zoning Ordinance Amendment, pg. 13	Chapter 19.98.130 Self-Certification: Please include a description of this process as part of the proposed project in Section 3.4.1.	0002-145

Kern County DEIR Page/Section/MM	Comment	
Attachment A: Zoning Ordinance Amendment, pg. 7	Chapter 19.98.070 Conformity Review and Approval: The associated table depicting oil and gas activities and the types of review required states that where activities are checked in multiple columns, they would be subject to Oil and Gas Conformity Review only if proposed in conjunction with another activity subject to only Oil and Gas Conformity Review. Otherwise they are subject to Minor Activity Review. Is there a mechanism to ensure that applicants seek approval for the whole of an action?	0002-146
Attachment A: Zoning Ordinance Amendment, pg. 5	Chapter 19.98.070 Conformity Review and Approval: Well pad preparation has the greatest potential amongst oil and gas activities for potential impact. Please clarify on reasons that it is considered under Minor Activity Review.	0002-147
Agriculture		
MM 4.2-1	This measure would be enhanced by adding that agricultural easements or mitigation lands be held in perpetuity as required by Gov. Code § 65965 et seq., and that any non-governmental easement holding entities be certified by the Land Trust Accreditation Commission to ensure accountability and permanence of land conservation.	0002-148
Air Quality		
Pg. 4.3-103 to -104	Appendix M does not seem to include impacts from WST activities. Please explain.	0002-149
MM 4.3-2 (pg. 4.3-68 to -69)	Please see the discussion in the SB 4 EIR of Impact RSK-7 (Expose workers and public to hazardous levels of airborne silica during the use of proppant). In particular, the County should include specific standards to address health concerns related to exposure and inhalation hazards from silica dust during well stimulation treatment operations where proppant is used. Mitigation measures should be added to either require the use of alternative effective proppants, or require enclosed proppant containers and bins.	0002-150
Biology		
General	What process does the County plan to use to confirm permits or approvals (such as wetlands permits and/or streambed alternation agreements) from other state or federal agencies have been issued?	0002-151
Pg. 4.4-82	The southwest willow flycatcher is listed under Category 3 in the document. Since it is endangered under federal and state ESAs and has potential to occur in the Project Area, should it be under Category 2?	0002-152
MM 4.4-3 (pg. 4.4-204 to -205)	In mitigation measures that address situations where protected species are identified during pre-disturbance surveys and avoidance buffers are	0002-153

Kern County DEIR Page/Section/MM	Comment	
MM 4.4-10 (pg. 4.4-208) MM 4.4-11 (pg. 4.4-208 to -210) MM 4.4-12 (pg. 4.4-210 to -211)	established, the inclusion of qualified biological monitors on site during disturbance activities might be considered to enhance the measure.	0002-153 Continued
MM 4.4-10 (pg. 4.4-208)	This measure currently sets no disturbance buffers (generally and for raptor nests) where continuous monitoring by a biologist is not available. One possible way to enhance the measure would be to include a combination of buffers along with monitoring by a qualified biologist.	0002-154
MM 4.4-11 (pg. 4.4-208 to -210)	This measure directs applicants to conduct blunt nose leopard lizard surveys, when appropriate. Would such BNLL surveys be conducted in coordination with CDFW on location and timing? How would the surveys be enforced?	0002-155
MM 4.4-15 (pg. 4.4-212 to -214)	Aside from requiring washing of tracked and tired vehicles and equipment before moving to a new disturbance, identifying specific types of invasive plant species that are most problematic in the Project Area and considering measures that limit their spread from construction activities to either habitat or agricultural lands would enhance effectiveness.	0002-156
MM 4.4-17 and MM 4.4-18 (pg. 4.4-219)	Kern County might consider minimum buffers from jurisdictional waters.	0002-157
Impact 4.4-1 (pg. 4.4-173) Impact 4.4-4 (pg. 4.4-222)	Habitat for Special Status Species and Native Resident Wildlife Corridors: The California Council on Science and Technology's Independent Scientific Assessment on Well Stimulation Volumes II and III (CCST Study) presented valuable information on habitat fragmentation and corridors in the Project Area, specifically the Western Subarea. Consideration of the information in these volumes would benefit impact analysis on special status species habitat in the Project Area. Since important contiguous areas of quality habitat exist on Tier 1/Tier 2 lands within the Western Subarea, the information from the CCST Study offers insight not available in existing literature. This information could inform the County's habitat conservation efforts that surround the dense oilfields in the Western Subarea for the next 25 years.	0002-158

Kern County DEIR Page/Section/MM	Comment	
Pg. 4.4-229	Biology Cumulative Impacts: Cumulative biological impacts would benefit from adding the County's knowledge of trends in other industries in the County.	0002-159
Pg. 4.4-229	Cumulative Impact: In the cumulative impact discussion, the County might consider using the same projected approach as is used for the project impacts. Adding information from the County General Plan, trends in growth and industrial development within the Project Area would be informative for this discussion.	0002-160
Figure 4.4-12	This figure shows locations of HCPs and Division wells. In the legend under **DOGGR Well Location**, the last category is listed as 'Unknown Well Type.' While such a category does exist in the Division's database, the category signifies older wells that often have pre-1977 records that may not have been properly converted to digital formats. The Division recommends that Kern County work with DOGGR's District 4 staff to determine the appropriate well status.	0002-161
Cultural and Paleontology		
General comments	Impacts to paleontology would be greatest from land disturbance activities (well sites/drilling islands/access roads construction) where formations with high paleontological resource potential are shallow. But in some cases such formations are in the same formation that have oil and gas deposits. Would EOR activities affect these resources?	0002-162
MM 4.5-2 (pg. 4.5-55 to -56)	Please expand on the 'procedures to be followed upon the discovery of paleontological materials.' This mitigation measure would benefit from including a professional paleontologist to assess discovered materials to determine whether important information can be collected from them and if they should be curated at a museum.	0002-163
Pg. 4.5-56	Shallow land disturbance activities to prepare well sites/drilling islands/oil and gas developments could also result in potential impact on paleontological resources in rocks that are shallow in depth. Consider requiring the presence of a qualified paleontologist at earth moving activities to monitor for finds in such situations.	0002-164
MM 4.5-4 (pg. 4.5-56 to -57)	Unexpected archaeological materials found during construction. This measure is more appropriate under Impact 4.5-1 than under Impact 4.5-4. Such unexpected archaeological finds can be historic in nature as well as prehistoric/Native American.	0002-165

Kern County DEIR Page/Section/MM	Comment
Geology and Soils	
Pg. 4.6-19 to -20	The DEIR states: Land subsidence of less than 1 foot from oilfield withdrawals is known to occur in a few isolated areas in southwest Kern County. Generally, the extent and rate of oil and gas extraction subsidence is significantly less than subsidence caused by groundwater use because hydrocarbon extraction typically occurs at much deeper locations beneath the ground surface. Please *delete* the last phrase: "~~because hydrocarbon extraction typically occurs at much deeper locations beneath the ground surface~~." The depth of the extraction is not the relevant factor. Subsidence occurs at any depth where the extraction of fluids from a reservoir results in the decrease of pore pressure or where extraction of fluids exceeds recharge. Subsidence also occurs as a result of production practices specific to the characteristics of the reservoir rock, i.e., diatomite production. Subsidence commonly occurs in South Belridge where oil extraction in the diatomite causes the collapse of the reservoir due to the nature of the diatomite formation and occurs at quite shallow depths (<1000 ft.). Subsidence is subsidence regardless of whether the cause is from shallow or deeper production. The Division is mandated to prevent subsidence. The means by which subsidence is abated is either by balancing production and injection, or by requiring injection and re-pressurization. If produced fluids are redirected to other "beneficial uses," there may not be fluid available to put to use in subsidence abatement. Alternative uses of produced fluids should not be at the expense of other just as important issues.
Pg. 4.6-40	The EIR identified landslides as a potential impact and noted that local ordinances address this impact. Please elaborate on the types of industry accepted practices. If construction is within an oilfield administrative boundary, would Kern County's construction requirements apply?
Pg. 4.6-45	The DEIR states: "Subsidence is normally the result of gas, oil or water extraction, hydrocompaction, or peat oxidation, not the result of landslide or ground failure." DOGGR recommends adding in a phrase: "Subsidence is normally the result of gas, oil or water extraction *(by various industries, including oil and gas, and agriculture, among others)*, hydrocompaction, or peat oxidation, not the result of landslide or ground failure."

0002-166

0002-167

0002-168

Kern County DEIR Page/Section/MM	Comment
MM 4.6-1 (pg. 4.6-53 to -54)	MM 4.6-1, subsection (d)(3), states: All Class II injection wells shall be authorized and shall comply with all applicable legal requirements, UIC program approval permit conditions, and be operated according to CCR title 14 as described for the mitigation measures for Hydrology and Water Quality. • MM 4.6-1 does not clearly specify the adverse impacts resulting from earthquakes. The EIR does not explain how compliance with Division WST and UIC requirements would address adverse impacts. • If a seismic event is determined to be a result of WST operations (or UIC) then WST regulations require that an evaluation be conducted to determine whether surrounding wells have zonal isolation. However, if the seismic event is not WST related, this evaluation would not be required. DOGGR could, under different powers of the supervisor, request operators to conduct a well review. Neither the UIC nor the WST program have a requirement to evaluate MIT of wells post-earthquake. Post-earthquake evaluation is only required under the WST regulations not the UIC regulations. Therefore, this mitigation measure does not fully cover the potential impacts. • The DEIR implies that earthquakes could be induced by WST and UIC activities. It is unclear then how compliance with DOGGR regulations would mitigate inducing earthquakes. • The DEIR does not specify whether there are potential impacts to groundwater if and when a seismic event would cause lack of integrity in oil and gas wells. If the seismic event is WST related, then the WST program requirements would address well integrity measures. WST regulations require a post seismic event evaluation of the mechanical integrity of wells within the 5x radius to determine if any wells have been compromised and prohibits future wells in this area from WST activities until after an evaluation has been completed. The resulting analysis would require the Division to act to remediate any wells to ensure zonal isolation. Permit condition would be added to the WST permit to address this; however, there would not be the benefit of public review and discussion.
Hazards and Hazardous Materials	
General comments	We suggest adding additional details to explain how the mitigation measures in the section would be enforced. Before a well stimulation treatment, DOGGR regulations require pressure testing for all surface equipment, tubing and casing that will come in contact with the WST pressures, to be pressure tested for a required period to ensure equipment integrity. Pressure test of casing must be recorded using a chart recorder. This requirement is not mentioned in the Kern EIR.

0002-169

0002-170

Kern County DEIR Page/Section/MM	Comment	
Pg. 4.8-15	The flowback section depicts "flowback" fluids as flow reversal. In Kern County, and specifically South Belridge field where 85-90% of the WSTs are performed, after WST the fluids do not flow back to the surface. Operators must add motive forces to the well, such as a pump, to recover fluids after WST.	0002-171
Pg. 4.8-91	Blowouts and Steam-Related Events paragraphs 1 and 2: These two paragraphs imply that surface expressions are related to the blowout prevention equipment. The cause of steam-related events or surface expressions, however, normally has very little if anything related to the blowout equipment. Many surface expressions are caused by a breakdown of the formation or from damaged casing allowing fluids to migrate vertically and laterally to the surface.	0002-172
MM 4.8-14 (pg. 4.8-93 to -94)	This measure addresses contamination caused by oil and gas activity outside of a Tier 1 area. Please clarify how contamination by oil and gas activity would be mitigated within Tier 1.	0002-173
MM 4.8-15 (pg. 4.8-95 to -96)	This mitigation measure may not adequately address extremely hazardous waste such as H2S associated with waste gas disposal wells.	0002-174
Pg. 4.8-99	Impact 4.8-7: This impact refers to evacuation plans or lack thereof. It appears the County does not have evacuation plans associated with any of the gas plants, pipelines, or wells used for waste gas disposal. Some of these wells inject gas with concentrations of over 50,000 ppm H2s and are extremely lethal. We recommend a study considering the nearest sensitive receptors to these facilities to determine if an evacuation plan or emergency response plan is appropriate to reduce impacts should a significant leak occur.	0002-175
Pg. 4.8-103	Impact 4.8-10: The document relies on existing regulations to address releases of hazardous material, but the Division does not have regulations that address this topic. Therefore, we suggest the County augment the discussion on risk of H2S release in this document.	0002-176
Hydrology and Water Quality Comments		
Pg. 4.9-14	Oil and Gas Production and Water Resources, Overview: This portion of the document states that 26% of produced water is discharged into percolation or evaporation ponds. It is debatable how much authority for	0002-177

Kern County DEIR Page/Section/MM	Comment	
	these ponds fall to the Division, but again the document appears to rely on existing regulations to minimize impacts. The Division only has regulations to restrict flowback fluid from entering these ponds.	0002-177 Continued
Pg. 4.9-22	Well Stimulation section, discussion of NORM: The document mentions that DOGGR did a study in 1996 on NORM, found some elevated radiation reading in District 4, and suggested that further evaluation may be required. Consider adding a requirement for evaluations of this type as a mitigation measure.	0002-178
Pg. 4.9-22	Surface Water and Groundwater Quality first paragraph: This discussion appears to confuse freshwater definitions with water subject to beneficial use. The discussion cites public drinking water supply standards such as maximum contaminant levels (MCL), but then the discussion switches to agriculture irrigation, which can easily be confused. Separately, comments from DOGGR workshops on aquifer exemptions indicate that farmers use water with TDS greater than 4,000 mg/l on crops, yet the EIR suggests that this practice is not very common. According to the State Water Board, many residents in Kern County are using and drinking water above the MCL.	0002-179
Pg. 4.9-30	Surface Water Quality Data: This section is very general and continually uses phases like: "…data suggests…", "…most like due to…", and "…results likely suggest…" These are very general and would suggest that the analysis at issue is not site specific.	0002-180
Pg. 4.9-105	Discharge to Injection Wells: The document refers to the Area of Review and an approved mathematical model such as the "This equation". It should read the "Theis equation".	0002-181
Pg. 4.9-108	Discharge to Injection Wells: The last paragraph under this section describes Field Rules. The document states that field rules are to be considered when in fact if a Field Rule exists, then those rules *must* be followed. The Field Rule replaces the existing regulations based upon known geologic conditions.	0002-182

Kern County DEIR Page/Section/MM	Comment	
Pg. 4.9-113	Kern County General Plan: It is not clear how these local policies and measures listed would be reviewed, enforced, or monitored to protect water quality. Please clarify how these measures would be managed under conformity or minor ministerial permit review.	0002-183
Pg. 4.9-117	Implementation Measure D states that: "*Discretionary actions will be required to address and mitigate impacts form inundation, land subsidence, landslides, high groundwater areas, liquefaction and seismic events through the CEQA process*." It is not clear how these impacts would be addressed for ministerial projects. Please clarify.	0002-184
Pg. 4.9-130	"*… BMPs may still be utilized to prevent or minimize pollutants from becoming entrained in stormwater*." What specific BMPs would be required and how would they be enforced?	0002-185
Pg. 4.9-132	The first sentence of second full paragraph is inaccurate. The Division does not require the use of freshwater drilling muds. It may be industry "preferred" practice but is not required. The use of oil-based drilling mud may be preferred in order to prevent the swelling of clays during drilling through certain formations. Oil-based drilling muds must be disposed of differently than water-based drilling muds. The Division does not have specific drilling mud requirements, only that drilling must be under controlled conditions at all times. Well control is assured through appropriate mud weight control during drilling. Oil-based drilling muds would be in contact with groundwater during the drilling phase but would only infiltrate a few inches into the formation as any deeper could result in wellbore fluid loss and loss of well control. The potential exists for groundwater to come in contact with oil-based muds and the Kern EIR should include this in their description. Potentially this would not rise to the significant impact level; however, the EIR should accurately reflect this drilling practice.	0002-186
Pg. 4.9-133	"*The API and other sources of applicable industry engineering standards publish and regularly update oil and gas industry standards and criteria for construction period fluid mixing, storage, handling, and conveyance equipment.*" In order to ensure standards would adequately prevent impacts, specific standards should be described in the Final EIR and adopted as mitigation.	0002-187

Kern County DEIR Page/Section/MM	Comment	
Pg. 4.9-135	Spills and Leaks from Oilfield Operations: This discussion needs to take into consideration WST chemicals found in produced fluids from WST wells.	0002-188
Pg. 4.9-137	Surface or Subsurface Discharges Related to Produced Water Reuse and Disposal: This discussion needs to consider that all produced fluids from WST wells cannot be managed in surface ponds or pits as of July 1, 2015. The scenarios should take this change in state regulations into consideration.	0002-189
Pg. 4.9-137	Produced Water Reuse for EOR Activities: This discussion needs to consider that produced fluid for injection may increase since a large quantity of produced fluid from WST wells will be redirected from surface ponds and pits to injection wells, either EOR or disposal.	0002-190
Pg. 4.9-140	The first sentence would need to change since the amount of produced fluid that is not reused but going into surface ponds is no longer allowed. The suggested fluid amounts available for irrigation use needs to be adjusted.	0002-191
MM 4.9-2 (pg. 4.9-146)	It is not clear if the BMPs described in MM 4.9-2 are required or recommended. Please clarify.	0002-192
MM 4.9-3 (pg. 4.9-147)	Although this MM is relevant to all oil and gas activities, it needs to include a statement that reflects current WST regulations and the prohibition of managing produced fluids from WST wells in evaporation pits or any surface impoundment in perpetuity. This prohibition is found in CCR section 1786. Produced fluids from wells that have been WST cannot be stored in sumps or pits. Produced fluids from WST wells will need to be managed by other alternatives, preferably through injection wells. It should be noted that drilling sumps that are used during the drilling of the well (and then left on site to complete the completion operations such as WST) must not be used during WST operations as DOGGR WST regulations prohibit the storage of WST fluids in sumps and pits. This prohibition needs to be considered in this section.	0002-193
MM 4.9-5 (pg. 4.9-147)	MM 4.9-5 needs to be changed to reflect that WST fluids and produced fluids from wells that have been stimulated cannot store, discharge, or disposed into surface ponds or pits.	0002-194

Kern County DEIR Page/Section/MM	Comment	
Pg. 4.9-148 to -155	Impact 4.9-2 ("Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge …"): The potential use of WST fluids, produced or recovered, should be removed from this section as it cannot be used for groundwater recharge (unless it is treated). Therefore the reference in the first sentence to WST should be deleted and the figures in the charge recalculated to delete WST fluids from the equation.	0002-195
Pg. 4.9-155	Summary: "*Potential impacts to groundwater supply and recharge from produced water generation, injection and WST would be less than significant with the implementation of MM 4.9-1 through 6.* " This finding needs to be reevaluated with the omission of the quantity of WST fluid as potential recharge. Since 73% of produced fluid from WST wells from North and South Belridge, Lost Hills and Elk Hills (2011-2014 from Division Production data) was discharged into evaporation ponds, this amount could significantly reduce the benefit to groundwater recharge proposed in the Kern EIR.	0002-196
Utilities		
MM 4.17-2 (pg. 4.17-59)	In regards to increasing the reuse of produced water: • Would the top 5 O&G users of M&I water likely make up the majority of M&I water use compared to the rest of the O&G users combined? • How much of a reduction in M&I water use by the top 5 O&G users (to be identified in 2016) would make this MM effective? • The California Council on Science and Technology's Independent Scientific Assessment on Well Stimulation Volume II, chapter 2, presented information on potential impacts of reusing produced water. Consideration of the information in this study would benefit impact analysis.	0002-197

Office of Environmental Health Hazard Assessment

Lauren Zeise, Ph.D., Acting Director
Headquarters • 1001 I Street • Sacramento, California 95814
Mailing Address: P.O. Box 4010 • Sacramento, California 95812-4010
Oakland Office • Mailing Address: 1515 Clay Street, 16th Floor • Oakland, California 94612

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

MEMORANDUM

TO: Saul Gomez
Special Assistant for Oil, Gas and Geothermal Resources
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, California 95814

Steven Bohlen, State Oil & Gas Supervisor
Division of Oil, Gas & Geothermal Resources
Department of Conservation
801 K Street, MS 18-06
Sacramento, California 95814

FROM: Allan Hirsch
Chief Deputy Director

DATE: September 10, 2015

SUBJECT: HEALTH RISK ASSESSMENT ASPECTS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR REVISIONS TO THE KERN COUNTY ZONING ORDINANCE - 2015, OIL AND GAS LOCAL PERMITTING

This memorandum provides several comments on portions of the subject Draft Environmental Impact Report (DEIR) that evaluate the air pollution generated by project-related oil and gas operations and the pollution's potential health impacts. It is based on a brief reading of Appendix M and chapters 3.4 (project description), 4.3 (air quality impacts), and 4.8 (hazardous materials impacts) of the draft. Appendix M contains the health risk assessment for air toxics emissions. The DEIR evaluated cancer and non-cancer risks using the Office of Environmental Health Hazard Assessment's (OEHHA) Air Toxics Hotspots guidelines and California Air Resources Board Hotspots Analysis and Reporting Program, Version 2 (HARP). The risk estimates developed in Appendix M were then used to define acceptable setback distances for sensitive receptors located near oil and gas operations.

0002-198

0002-199

Given the limited time available for this review, we did not look closely at either the air dispersion modeling or the HARP-based risk calculations. A preliminary issue that we had with the risk assessment report was that it provided an insufficient narrative of less than 10 pages (not counting tables) and was missing key information on the exposure and risk modeling methods and assumptions. We nonetheless were able to identify several potential technical issues, all of which could have an impact upon defining appropriate setback distances to protect sensitive receptors. These are as follows:

1. The risk assessment did not include sufficient discussion of the toxic air emissions inventory that it used as input to the air dispersion analysis, and therefore it is unclear whether the emission estimates generated for the study are accurate and representative of potential emissions from the proposed project. In order to be health-protective, it would be preferential to develop and use reasonable, high-end emission estimates to compensate for uncertainty and variability in the data underlying the emissions estimates.

2. Although Section 4.3 of the DEIR evaluated impacts due to criteria air pollutants, and Appendix M did the same for Toxic Air Contaminants (TACs), one gap in the analysis remains related to the localized non-cancer air impact of $PM_{2.5}$ and PM_{10} emissions from new oil and gas activities. This gap occurs because criteria air pollution, unlike TAC pollution, is normally analyzed and controlled (or offset) at a regional geographic scale. However, smaller sources of criteria air pollutants may, in certain cases, produce significant localized air impacts to fence-line receptors. This possibility exists especially for $PM_{2.5}$ in Kern County since the San Joaquin Valley is out of attainment with the $PM_{2.5}$ standards. According to Table 4.3-9 of the DEIR, an increase of > 1.2 $\mu g/m^3$ in the 24-hour ambient air concentration of $PM_{2.5}$ would represent a significant air impact.

   While the Appendix M risk assessment looked at long-term exposures and impacts (cancer risk to a maximally exposed individual) due to diesel particulate emissions, there is a remaining question as to whether 24-hour concentrations of $PM_{2.5}$ would be acceptable with respect to non-cancer health risks. Addressing this gap in the analysis could result in a revision of the proposed setbacks. Also note that this type of regulatory gap may exist for other criteria air pollutants, although it likely is most significant for PM pollution due to the elevated PM levels in the San Joaquin Valley.

3. Another analysis gap relates to potential localized air impacts from accidental spills. Spills of various oil and gas production-related fluids have been occurring on a regular basis in Kern County, as indicated in the table on the next page (extracted from Table 4.8-6 of the DEIR). The DEIR also describes 57 crude oil

0002-200

spills ranging from 5 to 53,550 gallons that were reported for PHMSA[1]-regulated pipelines between 2002 and 2009.

The DEIR concluded that in spite of current regulations, accidental spills still represent a significant potential impact of the proposed project. Thus, it seems reasonable to question whether an acute air hazard could be created by vapor emissions from such accidental spills of hazardous fluids. This analysis was not carried out in the DEIR or the Appendix M risk assessment.

Spills in Kern County Oilfields between January 2009 and June 2014 Not Associated with PHMSA-Regulated Pipelines

	Number of Spills	Range of the Spill Volume (Gallons)	Average Spill Volume (Gallons)
Oil	403	0.126 - 27,300	1,126
Produced Water	263	2.1 - 126,000	6,888
Acid	9	33.2 - 7,333	2,633
Diesel	2	1,323 - 2,688	2,003

4. Some chemicals specific to well stimulation processes were not covered in the risk assessment. For example, proppant materials frequently contain crystalline silica, and elevated air concentrations of silica have been measured during fracking operations in studies conducted in other states. If this is also the case in California, then fence-line receptors could be exposed to silica particulate and this should be evaluated. Another example specific to well stimulation is the operational or accidental release of highly hazardous materials such as hydrogen fluoride (or its chemical precursors) and hydrogen chloride.

5. The risk assessment assumed that well construction, drilling, and completion would last 23 days on average, whereas the DEIR noted that these activities could last longer than 60 days (see pg. 3-41 of the DEIR). Using a more conservative well-development period of 60 days or more might indicate the need for increased setback values.

[1] PHMSA: Pipeline and Hazardous Materials Safety Administration.

0002-201

6. Mitigating measures (MMs) are proposed for potential air impacts to sensitive receptors. However, MM 4.3-5 also states that, "If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required." We could not find a complete definition of "sensitive receptor" in the DEIR. However, the OEHHA risk methodology used in the Appendix M risk assessment is designed to protect the general public (including sensitive individuals), as well as offsite workers. We recommend that the DEIR clarify the use of the term "sensitive receptor" to include the general public and offsite workers, some of whom may be sensitive to the adverse effects of air pollution.

7. The air dispersion modeling used meteorological data from a single site in Bakersfield to model air impacts over the entire 3700 square mile project area of Kern County. We did not look closely at the air dispersion model but wonder if this meteorological data is representative of dispersion conditions throughout the region of interest. For example, Bakersfield is a relatively urbanized area and may experience more air turbulence and pollutant mixing effects than rural areas. It may be appropriate to use multiple meteorological datasets to better characterize the high-end air pollution levels, particularly in rural areas.

8. Section 3, page 3-47 defines "sumps" and "evaporation and percolation ponds" as separate installations. Appendix A to the risk assessment provides a list of devices analyzed and their estimated air emissions. Sumps are included in this list but we did not find emissions estimates for evaporation and percolation ponds. These potential air pollution sources should be included in the risk assessment.

As initially noted, these comments are based on a brief reading of limited sections of the DEIR, including the Appendix M risk assessment. With further review of the air dispersion and risk modeling documentation, it is likely that we would have additional comments and recommendations.

0002-1

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-2

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-3

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-4

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.
0002-4 cont'd

0002-5

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-6

The comment is noted. Please see GR 12 and GR 13 concerning the California Council on Science and Technology (CCST) Study.
0002-7

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-8

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-9

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.
0002-9 cont'd

0002-10

These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-11

The comment is correct that, as of July 1, 2015 (the effective date of the SB 4 permanent regulations), produced fluids from wells subjected to well stimulation treatment (WST) may not be disposed of in evaporation and percolation ponds. 14 Cal. Code Regs. § 1786. Given these legal constraints on disposal of produced water from stimulated wells, the County does not anticipate that such produced water will be used for irrigation. Please see GR Water-1, for the calculations requested by the commenter. As shown in GR Water-1, in the aggregate, and based on the projected number of new production and WST wells over time, the Project Area appears to have sufficient WST and non-WST produced water supplies to fulfill the three future scenarios discussed in the DEIR. Shortfalls related to the new regulations that could occur would likely affect surface disposal in the Western Subarea. Additional injection would occur to dispose of WST-well derived produced water that could not

be applied to the surface under Section 1786. There appears to be sufficient produced water derived from non-stimulated wells available to maintain the level of agricultural reuse assumed in scenarios 1 and 2, and to increase the level of reuse by 11,761 acre-feet per year in Scenario 3.

0002-12

See comment above.

0002-13

All operators are required to comply with all applicable legal requirements, including the prohibition on disposal of fluids from stimulated wells in percolation ponds, and requirements to identify and appropriately manage and dispose of hazardous as well as non0hazardous wastes. It is possible that some of the produced water and other fluids associated with WST wells will be characterized and disposed of as a form of hazardous waste. The volume of this potential waste stream cannot be estimated at this time due to the lack of historical data. The analysis summarized above, however, indicates that the three scenarios considered in the DEIR would be affected only if a very significant amount of Project Area WST-related material proved to be hazardous waste. This prospect is speculative. Produced water has been tested in the past and generally has been found not to exhibit hazardous waste characteristics. The presence of benzene in produced water does not render it hazardous under California law because wastes which are excluded from regulation as hazardous wastes under RCRA are not subject to the TCLP (the federal Toxicity Characteristic Leaching Procedure).

In any case, as noted above, the balance between uses must be considered, including groundwater recharge, irrigation and subsidence abatement needs as identified by the commenter, in the context of current regulatory requirements and restrictions. Further, as noted in the Water Quality discussions in the EIR, in the Water Quality Appendix, and in various comment letters including the letter from the Water Board (Letter 3), produced water varies dramatically in quality and treatability. For these and related reasons, the EIR does not prescribe any particular location, treatment technology, or beneficial use of treated produced water. However, as described in GR Water 5, there is more produced water used for agriculture than was reported in the Draft EIR, and several produced water treatment proposals remain under consideration by local water districts. Local water districts act as the lead agency for such projects, and are not subject to County zoning regulations; any such treatment facility would trigger the need for further CEQA review by the lead agency and be required to address environmental impacts and mitigation measures to address issues such as subsidence, monitoring and compliance parameters, and related issues. This EIR does not authorize any produced water treatment or re-use facilities, although it does set a target of re-use of 30,000 acre feet per year of produced water. As shown in GR Water-1, there are adequate quantities of produced water available from non-stimulated wells to achieve this reuse target.

0002-14

The comment describes the content of the EIR and is noted.

0002-15

The comment describes the content of the EIR and is noted.

0002-16

The DEIR states that subsidence is a known occurrence in the Project Area resulting from groundwater and to a lesser extent oil and gas extraction (including produced water). Historically, between 1926 and 1970 localized areas of subsidence have occurred within the Project Area due to groundwater extraction. Agriculture is one of the largest users of ground water and is primarily responsible for permanent surface subsidence, particularly in the Central Valley; for example, the Tulare Lake region experienced subsidence of 26 feet from groundwater extraction. EIR 4.6-18. However, as discussed in the EIR, subsidence from oilfield withdrawals is limited. Subsidence on the order of less than 1 foot from oilfield withdrawals has been identified in a few isolated areas in southwest Kern County (EIR 4.6-19 – 4-20), which is substantially less that subsidence attributed to groundwater extraction. Monitoring and balancing fluids and pressures in the reservoirs has reduced the levels of subsidence in the basin. As stated in the EIR and noted in the comment, DOGGR monitors subsidence in oil and gas fields and regulates oil and gas withdrawal and re-pressurizing of each oilfield. If subsidence is observed, well operators are required to stabilize the ground by injecting additional produced water or reducing the volume of produced water being pumped during field operations. This practice returns produced water back into the oil-bearing formation to maintain reservoir pressure and mitigate subsidence. Recycling produced water for enhanced oil recovery and well stimulation treatment also mitigates subsidence. The EIR includes MM 4.6-4, which requires the applicant to comply with a DOGGR -approved re-pressuring plan

Because subsidence is monitored by DOGGR, and operators must comply with these measures to manage subsidence, water for injection to manage subsidence will take precedence over other water uses so as to meet DOGGR's mandate. Reuse of produced water for other beneficial uses will be subject to the need to ensure availability of sufficient fluid for use in subsidence abatement. MM 4.17-2 to MM 4.17-4 will encourage the additional reuse of produced water, but prioritizing the use of produced water for management of subsidence imposes a limit on the reuse of

produced water. For this reason, among others, the extent to which oilfield operators can feasibly increase produced water reuse and decrease M&I demand is uncertain. Accordingly, while the EIR includes MM 4.17-2 to MM 4.17-4 to reduce the Project's impact on water supply to the extent feasible, the impacts is considered significant and unavoidable.

0002-17

See response to comment 16, above

0002-18

See response to comment 16, above.

0002-19

Please see GR Water-1. Based on the CCST consumption data for WST operations in Kern County, about 456 acre-feet per year of water and other fluids would be used to complete 1,200 well stimulation treatments annually in the Project Area. The volume of fluid directly related to WST in the Project Area amounts to 0.14% of the total produced water supply projected for 2035 (321,894 acre-feet) and would have no significant effect on produced water use under any of the three future scenarios considered in the EIR.

0002-20

Please see GR Water-01 and GR 18 regarding geological and technological constraints on extensive development of the Monterey Shale.

0002-21

None of the three future scenarios identified in the EIR is considered the "most likely outcome." As explained in the EIR, p. 4.17-59, The feasibility of achieving the results in Scenario 3, and the extent to

which additional produced water could be reused to offset oil and gas M&I water use in the Project Area, depends on several factors, including produced water quality, treatment costs and requirements, the availability of conveyance capacity to route produced water to and from treatment facilities, the availability of institutional mechanisms for managing produced water treatment and distribution – and the need to ensure availability of sufficient fluid for use in subsidence abatement. As such, the EIR did not identify feasible mitigation measures available to reduce water supply impacts to a less than significant level. Implementation of MM 4.17-2 to MM 4.17-4 could reduce such impacts, but Project impacts to water supplies would remain significant and unavoidable. Along with the need to ensure subsidence abatement, the allocation of water supplies and water demands, the complex laws affecting water rights, the many water districts that have legal jurisdiction over one or more sources of water in the Project Area, the varied technical feasibility of treating produced water, and the produced water reuse opportunities all present complex variables that fall outside the scope of the County's jurisdiction or control under CEQA. The County concludes that other agencies can and should cooperate in water management planning and implementation actions under the Sustainable Groundwater Management Act and other applicable laws to improve the quantity and reliability of water supplies in the Project Area.

0002-22

The comment provides background on toxic air contaminants. The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration. Please also see GR Air-11 for a discussion of the CCST study in relation to air quality.

0002-23

The comment provides background information and is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration. As described in GR Air-6, a revised HRA was also completed for the Project.

0002-24

The HRA in the DEIR considers the impact of drilling and operation of one well at a time. Please see GR Air-3 and GR Air-7 regsrding the adequacy of the HRA in the DEIR. Please also see GR Air-5.

0002-25

See response to comment 24.

0002-26

Air District consultation was ongoing throughout preparation of the Draft EIR; however, the District also requested modifications to the HRA as prepared for the DEIR as described in greater detail in GR Air-6.

0002-27

Emissions from WST were not included in the HRAs prepared for the Project. Please see GR Air-8 for an explanation of why emissions from WST activities do not need to be quantified and are negligible for HRA purposes.

0002-28

It is unclear what the commenter means by a project being larger than what was assessed in the HRA, but the HRAs for the Project considered wells drilled to 10,000 and 15,000 feet respectively. The risk driver for toxic emissions is well depth, with risks generally increasing at deeper levels. Please see GR Air-3, 5, and 6 for an explanation of why the HRAs for the Project as adequate.

0002-29

Appendix B, C, and D to the HRA were inadvertently left out of the DEIR. However, those documents, in addition to all references and more detailed technical documents, were available for review upon request to the County. Some of these documents were transmitted to interested parties during the comment period. For example, model runs from the HRA were transmitted to the SJVAPCD for their review during the comment period. These appendices, and all supporting materials for the HRA, are included in the Final EIR in Appendix M. Appendix B contains a list of all equipment which was assumed to be needed for the following phases of drilling: land preparation, drilling survey, well drilling, well completions, flowlines, pump unit, and electrical. The equipment lists are identical in the HRA for the DEIR in Appendix M and the revised HRAs in Appendix M-1 and M-2.

0002-30

Appendix B to the HRA in Appendix M was inadvertently omitted from the Draft EIR, but has been included in a reprint of the Appendix M HRA. An equipment list was contained within the DEIR, and additional supporting material was provided at the request of the commenter during the public review process. The Scope of Work for the HRA was not included in the DEIR because it was not relevant to the HRA analysis.

0002-31

The requested information was not included because it is irrelevant to the Health Risk Analysis. The modeling in the HRA analysis evaluates receptor locations, which include residences, schools, hospitals, day care facilities, senior living facilities and the like. The HRA model is set up to assume that the person(s) exposed are those with higher susceptibility to toxic air pollutants, but the model (which is consistent with the most recent OEHHA and CARB guidance) does not require any information about what groups those individuals may be in. In any event, the information in the referenced table demonstrates that the Project will not have a disparate impact on communities of color.

0002-32

This comment recites MM 4.3-5. No response is needed.

0002-33

Please see GR Air-10 for and explanation of how the setbacks in MM 4.12-2 and MM 4.3-5 interact.

0002-34

There are no setbacks for redrilled or reworked wells or for well stimulation treatments that are proposed for existing wells. Potential rework emissions are negligible as compared to drilling emissions and thus any health risk would be substantially lower than the risks necessary to

trigger a setback (10 in one million). Rework emissions are included in the cumulative HRA in Appendix M-2. Please reference GR Air-5 for a discussion of that HRA, and refer to clarifying language in MM 4-3-5.

0002-35

Please see GR Air-11 for a discussion of the CCST study in relation to air emissions. Please also see GR Air-3 and GR Air-6 for a discussion of the HRAs which show that even in the worst case scenario, emissions from the Project are below a 10 in one million risk level at only 367 feet from the boundary of a well pad in 2015 and will decline over time as future regulatory controls come in effect.

0002-36

Comment is background and is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration

0002-37

Appendix A in the HRA in Appendix M of the DEIR includes the list of toxic compounds by equipment type that was included in the HRA analysis. The equipment list and their associated potentially toxic emissions are identical in both the original HRA and the revised HRAs in Appendix M-1 and M-2 (please see GR Air-5 and Air-6 for a discussion of these HRAs).

For drilling equipment, CARB's OFFROAD Model (2011) was used to generate all criteria pollutant emissions and diesel particulate matter emissions.

0002-38

Original Appendix M and Appendix M-1 and M-2 each calculated and modeled both potential carcinogenic effects from diesel exhaust as well as other potential chronic (non-cancer) effects such as other potential health impacts. OEHHA provides the reference exposure levels (ie. how toxic each substance is) for both potential carcinogenic and chronic illness that must be used as part of the risk computer model.

The final chronic results for drilling diesel exhaust are:

Derby Acres = 0.0018

Kern River = 0.00244

Midway Sunset = 0.00396

Shafter = 0.00637

The regulatory standard of significance for chronic illness is 1.0. Thus, an increase of potential diesel emissions of between a 200 times and 500 times increase would still results in potential calculated impacts below the regulatory standard.

0002-39

See response to comment 38, above.

0002-40

The DEIR concluded that spills occur occasionally in Kern County. The commenter states that the DEIR concluded that in spite of current regulations, accidental spills still represent a significant potential impact of the proposed project. The commenter suggests that this means that there is an analysis gap in regards to potential localized air impacts from accidental spills. Table 4.8-6 of the DEIR shows spills in Kern County Oilfields between January 2009 and June 2014. The DEIR shows 57 crude spills ranging from 5 to 53,550 gallons between 2002 and 2009.

Despite the fact that spills occasionally occur in Kern County, the air quality analysis is not required to analyze potential localized air impacts from accidental spills. First, accidental spills by nature are accidental and thus not part of regular on-going drilling or operational equipment scenarios. Thus, they were not modeled in the HRA. In addition, accidental spills of oil produced in Kern County are not generally an air quality problem. Even 53,000 gallons of crude would only cause negligible emissions because the crude from the Project Area is "heavy," meaning it contains fractions of petroleum that have fewer volatile organics. In addition, the potential for spills is addressed in the DEIR in Section 4.2 Agricultural and Forest Resources, 4.4 Biological Resources, 4.5 Cultural and Paleontological Resources, 4.6 Geology and Soils, 4.8 Hazards and Hazardous Materials, 4.9 Hydrology and Water Quality, and 4.10 Land Use and Planning.

0002-41

See response to comment 40, above.

0002-42

See response to comment 40, above.

0002-43

Silica-containing sand is used as a "proppant," i.e., to hold open the fractures created by the hydraulic fracturing process with sufficient pore space to allow oil and gas to flow. Silica proppant is processed so that it is close as possible to spherical and contains a small range of particle sizes. Sizes of proppant depend on specific needs but are generally in the range of about 0.4 to 0.8 millimeters average diameter. Smaller particles may become airborne during transportation and handling, and workers can be exposed if they inhale the particles.

Crystalline silica is a natural component of silica sand. Worker-related health concerns are related to the tiniest crystalline silica particles, less than 10 micrometers in aerodynamic diameter, which if inhaled are small enough to enter the gas-exchange regions of the lungs. At sufficient concentrations and exposure durations, respirable crystalline silica inhalation can lead to silicosis (inflammation of tissue around trapped silica particles) and lung disorders. Respirable crystalline silica particles are listed by the California Office of Environmental Health Hazard Assessment as a chemical known to the state to cause cancer.

The United States Occupational Health and Safety Administration and National Institute of Occupational Safety have issued a "Hazard Alert: Worker Exposure to Silica during Hydraulic Fracturing." The Hazard Alert states that a "combination of engineering controls, work practice, protective equipment, and product substitution where feasible, along with worker training, is needed to protect workers who are exposed to silica during hydraulic fracturing operations." The National Institute of Occupational Safety identified seven primary points of silica dust exposure during hydraulic fracturing operations:

Dust ejected from access ports on top of sand movers during refilling operations while the machines are running Dust ejected through open side fill ports on sand movers during refilling operations Dust generated by on-site vehicle traffic Dust released from the transfer belt under the sand movers Dust created as sand drops into, or is agitated in, the blender hopper and on transfer belts Dust released from operations of transfer belts between the sand mover and the blender; and Dust released from the top of the end of the sand transfer belt on sand movers If air samples show levels above the U.S. Occupational Health and Safety Administration's calculated Permissible Exposure Limit (PEL) for crystalline silica, approximately 0.1 milligrams per cubic meter (mg/m^3), employers are required to take actions to reduce worker exposures. In addition, the Occupational Health and Safety Administration and National Institute of Occupational Safety recommend that employers take the following actions to further reduce worker exposures below the National Institute of Occupational Safety Recommended Exposure Limit (REL) of 0.05 mg/m^3:

Work practice and procedural changes: Cap unused fill ports on sand movers to help reduce the dust released, especially during filling. Reduce the drop height between the sand transfer belt and T-belts and blender hoppers. Limit the distance that sand falls through the air to help reduce dust. Limit the number of workers, and the time workers must spend in areas where dust and silica levels may be elevated, and consider ways to perform dusty operations remotely. Apply fresh water to roads and around the well site to reduce the dust. Practices that involve equipment changes: Enclose points where dust is released. Install thick plastic stilling or staging curtains around the bottom sides of the sand movers to limit dusts released from belt operation. Enclosures can also be added along and at the ends of the sand transfer belt. Where possible, use enclosed cabs or booths. Consider configuring operator cabs and booths with High Efficiency Particulate Arrestance (HEPA) filtration and climate controls. Use local exhaust ventilation to collect silica-containing dusts and prevent dust escape. Install dust collection systems onto machines or equipment that can release dust. Replace transfer belts with screw augers on sand movers in new designs or retrofits. Moving sand through an auger system rather than a belt will help contain the sand and reduce dust release. The Occupational Health and Safety Administration's Hazard Communication standard requires that employers provide workers with training and information about hazardous chemicals used in the workplace, including crystalline silica.

In addition, the National STEPS Network (Service, Transmission, Exploration and Production Safety), which promotes safety, health and environmental improvement in the oil and gas industry, organized the "Respirable Silica Focus Group" which issued a list of "Quick Fix Suggestions" (September 2, 2013) to mitigate respirable silica exposure in hydraulic fracturing. The practices include:

Exposure reduction work practices and procedures, such as capping unused fill ports, minimizing sand fall distances during transfer operations, and using enclosed cabs/booths Respiratory protection requirements Decontamination/hygiene requirements Exposure monitoring Informing management about silica hazards and company actions to reduce exposure Worker silica awareness training Signage identifying the seven points of silica dust exposure identified by NIOSH (listed above) Identifying the proppant used and reviewing material safety data sheets in pre-job safety meetings Signage identifying potential silica exposure in or near exposure zones. Limiting non-essential workers in potential exposure zones Ensuring that workers required to wear respirators are provided appropriate equipment and properly trained Requiring workers to wash hands and face before eating, drinking, smoking and leaving location. Instructing workers on cleaning silica from clothing or change clothes at the end of the shift, and on handling silica-contaminated clothing Cleaning enclosed worker congregation areas if the area becomes contaminated with silica dust Engineering and work practice controls provide consistent levels of protection to a large number of workers, allowing for predictable performance levels. Engineering controls that reduce the risk of worker exposure also have the effect of reducing off-site emissions of silica dust that could expose off-site receptors.

To further reduce any risk, Mitigation Measure 4.3-2 in the Draft Environmental Impact Report requires implementation of a fugitive dust control plan, in compliance with San Joaquin Valley Air Pollution Control District regulations for fugitive dust suppression. Dust control measures required to be implemented include stabilizing of on-site unpaved using water or chemical soil stabilizers, and covering of haul trucks (including those hauling sand) with tarps or other enclosures to reduce fugitive dust emissions. Compliance with these requirements will serve to ensure that health risks to workers and offsite receptors are minimized.

Finally, as discussed in response to comments 133 & 134 below, at the suggestion of the Division of Oil Gas and Geothermal Resources, the Final EIR will include an revised version of Mitigation Measure 4.8-3 with a new subsection f encouraging the use of alternates to silica sand as a proppant where the Division of Oil Gas and Geothermal Resources has determined that the alternate proppant does not pose any health hazard.

0002-44

The operational or accidental release of hazardous materials such as hydrogen fluoride (or its chemical precursors) and hydrogen chloride are a potential on-site worker safety issue, but not an air quality emissions issue.

0002-45

The commenter notes that the HRA assumed that well construction, drilling, and completion would last 23 days on average, whereas the DEIR noted that these activities could last longer than 60 days. DEIR at 3-41. Twenty-three days is the approximate time to drill a 10,000 foot well, which was determined to represent the maximum time it would take to drill 90-95% of the wells in Kern County. Thus, a 10,000 foot well was chosen as a representative well for purposes of the HRA in the DEIR. Please see GR Air-However, a few wells in Kern County are deeper than 10,000 feet and thus could take more time to drill, as referenced in the DEIR at 3-41.

For this reason, the revised HRA in Appendix M-1includes an additional well depth scenario for emission associated with drilling a 15,000 foot well; which can take approximately 66 days. Maximum potential health risks are significantly below the 20 in one million SJVAPCD risk threshold and also below a 10 in one million threshold with the exception of the Western Subarea – Derby Acres which was specifically selected by the SJVAPCD as a modeling site due to its complex terrain. Please see Appendix M-1 and GR Air-6 for a further discussion of this HRA.

0002-46

Sensitive receptor as used in the HRA is any location where people who have an increased sensitivity to air pollution are located. Sensitive Receptors are defined as "[p]eople that have an increased sensitivity to air pollution or environmental contaminants…locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s). The location of the nearest sensitive receptors to a project site is needed to assess toxic impacts on public health." SJVAPCD "Guidance for Assessing and Mitigating Air Quality Impacts", April 2012, p. 9. All HRAs completed for the Project conservatively assume that all receptor locations are sensitive receptors. In addition, the HRAs assume that a pregnant woman and her small children reside at the nearest residential location. Please also see GR Air-3, GR Air-5, and GR Air-6 for further discussions of the HRAs.

0002-47

See response to comment 46, above.

0002-48

Please see GR Air-6.

0002-49

Please see GR Air-11.

0002-50

The issues raised by the commenter have been addressed in the FEIR and these responses to comments.

0002-51

Please see Technical Appendix to GR 10 on DOGGR Regulations and GR Water-2 regarding the UIC program, for a discussion of DOGGR's current UIC regulations. The comment does not explain what "future" regulations are referenced. If this refers to DOGGR's permanent regulations codifying the UIC compliance schedule currently provided in emergency regulations, those are discussed in GR 10. DOGGR's "Discussion Paper for Workshops on the Development of Updates to DOGGR's Underground Injection Control Regulations" sets forth a series of questions to be addressed by future regulations but does not include proposed future regulations or outline their possible content.

0002-52

See response to comment 51 above.

0002-53

See response to comment 51 above.

0002-54

See response to comment 51 above.

0002-55

Regarding the different types of injection wells: About 95% of Class II injection wells in California are used for enhanced oil recovery (EOR) and about 3% are used for disposal of wastewater associated with oil production[1]. The average injection depth is about 2,000 ft. deep[2]. In Kern County, the average thermal EOR injection well is about 1,000 feet deep, with the shallowest injections (200-400 feet deep) occurring in the Lost Hills oil field.[3] Thermal recovery includes cyclic steam injection which is best suited for highly saturated and porous formations located less than 3,000 feet, with a thickness greater than 30 feet[4].

The CCST study, Volume II, page 282, states that DOGGR database depth information is given for only 13% (329) of water disposal wells active in California since 1981. Reported depths range from 197 feet to 14,500 feet. Depths greater than 5,905 feet have been recorded for 21 currently active water disposal wells. The depth range for the ten highest-volume injection wells for which depth information is available is 2,400–2,750 feet. Available data suggest that typical wastewater injection depths in California are about 4,921–9,842 feet. In the Rose Field in Kern County, produced water is injected at depths of about 2,500 to 6,000 feet into the Etchegoin and San Joaquin Formations[5].

As described by the CCST study (Volume I, pg. 87), in California, hydraulic fracturing in vertical wells is conducted at relatively shallow depths (less than 2,000 feet deep), with shorter treatment intervals than the horizontal wells common elsewhere. In about half the operations, the top of the fracturing interval is less than 1,000 feet deep. According to DOGGR well stimulation notices and the Central Valley Regional Water Quality Control Board data, operators used acid fracturing in California in fewer than 1% of reported well stimulations through May 2014. A few notices have indicated planned acid stimulations in the Elk Hills field at vertical depths ranging from 6,888 to 10,575 feet[6].

EOR, WST and injection wells activities occur at various depths depending on the source rock, geologic structure of the oilfield, and target zone. The DEIR provided a thorough analysis of water quality by considering available information on a number of studies conducted by the US Environmental Protection Agency, US Geological Survey, California State Water Resources Control Board and DOGGR to evaluate the potential of adverse impacts to water quality in in the Project area. These analyses comprehensively addressed potential impacts, focusing on the "receptors" (e.g., drinking water wells) that could be impacted from potential contaminant sources regardless of their depth, and including oil field operations in the Project Area. While the DEIR looked at the entire data set without segregation consideration of the relative injection well intervals as noted above, the review indicated that there are no data or confirmed evidence of drinking or agricultural well water contamination from current or historical oil and gas waste disposal by injection in the Project Area. An alternative analysis segregating the water quality by depth would not return a different conclusion.

[1] EPA 1: Minimizing and Managing Potential Impacts of Injection-Induced Seismicity from Class II Disposal Wells: Practical Approaches (2014), http://www.epa.gov/r5water/uic/ntwg/pdfs/induced-seismicity-201502.pdf

[2] DOGGR, 2015. Oil, Gas, & Geothermal – Injection Wells, http://www.conservation.ca.gov/dog/general_information/Pages/class_injection_wells.aspx

[3] Kern County, 2015. Kern County Draft Environmental Impact Report, Appendix U, Kern County Drilling and Hydraulic Fracturing Comparison Memo.

[4] Alvarez, Johannes, and Han, Sungyun, 2013. Current Overview of Cyclic Steam Injection Process, Journal of Petroleum Science Research, Volume 2, Issue 3, July.

[5] Wynne, D. and Mel, Patel, 2015. Development of Kern County's Rose Oil Field, Search and Discovery Article #20316 (2015), Posted July 20,

2015. http://www.searchanddiscovery.com/documents/2015/20316wynne/ndx_wynne.pdf

[6] CCST, 2104. Volume I, Pg. 129

0002-55 cont'd

0002-56

Draft EIR Chapter 4.9, Hydrology and Water Quality, fully evaluates the potential impacts of the Project related to the disposal of produced water and other permitted Class II wastes into subsurface formations that geologically isolated from, and that will contain and prevent potential future migration of the disposed materials to any USDW or other protected groundwater. The EIR explains that disposal injection volumes tend to, but may not necessarily occur, in the same general geographic locations where produced water and other injection wastes are generated. The EIR further explains that injection well disposal formations can include the same or closely proximate zones from which produced water and other wastes were extracted, or in geologically distinct formations and that, in either case, the injection zone must be stable and prevent the migration of disposed materials to protected waters.

With respect to potential Project impacts, the EIR fully discloses that injection well disposal could result in a discharge to groundwater in the event of a casing or well failure that allows injected materials to move from breach locations into other water-bearing formations. As the volume of waste disposal accumulates over time in specific zones, the discharge formation and portions of the well structure could become pressurized and subject to stresses that could increase the risk of well failure and groundwater impacts could increase. The EIR explains that oil and gas waste disposal by well injection is regulated by DOGGR as a Class II injection under the federal UIC program, which requires that all injections, including waste disposal, be permitted by DOGGR and that all wells used for disposal be regularly inspected and tested for structural integrity. To mitigate the risk of groundwater contamination from injection well failure, the EIR requires all injection wells to be constructed and operated in accordance with applicable state and federal laws and regulations.

In addition to potential impacts to groundwater caused by injection well failure, if injection wells are left idle without being properly plugged and abandoned, there is some potential for previously injected produced water and other Class II waste to migrate up the well bore and contaminate shallow groundwater aquifers above the injection zone. To address this risk, the Revised Amended Ordinance includes a new provision for the County to receive reports of idle wells that any person believes is actually abandoned or otherwise not in compliance with applicable idle well regulations, for the County to forward those reports to DOGGR for further action, and for the County to refrain from issuing new well permits to operators whom DOGGR has determined are in violation of applicable regulations requiring idle and abandoned wells until such violations are corrected. Moreover, mitigation measure MM 4.9-3 has been supplemented to prohibit well stimulation treatment activities under the State Water Resources Control Board, in consultation with the Central Valley Regional Water Quality Control Board, has approved either a groundwater monitoring plan or exclusion from groundwater monitoring for a given well, consistent with the State Water Resources Control Board Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation.

0002-57

The comment's summary of "shallow thermal diatomite" is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-58

The DEIR refers to, and includes an analysis of, "cyclic steam injected at or above the fracture pressure." This term is used to describe a process conducted in reservoirs characterized by low permeability to create and improve connectivity in the reservoir, lower the viscosity of oil and produce the reservoir fluids from the same wellbore. Draft EIR at 3-61. Although not referred to as "shallow thermal diatomite extraction operations," such processes are synonymous with what is being referred to by commenter. DOGGR has previously defended its decision to allow such activity: "Permitting cyclic steam in diatomite is consistent with the Division's statutory mandate to supervise oil and gas operations so as to allow operators to use methods and practices known to be suitable for recovery of oil and gas." DOGGR Letter to Sen. Pavley re: UIC Regulations and Injection Pressures (Mar. 23, 2015) at 2.

The impacts of such activities have been adequately mitigated in the EIR, including as to potential air emissions, blowouts, subsidence and ground stability. For example:

Cyclic steam production wells, including where cyclic steam is injected at or above the fracture pressure, are generally included as part of the Project and will be subject to full conformity review under the revised zoning amendment; (Draft EIR at Attachment A to Chapter 3.6); Cyclic steaming operations at or above the fracture gradient must comply with DOGGR's blowout prevention guidance (Draft EIR at 4.8-91–92); and MM 4.8-12 mandates that applicants who plan to perform cyclic steam injection activities at or above reservoir fracture levels comply with DOGGR requirements regarding protections against potential impacts from hazardous materials releases. As noted in DOGGR's comments, some oil operators have voluntarily implemented reduced injection volumes and pressures in their steaming cycles, and engage in continuous monitoring of well and line pressures. See also DOGGR Letter to Sen. Pavley re: UIC Regulations and Injection Pressures (Mar. 23, 2015) at 2 ("[DOGGR] has been working closely with operators conducting cyclic steam in diatomite on a project-by-project basis to ensure to that production occurs in the safest possible manner."). Such industry practices further ensure that any potential impacts will be insignificant after

mitigation. DOGGR has also found that because "most of the cyclic steam wells inject steam for a limited duration and volume into ‘zones laden with hydrocarbons’ the wells are ‘very unlikely’ to pose a threat to water supply wells. Draft EIR at 4.9-73.

In addition, DOGGR is in the process of developing regulations that will apply to various types of thermal steam production operations. This EIR is intended to cover all activities that will fall within the scope of the new DOGGR regulations once they have been adopted. (Draft EIR at 3-62). Such regulations will further ensure that potential impacts associated with cyclic steam injected at or above the fracture pressure will remain insignificant. See also DOGGR Letter to Sen. Pavley re: UIC Regulations and Injection Pressures (Mar. 23, 2015) at 2 ("We intend to enlarge and rewrite many of our UIC regulations to help assure that the conduct of cyclic steaming operations will be protective of surface integrity, public safety and the environment. We are committed to undertaking this effort soon").

In light of these existing and forthcoming DOGGR regulations, the County disagrees with commenter's suggestion that the County consider controls to limit injection pressures and/or injection volumes. As DOGGR is aware, the local regulation of the downhole aspects of oil and gas activities is preempted. SB 4 Final EIR at C.2-44 ("DOGGR has exclusive legal jurisdiction over, and thus ‘occupies the field’ regarding, ‘subsurface regulation.’ This means that that no other State or local agencies can impose regulations or mitigation on top of those imposed by DOGGR in that context.").

0002-59

As described in Global Response Haz-1, this EIR's mitigation program goes beyond existing regulatory requirements for mapping and mechanical integrity testing of pipeline, including waste gas pipelines. Specifically, in addition to implementing the regulatory requirements of AB 1960 and AB 1420, MM 4.8-4 has been modified to require the following:

As part of the Site Review Plan, the Applicant shall identify the location and right of way for all pipelines to be used for the transport of oil, gas, and produced water, including pipelines that intersect the main transport line, based on existing data and using commercially available technology, and, based on the results of this analysis, shall identify any sensitive receptors within 300 feet of the pipeline for purposes of complying with MM 4.8-4. Mechanical integrity testing of all such pipeline lengths within 300 feet of a sensitive receptor shall be required pursuant to MM 4.8.4-1.

With implementation of revised MM 4.8-4, the comment's stated concern regarding adequate identification of waste gas pipelines that will be utilized by the Project has been addressed.

In early 2014 DOGGR started issuing UIC permits for new sour (waste) gas disposal wells. Those permits generally contain the following conditions concerning H2S, which have become industry standard practice:

A Work Safety Plan that addresses H2S safety training, safe working procedures, signals alerting personnel to potential H2S exposure, and the use of personal H2S monitors. Due to the hazardous nature of the injectate gas, adequate safety precautions pursuant to local, state and federal agency requirements shall be taken to protect personnel operating in the hydrogen sulfide gas (H2S gas) project area. Such precautions shall include, but are not necessarily limited to: A. A permanent H2S monitoring system shall be installed at all project gas compressors. The monitoring system shall consist of four equally-spaced H2S detectors around each gas compressor station and shall be connected to a visual and audible warning system, set to activate if the monitors detect H2S gas concentrations above a safe working level. A windsock or windvane islocated at each compressor station.

B. The waste gas pipeline shall be clearly and adequately marked every 40 feet (unless buried) as containing H2S gas. It shall be tested in compliance with current Division pipeline testing requirements.

C. The following safety equipment shall be installed at each gas disposal well:

1. Permanently installed pipe or chainfencing around each well, offset a minimum of 5 feet, to protect the well head, and control entry.

2. The operator shall install permanent warning signs on all four sides of each well that clearly identifies the well as dangerous and containing hazardous gas. Additional signs must be posted with emergency contact information and that operator approval is necessaryprior to gas disposalwell site entry.

3. A permanently installed H2S monitoring system consisting of four equally¬ spaced H2S detectors connected to a visual and audible warning system, set to activate if the monitors detectH2S concentrations above a safe level.

4. A windsock or windvane is located at each well.

With implementation of these standard permit conditions, risks from new waste gas disposal wells that could be authorized by the Project will be adequately managed. No further mitigation is required.

0002-60

Commenter's observation about the absence of carbon dioxide injection activities for EOR operations in Kern County is noted for the record.

0002-61

The DEIR acknowledges land subsidence from oil and gas production, mainly in a few areas southwest Kern County. In general, it has been an industry practice to inject produced water from oil fields back into the oil-bearing formation to enhance oil recovery, maintain reservoir pressure and mitigate subsidence. This includes recycling produced water for well stimulation, which also mitigates subsidence. The DEIR also notes that

DOGGR monitors subsidence in oil fields and if subsidence is observed the operators are required to stabilize the ground either by inject additional produced water or reducing the volume of produced water extracted.

In major fields, subsidence is currently being monitored by DOGGR and the operators.

0002-62

See response to comment 61.

0002-63

See response to comment 61.

0002-64

Please see GR Geo-1 regarding induced seismicity.

0002-65

Please GR 12 regarding the CCST study and GR Water-1 regarding surface disposal in percolation ponds.

0002-65 cont'd

0002-66

The comment provides accurate quotations from the EIR.

0002-67

Please see GR Water-1, updating available information regarding the Regional Water Board's enforcement orders.

0002-68

Under California hazardous waste regulations, it is the generator's responsibility to determine whether waste that it generates is hazardous. 22 CCR §66260.200(c). Assuming the waste is not otherwise excluded or exempted, and is not listed as a hazardous waste, the regulations provide for two primary means by which generators may make hazardous waste determinations: generator knowledge, and analytical testing. 22 CCR §66262.11(c). Please refer also to responses to Comment Letter 6 (DTSC).

To make a hazardous waste determination based on generator knowledge, the generator must obtain enough information to facilitate making a proper characterization of the waste. The information available may be of variable forms, including Material Safety Data Sheets for materials used in the process, process flow diagrams, information regarding the physical state and volume of wastes generated by the process, waste characterizations performed by industry associations for similar processes, chemical engineering designs or plans for the process showing inputs, chemical reactions expected, and products, literature from the supplier of materials or equipment used in the process, published data, documented studies on similar processes, and any previous waste analyses, if available. Ideally, the information available would enable the generator to calculate a materials balance of inputs and outputs of the process. Generator knowledge as a basis for hazardous waste classification comes with a greater risk of inaccurate characterization than analytical testing. The generator remains liable for its waste characterization, whether it employs generator knowledge or analytical testing. But if a generator determines that adequate information is available and the generator has confidence in its characterization of the waste based on the information, there is no legal requirement to conduct analytical testing to characterize the waste. If, however, the generator does not have sufficient information to serve as a reasonable basis upon which to characterize using process knowledge, the generator must perform analytical testing to accurately characterize the waste. Generators are expected to maintain documentation for at least three years demonstrating the information and/or data upon which its waste characterizations were made.

Produced water has been tested in the past and generally has been found not to exhibit hazardous waste characteristics. The presence of benzene in produced water does not render it hazardous under California law. See 40 CFR 261.4(b)(5).

0002-69

Please see previous response. Should the interagency working group result in additional requirements adopted by the State or Regional Water Board, or any other agency, those requirements would further reduce the potential for significant impacts.

0002-70

Please GR 12 regarding the CCST study and GR Water-1 regarding surface disposal in percolation ponds. As the commenter notes, new SB-4 regulations effective July 1, 2015 require sampling and testing of produced water after WST operations. All wastewater must be disposed of in accordance with hazardous waste regulations as required by 22 Cal. Code Regs. Division 4.5 and enforced by the Department of Toxic Substances Control. The discharge of produced water from wells that have been hydraulically fractured into percolation ponds is no longer permitted, 14 Cal. Code Regs. §1786. To the extent that the CCST study identified a potential impact resulting from disposal of produced water from wells subjected to WST in percolation ponds, which was previously permitted but is now prohibited, new impacts would not be expected to occur. The County is entitled to rely on enforceable regulations of other agencies as substantial evidence that an otherwise significant impact will be reduced to less than significant; please see GR 22.

0002-70 cont'd

0002-71

Please see previous response. Should the interagency working group result in additional requirements adopted by the State or Regional Water Board, or any other agency, those requirements would further reduce the potential for significant impacts.

0002-72

Please see previous responses and GR regarding the CCST study. As the commenter notes, it did not have the benefit of the CCST study when it prepared its SB 4 EIR. Similarly, the County did not have the benefit of the CCST study when preparing its Draft EIR. However, as discussed in the responses above, to the extent that the CCST study identified a potential impact resulting from disposal of produced water from wells subjected to WST in percolation ponds, which was previously permitted but is now prohibited, new impacts would not be expected to occur. It is not necessary for the County to propose new mitigation measures regarding this issue.

0002-73

Please see GR Water-8.

0002-74

Please see GR Water-8.

0002-75

Please see GR Water-8.

0002-76

Please see GR Water-8.

0002-77

Please see GR Water-8.

0002-78

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-78 cont'd

0002-79

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-80

This EIR is not meant to provide CEQA coverage for any future use of produced water for agriculture irrigation currently being contemplated by the Kern-Tulare Water District. The County is currently unaware of any plans by Cawelo Water District (CWD) to undertake CEQA review for its continued reuse of produced water for agriculture irrigation. As explained in GR Water-8, this EIR discloses the baseline use of produced water by CWD of approximately

32,771 AF, though that number was in fact 32,491 AF, or slightly less than the more conservative estimate in the Draft EIR. As explained by the California Supreme Court in *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310 (CBE), "the baseline for CEQA analysis must be the ‘existing physical conditions in the affected area’ . . . , that is, the ‘real conditions on the ground’." (*Id.* at p. 321, quoting *Environmental Planning & Information Council v. County of El Dorado* (1982) 131 Cal. App. 3d 350, 354, and *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 121.) Thus, this EIR properly takes into account existing use of treated produced water for agricultural irrigation regardless of whether CWD has conducted past environmental review of this use.

This EIR assumes that the amount of produced water provided to and resused by CWD for agricultural irrigation will remain the same going forward. DEIR pp. 4.17-12-13, 20. The provision of produced water to CWD is part of the existing conditions and subject to an existing agreement and permit between Chevron and CWD. Any increase in the amount of produced water provided to CWD would be subject to the terms of the existing agreement and permit, or an amendment thereto. CWD, as lead agency for any such amendment, would be required to make its own determination concerning CEQA compliance. It would be inappropriate for the County to interfere with CWD's existing contractual relationships and permit requirements or it's authority as a CEQA lead agency. Further, as explained in GR Water-8, there is substantial evidence in the record that all treated produced water supplied to CWD complies with the regulatory and permit standards required by CWD; thus, any impact associated with such provision is less than significant. As also explained in GR Water-8, this EIR adds MM 4.8-23 concerning use of well stimulation treatment (WST) fluids, which will help address concerns about the potential existence of WST fluids in produced water.

0002-81

See response to comment 80, above.

0002-82

Please see GR Water-8.

0002-83

Please see GR Water-8.

0002-84

Testing and monitoring of treated produced water used for agricultural irrigation is best done pursuant to agreement between the provider and water district to which such water is being provided, consistent with regulatory and permit standards promulgated by the districts, the regional water quality control board, or the state water resources board. The requirement that testing and monitoring be undertaken will be tracked as part of the MMRP for this EIR. Please see GR 19.

0002-85

Commenter's notes regarding the content of the SB 4 EIR are noted. The Draft EIR included a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the Water Supply Assessment (Appendix T in the Draft EIR), and as further updated in GR Water 5. The amount of water used in WST operations is a very small fraction of the amount of water used in the

Project Area. MM 4.17-2 requires Applicants to increase the re-use of produced water, following treatment as needed, to more than offset Project use of higher quality groundwater and surface water. As commenter notes, replacing produced water back into appropriate geologic strata and aquifers is important to avoiding adverse subsidence impacts. Further, as noted in the Water Quality discussions in the EIR, in the Water Quality Appendix, and in various comment letters including the letter from the Water Board (Letter 3), produced water varies dramatically in quality and treatability. For these and related reasons, the Draft EIR does not prescribe any particular location, treatment technology, or beneficial use of treated produced water. However, as described in GR Water 5, there is more produced water used for agriculture than was reported in the Draft EIR, and several produced water treatment proposals remain under consideration by local water districts. Local water districts act as the lead agency for such projects, and are not subject to County zoning regulations; any such treatment facility would trigger the need for further CEQA review by the lead agency and be required to address environmental impacts and mitigation measures to address issues such as subsidence, monitoring and compliance parameters, and related issues.

0002-86

See response to comment 85, above.

0002-87

See response to comment 85, above.

0002-87 cont'd

0002-88

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration. Additional facilities for treatment of produced water are beyond the scope of this EIR.

0002-89

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration. Additional facilities for treatment of produced water are beyond the scope of this EIR.

0002-90

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration. Please see GR Water-8.

0002-91

See response to comment 90, above.

0002-92

See response to comment 90, above.

0002-93

See response to comment 90, above.

0002-93 cont'd

0002-94

See response to comment 90, above.

0002-95

See response to comment 90, above.

0002-96

See response to comment 90, above.

0002-97

The comment states the commenter's conclusion that MM RSK-2a "does not go as far as the CCST Study recommends" and asks for "additional information in the Final EIR about the County's analysis and conclusions on this issue." To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0002-98

The commenter's goals for the SB 4 EIR are noted, the "project" analyzed in the SB 4 EIR is noted, commenter's regulatory authority and role (including commenter's authority to impose additional conditions of approval in DOGGR permits without challenging the adequacy of the EIR, and without preparing a supplemental EIR or other CEQA document beyond what the County has prepared), and commenter's role as a responsible agency for permitting oil and gas well drilling and operations, are noted for the record, are consistent with the County's understanding, and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

The commenter's explanation that its reservation of its permitting authority is not intended to mean that DOGGR rejects any of the County's EIR mitigation measures, and that DOGGR could impose permit conditions that include measures from the SB 4 EIR, are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

Commenter's conclusion that some of the mitigation measures included in the EIR are more rigorous than the SB 4 EIR measures, but has also identified some instances in which the County's mitigation measures do not appear to be "substantially consistent" with the SB 4 measures, are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-99

Please see response to comment 98.

0002-100

Please see response to comment 98.

0002-101

Commenter's list of nine mitigation measures for which DOGGR has identified substantially consistent mitigation measures about which commenter has no further comments is noted for the record, and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-102

Please see response to 0002-101.

0002-102 cont'd

0002-103

Please see response to 0002-101.

0002-104

The commenter's conclusion that the other mitigation measures in the EIR reflect a somewhat different approach than the measures that were included in the SB 4 EIR, and commenter's submittal of its July 15 Mitigation Policy Manual for the SB 4 EIR Mitigation Measures, are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

Commenter's decision that seven of its SB 4 mitigation measures will be converted into formal regulations is noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-105

This is an introductory comment describing eleven mitigation measures from the SB 4 EIR that commenter states were missing from and overlooked by the County's EIR, which commenter notes are important for public safety and/or the protection of natural resources. This introductory comment is noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-106

Commenter's recommendation that an additional seismic risk measure be added for urban areas has been accepted and included in the Final EIR as revisions to MM 4.6-1(b), as set forth in Section 7.1.4 of the Final EIR. Commenter's recommendations regarding this measure, and its relationship to certain CCST recommendations, are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration. The CCST report volumes released after issuance of the Draft EIR are generally addressed in GR 12, and the CCST report regarding earthquake risks from WST produced water management activities is addressed in GR Geo 1.

0002-106 cont'd

0002-107

Please see response to 0002-106.

0002-108

Please see response to 0002-106.

0002-109

Commenter's recommendation that an Earthquake Response Plan be included in the Spill Response Plan required by applicable regulations, and that certain additional measures be included in the Plan, is noted. MM 4.8-7(e) has been added to the Final EIR to address this concern, and is included in Section 7.1.4 of this Final EIR. Commenters’ further points about the CCST report content on earthquake risks and related information are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-110

Please see response to 0002-109.

0002-110 cont'd

0002-111

Commenter's request that the County adopt a mitigation measure that is substantially similar to GW-4a in the SB 4 EIR, which requires adequate "down-hole" cement seals, casings, and other technical specifications. These technical specifications fall within DOGGR's jurisdiction and expertise, and the County anticipates that DOGGR will adopt appropriate standards and permit conditions as part of its permitting authority. The Draft EIR does describe improvements in well casing standards and other well construction practices, which third party experts such as Stanford University have concluded have been effective in improving the integrity of well casings in recent years. MM 4.8-10(b) has been revised to require applicants to obtain, and comply with, DOGGR permits to assure that WST activities occur in wells with adequate casings, seals, and other technical specifications. Commenter's further points about the importance of these technical specifications, and adverse consequences from well failures, are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-112

Please see response to 0002-111.

0002-113

Please see response to 0002-111.

0002-114

Commenter's request that the County adopt a mitigation measure that is substantially similar to GW-4b in the SB 4 EIR, which requires installation of a well seal across protected groundwater for new WST wells, likewise applies to "down-hole" technical specifications that fall within DOGGR's regulatory jurisdiction and expertise. The County anticipates will adopt and enforce appropriate well construction standards to protect groundwater. The revised MM 4.9-1, described in the prior comment, has been added in response to this comment. Commenter's further points about the importance of well seals to protect groundwater resources are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-115

Please see response to 0002-114.

0002-116

Please see response to 0002-114.

0002-117

Commenter's request that the EIR include a mitigation measure requiring a methane sensor has been reviewed and determined to fall within the jurisdiction and expertise of other agencies, but is not required to mitigate a significant adverse impact identified in the EIR. The EIR does include a methane mitigation measure (MM 4.7-2) which is designed to reduce methane emissions, and require compliance with methane regulations.

0002-118

Please see response to 0002-117.

0002-119

Commenter's suggestion to require geophysical surveys and other field methods to locate improperly abandoned wells is considered a remedial measure to address legacy practices. The Project under consideration is an amended zoning regulation to address future activities, and the EIR evaluates the impacts of the Project. Adoption of a program to address legacy conditions is outside the scope of the Project, and thus this suggested mitigation measure has not been included. In response to this and other comments regarding legacy activities, the Revised Amended Ordinance includes a new reporting and accountability process for idle wells, and MM 4.2-1 provides agricultural mitigation credit for removal of legacy activities on active agricultural lands.

0002-120

Please see response to 0002-119.

0002-121

Please see response to 0002-119.

0002-122

Please see response to 0002-119.

0002-123

Commenter's request that the County add a mitigation measure requiring use of a tracer for WST wells has been included in revised MM 4.9-3, which also requires RWQCB approval of the appropriate type of tracer for this subsurface water quality monitoring activity, as set forth in Section 7.1.4. Commenter's other points regarding the importance of this measure are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-124

Please see response to 0002-123.

0002-125

Commenter's request for mitigation measure requiring an annual inventory of WST equipment and infrastructure, and a report including likelihood of spill or leaks, falls within DOGGR's regulatory jurisdiction and expertise. While such studies have value in informing future regulations, they do not have direct mitigation value in avoiding or reducing significant adverse Project impacts, and thus this has not been added as a mitigation measure to this EIR. Commenter's other points regarding the CCST study's concerns regarding this study are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-127

Please see response to 0002-125.

0002-127

0002-128

Commenter notes that WST activities may adversely affect water quality, and recommended the addition of a surface water quality mitigation measure. MM 4.4-18 has been modified to include a mandatory 50-foot setback from waters and wetlands for wells, tanks, ponds and sumps.

The Final EIR also continues to include MM 4.8-3(c), which requires a 100-foot setback for fuel and lubricant storage, and refueling and equipment lubrication. Commenter's other points about the need to protect waters and wetlands are noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0002-128 cont'd

0002-129

Please see response to 0002-128.

0002-130

Please see response to 0002-128.

0002-131

Commenter recommends including a mitigation measure to encourage operators to reduce their mass inventory of hazardous materials, and thus reduce the likelihood and potential harms created from accidental spills and releases. Section 4.8 of the Draft EIR includes 22 mitigation measures to avoid and mitigate potential hazard impacts, including spill prevention and response measures. These have been tailored for project-level implementation as part of a ministerial permit approval program to avoid and reduce hazard-related risks, and addition of the suggested mass inventory reduction encouragement measure is not warranted.

0002-131 cont'd

0002-132

Please see response to 0002-131.

0002-133

The Draft EIR has not identified a significant adverse impact from proppant use that warrants a mitigation measure revision to limit proppant use, nor did the Draft EIR evaluated the use of unknown alternative proppants or delivery systems which could pose similar or more serious worker safety issues as silica proppant. However, in response to this DOGGR comment the Final EIR includes a revised mitigation measure by adding a new subsection (f) to Mitigation Measure 4.8-3, encouraging use of an alternate to silica sand as a proppant only after the Division of Oil Gas and Geothermal Resources has determined that such an alternative does not introduce new hazards.

0002-134

See response to comment 133, above.

0002-135

Commenter's concluding statement is noted for the record.

0002-136

Within the Central area moving from east to west, the aquifer ranges from unconfined to semi-confined to confined conditions. This is because the Corcoran Clay, a low permeability layer that separates the shallow, unconfined aquifer from the deep, confined aquifer, pinches out to the west as it nears the surface. Where the Corcoran Clay pinches out, it becomes ineffective as a hydraulic barrier between the shallow and deep aquifers and the aquifers become hydraulically connected under semi confined and unconfined conditions.

The area where this occurs is called the forebay and is located generally between the Sierra Nevada bedrock and highway 99. At the city of Delano, the area expands to also include the area east of highway 99 around the cities of Shafter and Wasco. The forebay is where the deep, confined aquifer receives recharge (SWSD 2012).

Recharge of groundwater occurs through infiltration of surface water. Surface water includes precipitation, water from lakes and streams, as well as application, storage, and infiltration of imported water, including a number of groundwater recharge facilities in the area (SWSD 2012). Recharge to the deep, confined aquifer occurs principally as subsurface inflow from the forebay. It is possible that potential impacts in the unconfined aquifer from wells located in the forebay area could flow down with the groundwater that is recharging the deep, confined aquifer.

However, due to the large volume of recharge, and the small potential volume of impacted groundwater, it is not likely that measureable concentrations from potential impacts would be detected in the deep, confined aquifer. This is primarily due to dilution and diffusion.

Source: Semitropic Water Storage District (SWSD), 2012. Draft Groundwater Management Plan, Kern County, California

0002-137

Please see GR 8 regarding the basis for well projections. Regarding the prohibition of produced fluids from WST wells into surface impoundments, please see responses above and GR Water-1.

0002-138

Regarding the prohibition of produced fluids from WST wells into surface impoundments, please see responses above and GR Water-1.

0002-139

Please see GR 22 regarding compliance with regulations as CEQA mitigation.

0002-140

The comment states that it does not believe the DEIR contains sufficient detail to provide meaningful coverage for all oil and gas approvals that DOGGR may be called upon to make as a responsible agency.

An important purpose of the Revised Amended Ordinance is to establish a ministerial site plan review process that incorporates mitigation identified in this EIR. While this streamlined process may avoid individualized-CEQA review for many projects, it should not be considered a "shortcut" around environmental review. Rather, the Revised Amended Ordinance increases the County's oversight of oil and gas extraction that are allowed "by right" and properly sets forth a ministerial permitting process. DEIR, pp. 2-23 to 2-24; see also, *Sierra Club v. Napa County Board of Supervisors* (2012) 205 Cal.App.4th 162; *San Diego Citizenry Group vs. County of San Diego* (2013) 219 Cal.App.4th 1.

The EIR has determined that project-level environmental review of this ministerial program was appropriate for a number of reasons:

First, by examining both the broad implications of the ordinance changes and the detailed site-specific impacts, this approach facilitates identification of the most effective development standards and mitigation requirements to be incorporated into the site plan review process. Second, a project-level EIR allows the Board of Supervisors and the public to be informed by a comprehensive analysis of impacts at the time the Board considers whether and how to modify existing County ordinances. Finally, a project-level EIR provides responsible agencies with the level of completed CEQA process required to inform and reach final decisions regarding subsequent discretionary approvals and other actions regarding these County oil and gas activities. If the criteria for supplemental CEQA review are triggered for a particular activity regulated by the revised County ordinances, additional CEQA review would be necessary (14 CCR §§ 15096(e)(3), 15162). DEIR, p. 2-24. Thus, the EIR recognizes a backstop where one or more criteria for additional CEQA review is triggered. DOGGR has not specified the details it believes are lacking from the Draft EIR, and the County need not address speculative effects of a project. CEQA Guidelines, §§ 15144 ["[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can"], 15145 ["If after thorough investigation, however, the agency finds that a particular impact is too speculative for evaluation, it may terminate further discussion of the impact"].

For a more detailed discussion regarding the County's ability to utilize a Program vs. Project-Level EIR, please see GR-2. For a more detailed discussion of the proposed use of this EIR by responsible agencies, please see GR 5.

0002-141

The self-certification process was described in the Amended Ordinance included in the Draft EIR. Based on this and other comments, a Revised Amended Ordinance has been completed that includes further information on this and other topics. The Revised Amended Ordinance is included in Section 7.1.3 of this Final EIR.

0002-142

The comment notes that the CEQA review should consider impacts from injection wells, as well as from the 2,697 producing wells. As shown in Table 3-5, the EIR considers impacts from a variety of new well types anticipated to occur under the Project. The EIR considers potential impacts of up to 3,649 new wells drilled, of which 2,697 are estimated to be producing wells. The Revised Amended Ordinance incorporates this 3,649 new well figure as an annual cap on new well ministerial permits issued.

The comment also cites to DOGGR's Weekly Summary reports, which show drill notices received and permits issued and notes that based on the numbers presented, the EIR may not adequately address impacts from drilling in the Project Area.

The comment's list of "Permits Issued" shows annual numbers which are less than the cap of 3,649 well permit ministerial approvals provided for in the Revised Amended Ordinance. Please refer to GR-14, which explains the numbers used in the EIR in relation to data provided by DOGGR and notes in part that based on a review of the data, the number of annual wells drilled is significantly less than the number of notices filed in the same or the prior year. Please also see GR-8 explaining the conservative well count projection used in this EIR.

0002-143

The comment is noted. The Regional Water Quality Control Board's role in regulating sumps and ponds is described in Chapter 4.9 of the EIR, as well as GR Water-1.

0002-144

The comment is noted and included in the Final EIR. The DEIR does use this regulatory definition when referring to "idle wells." DEIR, p. 4.3-85.

0002-145

Please see GR 19.

0002-146

Please see GR 19.

0002-147

The Revised Amended Ordinance included in Section 7.1.3 includes several modifications that make clear new ground disturbance activities such as constructing wells (which includes well pad preparation) does trigger the need for a County permit review process.

0002-148

Commenter indicates that MM 4.2-1 would be enhanced by adding that agricultural easements or mitigation lands be held in perpetuity as required by Government Code § 65965 et seq., and that any non-governmental easement holding entities be certified by the Land Trust Accreditation Commission.

Conservation easements that are created to satisfy a mitigation requirement must be perpetual in duration. (See Govt. Code, § 65966.) As such, the County's Ordinance does not need to specifically state a perpetuity requirement. In regard to the entities holding the easement, the County will apply its discretion in selecting qualified entities to hold easements within the parameters established by the Civil Code and Government Code. Please see GR Ag-1 (Adequacy of Mitigation Program for Farmland Impacts), which addresses the County's ability to defer deciding specific information about the conservation easement mitigation option.

0002-149

Emissions from WST were not included in the HRAs prepared for the Project. Please see GR Air-8 for an explanation of why emissions from WST activities do not need to be quantified.

0002-150

The commenter asks that the County include specific standards to address health concerns related to exposure and inhalation hazards from silica dust during well stimulation treatment operations where proppant is used. Please see Response to Comments 43 fand 133 for a discussion of silica proppant.

0002-151

Please see section 7.1.4 and revised MM 4.4-1, as well as GR 19.

0002-152

The comment asks whether the southwest willow flycatcher should be listed under Category 2 rather than Category 3 in the EIR. As explained in Table 4.4-36, the Southwestern willow flycatcher nests in riparian vegetation, willows, and coast live oak. Due to the lack of dense riparian tree and shrub communities associated with rivers, lakes, and swamps in the San Joaquin Valley Floor portion of Kern County, Southwestern willow flycatcher was not included in the Category 3 species for detailed analysis.

0002-153

Please see section 7.1.4 and revised MM 4.4-1, as well as GR 19.

0002-153 cont'd

0002-154

The comment is noted for the record and included in the Final EIR. Please see GR 19 and section 7.1.4.

0002-155

Please see section 7.1.4 and GR 19.

0002-156

The commenter questions the adequacy of the DEIR's mitigation to limit the spread of invasive species. The commenter indicates that, aside from requiring washing of tracked and tired vehicles and equipment before moving to a new disturbance, the DEIR should identify specific types of invasive plant species that are most problematic in the Project area and consider measures that limit their spread from construction activities to either habitat or agricultural lands as a means of increasing the DEIR's effectiveness.

Given the broad geographic scope of the Project, the DEIR defines "Nonnative Invasive Species" as:

[P]lant species that are introduced into an area in which they did not evolve, and in which they usually have few or no natural enemies to limit their reproduction and spread. These species can cause environmental harm by significantly changing ecosystem composition, structure, or processes, and can cause economic harm or harm to human health.

DEIR, at p. 11-33. As described in the DEIR, new land disturbance outside of actively disturbed areas could indirectly affect special status plants and wildlife by introducing invasive species that could disturb occupied or suitable special status species habitats. DEIR, at p. 4.4-173.

Recognizing the potential impacts caused by the introduction of invasive species to suitable special status species habitats, the DEIR identifies appropriate mitigation. As the comment observes, MM 4.4-15, subdivision (o) requires that "[t]racked vehicles and other construction equipment must be washed or maintained to be weed-free prior to entering and working within areas of new disturbance." DEIR, at p. 4.4-214. However, this is not the only mitigation measure designed to limit the spread of invasive plant species. MM 4.2-2, subdivision (e) indicates that vehicle tracking control will be installed to prevent the tracking of mud, dust, and weed seeds offsite. DEIR, at p. 4.2-23. MM 4.4-12, subdivision (a) requires plant surveys to be completed. In the event that protected plants or plant populations are identified during field surveys, they will be demarcated with temporary flags or appropriate materials to avoid and minimize impacts to such plants from disturbance activities. DEIR, at p. 4.4-210. Additionally, MM 4.4-14 identifies a "Worker Environmental Awareness Program" designed to provide worker training to recognize, avoid, and reduce impacts to onsite Biological Resources. DEIR, pp. 4.4-211 – 4.4.-212.

This mitigation scheme is consistent with CEQA's mandates. Specifically, "an EIR need not analyze ‘"‘every imaginable alternative or mitigation measure; its concern is with feasible means of reducing environmental effects.’"’ [Citation.]" *Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056. "‘Feasible’ means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors. Pub. Resources Code, § 21061.1. Mitigation measures that cannot be legally imposed or enforced need not be proposed or analyzed. *San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1, 16; citing *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 912, 938; Pub. Resources Code, § 21086, subd. (b).

The EIR complies with these requirements – the County has incorporated a thorough mitigation framework to ensure that the spread of invasive species is limited, and the DEIR concluded that these measures would reduce the impact to less than significant. DEIR, p. 4.4-125.

0002-157

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration

0002-158

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration. The County intends to utilize the habitat prioritization approach identified by CCST to inform the County's acquisition of wildlands with compensatory mitigation fees. The adequacy of the proposed mitigation program for impacts to Biological Resources is discussed further in GR Bio-1. The overlap between the analysis and conservation measures in this EIR and those in the Draft Valley Floor Habitat Conservation Plan (HCP); Chevron North American Exploration and Production Lokern HCP; California Resources Elk Hills HCP, and the use of this EIR for future approvals related to the Lokern and Elk Hills HCPs, is discussed in GR Bio-2.

0002-159

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-160

The comment suggests that, in the discussion of cumulative impacts on biological resources (Section 4.4.5), the County might consider using the same projected approach that is used for project impacts, and that it would be informative to add information from the County General Plan, trends in growth and industrial development.

The EIR's cumulative discussion analysis in the Biological Resources chapter included future growth in the County, and was informed by regional growth forecasts such as the Kern General Plan and the Kern Council of Governments (COG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). DEIR p. 4.4-229 and p. 10-1. Specifically, the EIR notes that the existing urbanized development areas are currently interspersed with less developed or undeveloped lands which either are, or could be, planned for eventual urbanized development under adopted general plans. DEIR p. 4.4-229. The EIR also reports that future land uses and development could affect biological resources, and that new projects or urbanization consistent with the applicable general plans would be undertaken as independent actions with associated impacts, avoidance and minimization requirements, and mitigation, if required, under applicable federal, state, regional and local agency law. DEIR p. 4.4-230.

0002-161

The comment is noted and included in the Final EIR. DOGGR Division 4 staff was consulted and assisted with preparation of the EIR.

0002-162

Paleontological resources could be impacted by activities in oil and gas formations as described in Section 4.5.4 (under Impact 4.5-3) and identified in Table 4.5-2, including EOR operations.

0002-163

This comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration. Upon further consideration the County has determined that the mitigation measure includes appropriate specificity.

0002-164

This comment is noted, and it is accurate that paleontological resources may be found in shallower strata. Staffing all well sites with a qualified paleontologist during all earth moving activities is not determined to be required to implement this mitigation measure.

0002-165

The comment is noted and included in the Final EIR. The referenced MM applies to archeological resources.

0002-166

The comment is noted and the suggested text deletion has been made in the Final EIR.

0002-167

The comment requests information on industry practices to address landslide risk. Such practices include avoidance, slope modification, drainage control, and debris movement control. Avoidance consists of identifying the landslide or unstable slope area and taking steps to avoid placing structures or other infrastructure within the unstable area. Slope modification is used to correct the underlying causes of the unstable slope. Commonly used practices are removing material from the head, or top, of the landslide and putting additional material at the toe, or bottom, of the landslide. This reduces the driving forces that contribute to the movement of landslides. Additional methods used are retaining structures and internal slope reinforcement. Water adds weight and reduces friction within a landslide so engineering drainage controls to prevent the introduction of water into a landslide and interior drains to remove water from within a landslide are used to reduce the risk. To control the movement of landslide debris downslope of the landslide, mechanical barriers or diversionary structures can be used to direct landslide debris into predetermined areas. See Dai, F.C., Lee, C.F., Ngai, Y.Y., Landslide risk assessment and management: an overview (2002), in Engineering Geology Vol. 64, pages 65–87

0002-168

The comment is noted and included in the final EIR.

0002-169

All local ordinances apply as applicable. In addition, the mitigaion measures in this EIR have been clarified to address this issue. Please Global Response Geo-1.

0002-170

MM 4.8-13 requires compliance with all applicable DOGGR regulations and requirements, including those regarding well stimulation treatment. Please see GR 19 regarding mitigation measure enforcement.

0002-171

The comment is noted and included in the Final EIR.

0002-172

The comment is noted and included in the Final EIR. The Draft EIR was not intended to be read as a limitation on the potential cause of surface expressions.

0002-173

The EIR has numerous mitigation requirements concerning reporting and clean-up of contamination in all parts of the Project Area, not just Tier 2. MM 4.8-1 requires a Worker Training Awareness Program to implement all mitigation measures; MM 4.8-2 requires that the transportation, storage and disposal of hazardous materials be done in accordance with the Hazardous Materials Transportation Act; MM 4.8-3 requires implementation of eight (8) related to storage and cleaning up of hazardous materials; MM 4.8-4 has been modified by this Final EIR to include new reporting and relocation requirements for pipeline leaks (see FEIR section 7.1.4); MM 4.8-5 requires reporting, testing, and, where necessary, clean up of contamination discovered during grading or excavation work; MM 4.8-6 requires implementation of 15 measures to prevent the release or accidental spillage of wastes, including oil and other petroleum products consistent with American Petroleum Institute (API) or other accepted environmental standards; and MM 4.8-7 requires that all exploration and development activities be conducted consistent with API or other environmental standards, including secondary containment standards and implementation of spill contingency plans consistent with DOGGR regulations. The remaining mitigation measures identified in DEIR Ch. 4.8 also contribute to the containment and clean-up of hazardous materials. Thus, while the comment correctly notes that certain obligations in MM 4.8-14 apply outside of the Tier 1 area, other mitigation measures ensure appropriate reporting, containment and clean-up in all Tiers.

0002-174

The comment is noted. Please see RTC 2-59.

0002-175

Impact 4.9-7 concerns whether implementation of the Project will interfere with any County-adopted emergency response or evacuation plans, and the analysis properly concludes that the Project does not interfere with the County's emergency evacuation plan in the event of a failure of the Lake Isabelle Dam. CEQA does not require analysis of whether the Project is consistent with facility-specific emergency response or evacuation plans.

Federal, state and local regulations do require industry to maintain and regularly update safety plans, including evacuation procedures, for various hazards associated with oilfield operations.

0002-176

See response to comment 59.

0002-177

As the commenter has noted, its regulations preclude disposal of produced water from stimulated wells in percolation ponds. Regarding produced water from wells that have not been stimulated, please see response 68-69 above. Produced water has been tested in the past and generally has been found not to exhibit hazardous waste characteristics.

0002-177 cont'd

As the commenter has noted, its regulations preclude disposal of produced water from stimulated wells in percolation ponds. Regarding produced water from wells that have not been stimulated, please see response 68-69 above. Produced water has been tested in the past and generally has been found not to exhibit hazardous waste characteristics.

0002-178

Neither this EIR, the CCST Study, nor the SB 4 EIR identified NORM-related groundwater impairment as a potential impact of well stimulation treatment or other oil and gas activities authorized by the Project. Mitigation measures must bear a "rough proportionality" to the Project's actual adverse impacts. (See CEQA Guidelines, § 15126(a)(4)(A), (B) [citing *Nollan v. California Coastal Com’n* (1987) 483 U.S. 825, 837; *Dolan v. City of Tigard* (1994) 512 U.S. 374, 391; *Ehrlich v. City of Culver City* (1996) 12 Cal.4th 854, 866-877)].) Since the analysis in the EIR does not support a conclusion that the activities authorized by the Project will result in NORM-related groundwater impairment, there is no legal basis for imposing the suggested mitigation measure.

0002-179

The comment is noted and included in the Final EIR. This section of the Draft EIR addresses all of the referenced topics (beneficial uses, public drinking water standards, and agricultural irrigation). Agricultural uses of groundwater with higher ranges of TDS is not generally desirable for most types of crops, and the Draft EIR's generalization is accurate. Finally, water quality in Kern County does vary and residents in Kern County do use drinking water above MCLs.

0002-180

Surface water quality varies by season, and also varies over time (e.g., quality over extended drought periods is different than quality over extended rainy period). Water quality also varies between the different basins included in the Project Area, and helped inform the division of the Project Area into three sub-areas. The EIR provides an appropriate level of detail (including quantitative data), which informs the generalized text conclusions referenced by the commenter.

0002-181

The comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0002-182

The comment is noted and included in the Final EIR. The Field Rules refine and inform the application of regulations within a field.

0002-183

Please see GR 1 and GR 19.

0002-184

Please see GR 1 and GR 19.

0002-185

The Best Management Practices (BMPs) set forth in DEIR section 3.5.5 are Applicant-proposed measures that reflect current practice and, in many instances are already required by applicable law and regulations. As stated on DEIR p. 3-72, the EIR does not assume that any of these BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project.

In order to mitigate the risk of pollutants becoming entrained in stormwater, MM 4.9-1 (requiring compliance with all applicable federal, state, regional and local agency water quality protection laws and regulations) and MM 4.9-2 (requiring preparation of a detailed drainage plan for activities not subject to state or federal stormwater management laws). Implementation of these measures, as well as MMs 4.9-3 – 4.9-6, will ensure that impacts to stormwater are less than significant.

0002-186

The Best Management Practices (BMPs) set forth in DEIR section 3.5.5 are Applicant-proposed measures that reflect current practice and, in many instances are already required by applicable law and regulations. As stated on DEIR p. 3-72, the EIR does not assume that any of these BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project.

In order to mitigate the risk of pollutants becoming entrained in stormwater, MM 4.9-1 (requiring compliance with all applicable federal, state, regional and local agency water quality protection laws and regulations) and MM 4.9-2 (requiring preparation of a detailed drainage plan for activities not subject to state or federal stormwater management laws). Implementation of these measures, as well as MMs 4.9-3 – 4.9-6, will ensure that impacts to stormwater are less than significant.

0002-187

The comment suggests that specific industry standards should be described in the final EIR and adopted as mitigation for "construction period fluid mixing, storage, handling, and conveyance equipment." MM 4.8-7 provides that exploration and development activities authorized by the Project be conducted "as described in *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book* (Bureau of Land Management 2007) or an equivalent industry standard such as *Environmental Protection for Onshore Oil and Gas Production Operations and Leases* (American Petroleum Institute 2009). This measure then sets forth minimum standards to be implemented as guided by these documents. MM 4.8-8 sets forth eight requirements, with references to specific industry standards, addressing topics such as well materials (subparagraph (a)), use of centralizers and stop-collars, and pressurizing or re-pressurizing petroleum product pipelines. By referencing these standards, the EIR ensures minimum safe operating requirements for oil and gas activities. Because industry standards are regularly updated, however, the EIR does not attempt to memorialize the precise language of the standard, thus allowing for more protective requirements to be applied as such standards are promulgated and rolled out to the industry.

0002-188

As the comment notes, spills of produced fluids from stimulated wells may contain WST chemicals from flowback. Table 4.9-23 in the EIR, page 4.9-76, presents a Summary of Chemicals Used in California Well Stimulation. While some of these chemicals are toxic, they are not qualitatively different from many chemicals found on oilfield sites. Many of them occur naturally in the target formation and even in common household items. The majority of well stimulation fluids by volume are comprised of water and proppants (sand). Base fluids (water, saline solutions, or brine) can account for over 85% of the mass of well stimulation fluids; see CCST study, Volume II, page 98. Flowback of WST chemicals in produced water is further vastly diluted in the produced water itself. Accordingly, spills of produced fluids from stimulated wells would not be expected to differ qualitatively or quantitatively from the general oilfield spills and leaks analyzed in the EIR. All of the analysis and conclusions in the EIR on the topic of spills and leaks from oilfield operations remain accurate. Please see also response 40, 41, and 42, above.

0002-189

Please see RTCs 2-65 – 2-84.

0002-190

Please see RTCs 2-65 – 2-84.

0002-191

Please see RTCs 2-65 – 2-84.

0002-192

MM 4.9-2 has been substantially modified and now requires, among other things, mandatory implementation of numerous Best Management Practices pursuant to subparagraph (3). Please see FEIR section 7.1.4 for the revised mitigation measures.

0002-193

The comment is noted and included in the Final EIR. Please see RTCs 65-72.

0002-194

As discussed in GR Water 1, the Final EIR incorporates the new regulatory prohibition on surface disposal of WST fluids.

0002-195

Please see GR Water-1 for the calculations requested by the commenter.

0002-196

Unlike the prohibition on percolation pond disposal of produced water from stimulated wells in the SB 4 implementing regulations, there is no unconditional regulatory prohibition use of produced water from stimulated wells for groundwater recharge. As the commenter notes, produced water may be treated for use in groundwater recharge. As the commenter elsewhere notes (see comments and responses 16-18), groundwater recharge with produced water may be an important means of controlling subsidence. This EIR does not authorize any produced water treatment or re-use facilities. Local water districts act as the lead agency for such projects, and are not subject to County zoning regulations; any such treatment facility would trigger the need for further CEQA review by the lead agency and be required to address environmental impacts and mitigation measures

0002-197

See response to comment 196 above.

0002-198

The comment is background and requires no response.

0002-199

This comment replicates comments 37 through 39. Please reference Responses 37 through 39.

0002-200

This comment replicates comments 40 through 45. Please reference Responses 40 through 49.

0002-201

This comment replicated comment 46 through 49. Please reference Response 46 through 49.

DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS AND GEOTHERMAL RESOURCES
801 K STREET • MS 18-05 • SACRAMENTO, CALIFORNIA 95814
PHONE 916 / 323-6733 • FAX 916 / 445-9916 • TDD 916 / 324-2555 • WEB SITE conservation.ca.gov

March 23, 2015

The Honorable Fran Pavley
Chair, Senate Committee on Natural Resources and Water
State Capitol, Room 5046
Sacramento, CA 95814

Re: UIC Regulations and Injection Pressures

Dear Senator Pavley,

Thank you for your letter of March 11, 2015, concerning fracture pressure specifications in our underground injection regulations. As you correctly observed in your background document[1] for the March 10 hearing, injection above fracture pressure has occurred and continues to occur in particular fields and injection zones.

This topic arose in your oversight hearing during the discussion of a particular kind of injection for production, namely, cyclic steaming. The question posed by Senator Allen at the time was whether cyclic steaming is legal. The legal basis for permitting these operations is described below.

The cyclic steaming technique involves injecting steam into a hydrocarbon-bearing zone at a temperature and pressure sufficient to free oil enough that it can return to the same well through which steam was injected initially and be pumped to the surface. This occurs most frequently in diatomite formations.

Diatomite is made up of the accumulated fossilized skeletons of prehistoric single-celled animals. It is both brittle and highly absorbent. (Its absorptive qualities make it suitable for use as cat litter and a grease absorber, and in places, it is mined for that purpose.) Diatomite is extremely brittle and even very low pressure will cause it to fracture. Very significant quantities of crude oil in this State are found in the same strata as the diatomite, absorbed into the pore spaces in the fossil matrix. In fact, oil from diatomite zones is the major portion of the total cyclic steaming picture, which is estimated to account for nearly 20% of California's total oil production.

[1] Oversight Hearing of The Senate and Natural Resources and Water and Environmental Quality Committees, *Ensuring Groundwater Protection: Is the Underground Injection Control Program Working?* March 10, 2015, p. 12

Most important to this discussion, the oil in such deposits cannot be easily freed from its diatomite matrix without cyclic steaming, using steam of sufficient heat to break down the brittle diatomite matrix, freeing the oil.

Permitting cyclic steam in diatomite is consistent with the Division's statutory mandate to supervise oil and gas operations so as to allow operators to use methods and practices known to be suitable for recovery of oil and gas. (Pub. Resources Code, § 3106, subd. (b)). This part of the statute authorizes the Supervisor, among other things, to:

> *supervise the drilling, operation, maintenance, and abandonment of wells so as to permit the owners or operators of the wells to utilize all methods and practices known to the oil industry for the purpose of increasing the ultimate recovery of underground hydrocarbons and which, in the opinion of the supervisor, are suitable for this purpose in each proposed case.*

This provision further provides that it is state policy to allow operators, with appropriate safeguards, to engage in

> *the injection of air, gas, water, or other fluids into the productive strata, the application of pressure heat or other means for the reduction of viscosity of the hydrocarbons, the supplying of additional motive force, or the creating of enlarged or new channels for the underground movement of hydrocarbons into production wells, when these methods or processes employed have been approved by the supervisor.*

The regulation you cite in your letter explicitly addresses other forms of long-term injection, such as water flood and water disposal, techniques involving the "sustained liquid injection" expressly referred to in the section you cite. (Tit. 14, Cal. Code Regs. §1724.10, subd. (i).) This is not surprising, as water was a commonly used secondary recovery method at the time these regulations were written. The regulation was likely meant to prevent operators from "watering-out" nearby operators' oil deposits. But the regulation does not directly address the regulatory concerns particular to cyclic steam generally, or cyclic steam in diatomite specifically.

Nevertheless, it is obviously important to Californians and to me that the Division's regulations impose reasonable protective limits upon all types of injection operations. We intend to enlarge and rewrite many of our UIC regulations to help assure that the conduct of cyclic steaming operations will be protective of surface integrity, public safety and the environment. We are committed to undertaking this effort soon: as you may know, we have agreed to deliver to US EPA a plan for comprehensive UIC program improvements, including rule-making actions, by July 15, 2015 to address the more significant shortcomings of our UIC program. In the meantime, the Division has been working closely with operators conducting cyclic steam in diatomite on a project-by-project basis to ensure to that production occurs in the safest possible manner.

As I indicated to Senator Allen during the hearing, I would be happy to meet with you and members of the Committee to discuss further with you the subject of cyclic steaming more generally.

Sincerely,



Dr. Steven Bohlen
State Oil and Gas Supervisor

cc: The Honorable Robert A. Wieckowski, 10th Senate District
The Honorable Benjamin Allen, 26th Senate District
John Laird, Secretary of the California Natural Resources Agency
Dr. Mark Nechodom, Director, California Department of Conservation

MEMBERS
JEFF STONE
VICE CHAIR
BENJAMIN ALLEN
JEAN FULLER
ROBERT M. HERTZBERG
BEN HUESO
HANNAH-BETH JACKSON
BILL MONNING
LOIS WOLK

California Legislature

Senate Committee on Natural Resources and Water

FRAN PAVLEY
CHAIR

BILL CRAVEN
CHIEF CONSULTANT

DENNIS O'CONNOR
PRINCIPAL CONSULTANT

KATHARINE MOORE
CONSULTANT

PATTY HANSON
COMMITTEE ASSISTANT

STATE CAPITOL
ROOM 5046
SACRAMENTO, CA 95814
TEL (916) 651-4116
FAX (916) 323-2232

March 11, 2015

Steven Bohlen, Ph.D.
Oil and Gas Supervisor
Division of Oil, Gas and Geothermal Resources
801 K Street, MS 20-20
Sacramento, CA 95814

RE: California regulation relevant to maximum allowable surface injection pressure for Underground Injection Control project wells

Dear Supervisor Bohlen,

At yesterday's joint legislative oversight hearing on the Division's implementation of its Underground Injection Control (UIC) program, you stated that you were unfamiliar with your Division's regulation regarding the maximum allowable surface injection pressure. The relevant excerpt from Title 14 of the California Code of Regulations, section 1724.10 "Filing, Notification, Operating and Testing Requirements for Underground Injection Projects" is as follows (emphasis added):

> (i) To determine the maximum allowable surface injection pressure, a step-rate test shall be conducted prior to sustained liquid injection. Test pressure shall be from hydrostatic to the pressure required to fracture the injection zone or the proposed injection pressure, whichever occurs first. **Maximum allowable surface injection pressure shall be less than the fracture pressure.** The appropriate district office shall be notified prior to conducting the test so that it may be witnessed by a Division inspector. The district deputy may waive or modify the requirement for a step-rate test if he or she determines that surface injection pressure for a particular well will be maintained considerably below the estimated pressure required to fracture the zone of injection.

Please confirm that all class II UIC injection wells in California comply with 14 CCR § 1724.10 (i).

I look forward to your response. Thank you for your time and consideration.

Sincerely,

Fran Pavley

Fran Pavley
Senator, 27th District
Chair, Senate Committee on Natural Resources and Water

cc: John Laird, Secretary, California Natural Resources Agency
Mark Nechodom, Director, Department of Conservation
Keali'i Bright, Deputy Secretary for Legislative Affairs, California Natural Resources Agency
Saul Gomez, Special Assistant, California Natural Resources Agency
Ben Turner, Assistant Director, Office of Governmental and Environmental Relations, Department of Conservation
Martha Guzman-Aceves, Deputy Legislative Secretary, Office of Governor Brown
Cliff Rechtschaffen, Senior Advisor, Office of Governor Brown

3 California State Water Resources Control Board

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

State Water Resources Control Board

September 15, 2015

VIA ELECTRONIC MAIL

Lorelei H. Oviatt
Kern County Planning and Community
Development Department
2700 M Street, Suite 100
Bakersfield, CA 93301

E-Mail: loreleio@co.kern.ca.us

RE: Comments on the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 (C), focused on Oil and Gas Local Permitting (SCH # 2013091062)

Dear Ms. Oviatt

This letter provides staff comments from the Central Valley Regional Water Quality Control Board (Central Valley Regional Water Board or CVRWQCB) and State Water Resources Control Board (State Water Board or SWRCB), collectively referred to as the Water Boards, on the proposed Revisions to the Kern County Zoning Ordinance – 2015 C ("Project") and Associate Draft Environmental Impact Report (DEIR). 0003-1

I. COMMENTS ON THE KERN COUNTY DEIR

A. General Comments

This section contains general comments from the Water Boards regarding various aspects of the Kern County DEIR. 0003-2

1. The Water Boards recommend that the mitigation measures set forth in the "Analysis of Oil and Gas Well Stimulation Treatments in California" (State Clearinghouse Number 2013112046) SB 4 EIR, completed by the Department of Oil and Gas and Geothermal Resources (DOGGR), be taken into consideration in the Final EIR. 0003-3

2. The Water Boards are aware that this DEIR was prepared prior to the availability of the final volumes of the California Council on Science and Technology (CCST) Study but would like Kern County to consider whether any of 0003-4

0003-4 Continued

the conclusions and recommendations of the study may apply to the Kern County proposed project.

0003-5

3. The document should incorporate current well stimulation treatment (WST) regulations (California Code of Regulations [CCR], Title 14, Division 2, Chapter 4, Subchapter 2, Article 4, section 1786) that preclude WST fluid, additives, and produced water from a well that has had a WST from being stored (including disposed) in a produced water pond, sump or pit. The fluids must be stored in containers, sampled, and chemically analyzed to determine if the waste is a hazardous waste as defined by CCR, Title 22, Division 4.5, Chapter 11, Article 1, Section 662661.3.

0003-6

Given that WST fluids can no longer be stored in a produced water pond, sump, or pit, it is likely that volume of waste directed to injection wells will increase. This is likely to reduce the amount of produced water that is available for agricultural use. Therefore, the DEIR should be revised to reflect current WST regulations and to evaluate the effect of these regulations with respect to potential impacts to surface and groundwater quality.

0003-7

Additionally, if the chemical analysis of WST fluid determines that it is a hazardous waste, the waste cannot be injected into a Class II injection well. The waste must be transported to a permitted Class I well for injection. This may increase the surface transportation of hazardous wastes within Kern County.

0003-8

4. The Kern-Tulare Water District is located near the California Highway 65 and the intersection State Route 155 within the Eastern Subarea. Throughout the DEIR text, the Kern-Tulare Water District is mistakenly noted as being in the Western Subarea.

0003-9

5. In 1998, the CVRWQCB prepared Waste Discharge Requirements (WDRs) Order R5-1998-205, including a Monitoring and Reporting Program (MRP) for an operator in the Jasmin Field. The WDRs/MRP provides regulatory oversight for the operator to re-use good quality produced water, (not exceeding Basin Plan limitations) for local agriculture applications. The re-use is by blending the produced water with other surface and/or groundwater for distribution by the Jasmin Ranchos Mutual Water District. A global search of the DEIR did not locate any reference to the re-use of produced water from the operator in the Jasmin Field.

0003-10

6. Within Section 4.9 and in Appendix T, the reported amount of treated produced water reused for agriculture and produced water discharged to permitted ponds should be updated to include information that is more recent.

0003-11

7. Throughout the DEIR, the acronym RWQCB and CVRWQCB are used interchangeably in several sections of the report when discussing the Project

0003-11 Continued

area. For consistency, it is suggested that the appropriate term discussing the applicable RWQCB agency related to the Project area would be to use CVRWQCB.

0003-12

8. An additional mitigation measure should be considered that requires WST applicant to have the State Water Board, in consultation with the CVRWQCB, approve either a groundwater monitoring plan or exclusion from groundwater monitoring, consistent with the Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation (State Water Board Resolution No. 2015-0047).

0003-13

9. As of July 1, 2015, flowback fluid and produced water from well stimulation operations may not be discharged to ponds, sumps, or other non-contained surface storage/disposal facilities as per DOGGR regulation.

B. Executive Summary

0003-14

1. Table 1-3, Impact 4.9-1 Violate any Water Quality Standards or Waste Discharge Requirements

Suggested Revision: Change to read, “Violate any Water Quality Standards, Water Quality Monitoring Requirements, or Waste Discharge Requirements.”

0003-15

2. Table 1-3 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation (MW 4.9-2, first sentence) (see also MM 4.9-4 on 4.9-143).

Suggested Revision: shall not conduct any Class II injection activity regulated by the Underground Injection Control program, including enhanced oil recovery activities that discharge into any underground source of current of future beneficial use groundwater, including drinking water, unless the aquifer has been exempted by the United States Environmental Protection Agency or injection has otherwise been authorized by the U.S. Environmental Protection Agency or by the Davison of Oil, Gas and Geothermal Resources, in consultation and agreement by the State Water Resources Control Board, consistent with Public Resources Code 3131.

3. Add a mitigation Measure in Table 1-3, Impact 4.9-1 to cover:

0003-16

Suggested Revision: For any WST activity, the applicant shall not conduct WST until the State Water Resources Control Board, in consultation with the CVRWQCB, has approved either a groundwater monitoring plan or exclusion from groundwater monitoring for a given well, consistent with the SWRCB Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation.

0003-17

4. Table 1-3 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation (MM 4.9-2, last sentence) (see also MM 4.9-2 on 4.9-

0003-17
Continued

146-147).

Original: "Recommended best management practices for the construction phase shall include the following:" (Items a. through e); Item d. "Waste and Material Management."

Suggested Revision: Add to Item d: sub-item 6. "Provide and maintain adequate secondary containment to minimize or eliminate pollutants from moving offsite and into receiving waters."

C. Chapter 4 – Environmental Setting, Impacts, and Mitigation Measures

0003-18

1. Page 4.6-35, 4th paragraph

Original: Each well operator must obtain a permit from DOGGR in advance of a well stimulation treatment and must submit an application that includes the identification and location of the well; the time period during which the well stimulation treatment is planned to occur; a water management plan; a list of the anticipated identity and concentration of the chemical constituents of the well stimulation treatment fluids the operator plans to use; modeling of the well stimulation treatment and identification of plugged and abandoned wells and geologic faults within the modeled treatment area; indication that the operator is developing a groundwater monitoring plan meeting the criteria of the applicable Regional Water Quality Control Board (Regional Board) (operations cannot begin unless a plan has been approved); an estimate of treatment-generated waste materials that are not addressed in the water management plan; identification and contact information of the operator; the depth of the base of fresh water; and the results of specified evaluation and modeling.

Suggested Revision: Each well operator must obtain a permit from DOGGR in advance of WST and must submit an application that includes the identification and location of the well; the time period during which WST is planned to occur; a water management plan; a list of the anticipated identity and concentration of the chemical constituents of the WST fluids the operator plans to use; modeling of the WST and identification of plugged and abandoned wells and geologic faults within the modeled treatment area; indication that the operator is developing a groundwater monitoring plan, or a request for exclusion from groundwater monitoring, meeting the Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation (well stimulation operations cannot begin unless a groundwater monitoring plan, or request for exclusion from groundwater monitoring, has been approved by the State Water Resources Control Board); an estimate of treatment-generated waste materials that are not addressed in the water management plan; identification and contact information of the operator; the depth of the base of fresh water; and the results of specified evaluation and modeling.

0003-19

2. Page 4.6-35, 5th paragraph

Original: Once an application has been deemed complete by DOGGR, a well operator must hire an independent entity or person to provide notification to every tenant and owner of neighboring property within a specified distance from the wellhead and horizontal projection of the applicable well at least 30 days before beginning a WST. Notified property owners may request baseline and follow-up water quality testing at the operator's expense, and prior notice of any such testing must be provided to the applicable Regional Board to allow for the opportunity to observe the water sampling process. Well operators must also pressure test a well and meet certain integrity requirements before beginning a well stimulation treatment. An operator may conduct the stimulation activity identified in an approved application and notice within one year from DOGGR approval.

Suggested Revision: Once an application has been deemed complete by DOGGR, a well operator must hire an independent entity or person to provide notification to every tenant and owner of neighboring property within 1,500 feet from the wellhead and 500 feet from the horizontal projection of the applicable well at least 30 days before beginning a WST. Notified property owners may request baseline and follow-up water quality testing at the operator's expense, and 72 hour prior notice of any such testing must be provided to the State Water Resources Control Board and CVRWQCB to allow the opportunity to observe the water sampling process. Well operators must also pressure test a well and meet certain integrity requirements before beginning a well stimulation treatment. An operator may conduct the stimulation activity identified in an approved application and notice within one year from DOGGR approval.

3. Page 4.8-6, Table 4.8-2

0003-20

Comment: The text mentions hydrofluoric acid. Therefore, hydrofluoric acid should to be added to the table as an acutely hazardous material.

4. Page 4.8-6 (last sentence) and 4.8-7 (1st sentence)

0003-21

Original: Flowback fluids, including produced water and oil, are sent to production facilities for treatment, after which some flowback waters are disposed of in injection wells or through evaporation and percolation ponds.

Suggested Revision: Flowback fluid from a well that has undergone stimulation treatment is sent to a production facility where it is commingled with produced water that is typically sent to Class II injection wells. Some operators transport frack flowback fluid to a commercial Class II injection disposal well in the South Belridge Field that is permitted by the DOGGR. Frack flowback fluid discharge to ponds is prohibited as of July 1, 2015 as per DOGGR regulation.

0003-22

5. Page 4.8-14 (3rd paragraph)

Original: The CVRWQCB permits the operations of drilling mud pits pursuant to statewide general orders, while operations sumps are permitted through site specific Waste Discharge Requirements (WDR).

Comment: An operator can only discharge drilling mud and cuttings to a sump while drilling a well after the operator has obtained coverage under the State Water Board General Order 2003-0003-DWQ. The CVRWQCB has not adopted any site specific individual WDRs for discharges to drilling mud pits used during well work over activities.

0003-23

6. Page 4.8-15 (4th paragraph)

Original: As discussed elsewhere in this document, (flowback) fluid disposal could be facilitated through waste injection wells or percolation ponds.

Comment: Flowback fluid from wells that have undergone stimulation treatment cannot be directly discharged to ponds as of July 1, 2015 as per DOGGR regulation.

0003-24

7. Page 4.8-23 (1st paragraph)

Original: As of March 2015, 23 injection wells in the Project area were ordered to cease operations while the review was ongoing due to proximity to drinking or agricultural water supplies. Based on statements published by the agencies, no contamination or adverse impacts to groundwater was observed from the operation of the 23 wells, and no contamination of water used for drinking or agricultural purposes related to underground injection by the oil and gas industry has been detected in testing of water supply wells by the SWRCB. DOGGR and the SWRCB completed initial review of the 176 higher priority injection wells in May 2015 and SWRCB is awaiting additional test data before making a determination as to whether to seek shut-in of additional wells before the October 15, 2015, compliance date specified in the emergency regulations (DOGGR 2015).

Comments:

- Not all 23 injection wells received orders from DOGGR to cease injection since some operators voluntarily relinquished their permits.
- Please provide the reference for the statement that “no contamination or adverse impacts to groundwater was observed from the operation of the 23 wells”.
- CVRWQCB staff conducted water supply well testing, not State Water Board.
- SWRCB is awaiting not only additional test data (formation and injectate sampling), but also the results of water supply well survey data.

Suggested revision: As of March 2015, 23 injection wells in the Project Area were either ordered shut in or received operator permit relinquishments, while the

0003-24 Continued

review was ongoing due to proximity to water supply wells. No chemical contaminants related to underground injection has been detected in the water supply wells tested thus far by the CVRWQCB. DOGGR and the SWRCB completed initial review of the 176 priority injection wells in May 2015 and SWRCB is awaiting additional information before making a determination as to whether to seek shut-in of additional wells before the October 15, 2015, compliance date specified in the emergency regulations (DOGGR 2015).

0003-25

8. Page 4.8-48 (Last paragraph)

Original: Waste management units, permitted by the CVRWQCB for the E & P industry, include evaporation ponds, percolation ponds, and sumps.

Comment: CVRWQCB staff uses the term 'pond' for an unlined impoundment used for disposal of produced water via evaporation and percolation. The industry has no disposal ponds constructed to prevent percolation and thus only use evaporation for the disposal of produced water. CVRWQCB staff uses the words 'drilling mud pits' for an unlined impoundment used by the industry to contain drilling fluid and cuttings while drilling a well.

Suggested Revision: Waste management units permitted by the CVRWQCB include: (1) unlined ponds used for the disposal of produced water by evaporation and percolation (produced water ponds); and, (2) unlined drilling mud pits used for the containment of drilling mud and cuttings while drilling a well.

0003-26

9. Page 4.8-48 (Last paragraph) and 4.8-49 (1st paragraph)

Original: As discussed in Section 4.9, Hydrology and Water Quality, drilling muds and boring wastes associated with oil and gas development currently are regulated under State Water Board General Order 2003-0003-DWQ which addresses low-threat discharges to land.

Suggested Revision: As discussed in Section 4.9, Hydrology and Water Quality, the discharge of drilling mud, water and soil cuttings to drilling mud pits are low-threat discharges regulated under State Water Resources Control Board General Order 2003-0003-DWQ.

0003-27

10. Page 4.8-49 (First paragraph)

Original: The CVRWQCB staff has indicated it intends to prepare General WDRs for drilling sumps, but has not yet proposed tentative or final WDRs. If adopted, such WDRs – rather than the State Water Board General Order – would regulate the evaporation ponds, percolation ponds, and/or sumps covered by the WDRs.

Suggested Revision: CVRWQCB Staff have previously indicated that a general order may be prepared that regulates the discharge of drilling mud and cuttings to drilling mud pits when drilling wells. If adopted, the CVRWQCB General Order for low threat discharges to drilling mud pits would replace coverage under the State Water Resources Control Board General Order.

0003-28

11. Page 4.8-53 (First paragraph)

Original: State and federal authorities regulate the subsurface injection of waste. The Porter-Cologne Act regulates subsurface injection discharges that could affect the quality of "waters of the state" and requires dischargers to file a Report of Waste Discharge with the local Regional Board and comply with issued WDRs (WZI 2014a).

Comment: Dischargers of produced water to Class II injection wells are not required to file a Report of Waste Discharge with the CVRWQCB. Prior to the start of injection, an operator must obtain from the DOGGR a Project Approval Letter (PAL) that conditionally authorizes subsurface injection. A PAL should not be issued by the DOGGR if the project proposes to inject into any underground sources of drinking water or have the potential to affect current or future beneficial use groundwater. State Water Board and/or CVRWQCB staff review technical information submitted by the operator to the DOGGR and provide comments to the DOGGR about the proposed injection project.

0003-29

12. Page 4.8-82, 4th paragraph

Original: Flowback fluid from WST operations is typically managed through the oilfield's oil and gas and produced water handling system, which would pipe the flowback fluid directly into these systems. Once it is commingled with other fluids, separated, and treated, the spent acid, sediment, and, in some cases, the produced water are disposed of using the common disposal practice of that field. Any oil that is collected as part of the flowback is sent through the production facility. As discussed in Section 4.9, Hydrology and Water Quality, fluid disposal also could occur through waste injection wells or percolation ponds.

Suggested Revision: Flowback fluid from WST operations has historically been managed through the oilfield oil and gas and produced water handling system, which would pipe the flowback fluid directly into these systems. Once it was commingled with other fluids, separated, and treated, the spent acid, sediment, and, in some cases, the produced water were disposed of using the common disposal practice of that field. DOGGR's Final SB 4 WST Regulations (July 2015) now require that flowback fluid and produced water from a well that has undergone WST be stored in compliance with secondary containment requirements as outlined in Section 1786 of those regulations.

0003-30

13. Page 4.9-12 (last paragraph, after 2nd sentence)

Original: Produced water is also used for well maintenance activities, including use of coil tubing spooled into a wellbore, dust control, and surface facility construction.

Comment: The re-use of produced water for any purpose (well maintenance, dust control, or surface facility construction) would constitute an unauthorized discharge

0003-30 Continued

of waste to land. The operator would be required to submit a Report of Waste Discharge and obtain Waste Discharge Requirements (WDRs) adopted by the CVRWQCB.

14. Page 4.9-49 (2nd paragraph, lines 2 and 3)

0003-31

Original: The Kern-Tulare Water District has proposed to use 8,000 AF per year of treated produced wastewater in the Western Subarea.

Suggested Revision: The Kern-Tulare Water District has proposed to use up to 8,000 AF per year of treated produced water in the Eastern Subarea.

15. Page 4.9-49 (2nd paragraph)

0003-32

Comment: The last sentence of this paragraph is somewhat incorrect and confusing in that it is not clear if the comment is referring only to the re-use of produced water in the Kern-Tulare Water District or for the entire Project area. As noted under the comment section on page 1 of this response, produced water is re-used in the Jasmin Field and by Cawelo Water District under WDRs issued by the CVRWQCB.

16. Page 4.9-50 (Bottom paragraph)

0003-33

Comment: Consider adding the sub-heading: Storm Water Discharge and NPDES Permitting at the beginning of the bottom paragraph that begins the discussion about storm water and applicable permitting options.

17. Page 4.9-57 (3rd paragraph, line 6)

0003-34

Original: Boron was detected in the Central Subarea, but not in the Western and Eastern...

Comment: This statement is misleading because Table 4.9-17 states that no samples were analyzed for boron in the Western and Eastern Subareas and only 9 samples were analyzed for boron in the Central Subarea. Consider deleting the original sentence, as there is not enough boron data in the Table to make a meaningful statement about boron in shallow groundwater.

18. Page 4.9-57 (3rd paragraph, line 7)

0003-35

Original: Arsenic levels were higher in the Eastern Subarea, a result consistent with the elevated arsenic levels detected in blended produced water supplied to

0003-35 Continued

the Cawelo Water District discussed above. (This statement is referring to arsenic levels reported in Table 4.9-17)

0003-36

Comment #1: The average arsenic concentration reported in Table 4.9-17 is 173 µg/L for 31 samples from 10 wells in the Eastern Subarea. This is considerably higher than the 10 µg/L for 19 samples and the 19 µg/L for 62 samples in the Western and Central Subareas, respectively. Conversely, the median arsenic concentration level for the Eastern Subarea is 5.9 µg/L and for the Western and Central Subareas, median arsenic levels are 7.8 and 5.0 µg/L, respectively. The average arsenic concentration appears to be skewed compared to the median arsenic level (5.9 µg/L) for the Eastern Subarea. This skewing could be caused by errors in the data or by potential reporting errors for arsenic in Table 4.9-17. If the reported arsenic sample results for the Eastern Subarea are accurate, then the much higher average concentration compared to the median concentration indicates that two or three of the 10 wells sampled have very high arsenic concentration levels (near the maximum reported arsenic concentration of 494 µg/L) compared to the other wells sampled.

Consideration should be given to revising the original sentence that concludes that arsenic levels are higher in the Eastern Subarea given that the median arsenic concentrations for the Eastern Subarea are lower than for the Western Subarea.

0003-37

Comment #2: In support if comparing the mean versus average arsenic concentrations, a technical report, dated June 15, 2015, submitted to the CVRWQCB by Chevron, states that produced water conveyed to Cawelo Water District from the Kern River Field had an arsenic concentration level of 11 µg/L in April 2015. This concentration level is closer to the median concentration level of 5.9 µg/L than the average concentration level of 173 µg/L reported in Table 4.9-17 for the Eastern Subarea.

19. Page 4.9-57 (3rd paragraph, last sentence)

0003-38

Original: Expanded monitoring of blended produced water and other irrigation water is also being required more generally…

Comment: Oil field produced waters conveyed to local water districts for blending and then used to irrigate crops are regulated by various WDRs, adopted by the CVRWQCB (98-205, R5-2006-0049, R5-2011-0077, R5-2012-0058, and R5-2012-0059). The monitoring of produced water required by these WDRs has not been expanded to include additional chemical constituents. However, earlier this year, the CVRWQCB Assistant Executive Officer requested operators with produced water used to irrigate crops to analyze their produced water for an expanded list of chemical constituents as identified in the Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation. Consider deleting the entire original sentence because “expanded monitoring of blended produced water” is not required by the WDRs at this time. Replacing the deleted sentence with an explanation based on this comment may not be appropriate in this paragraph because this paragraph only discusses shallow well sampling data in Table 4.9-17.

0003-38 Continued

Consider adding the information provided in this comment to other sections of this DEIR that discusses the use of produced water to irrigate crops.

0003-39

20. Page 4.9-69 (2rd paragraph, lines 7 and 8)

Original: The applicable CVRWQCB closure orders require monitoring and reporting programs to evaluate the extent of the groundwater impacts and to document that the affected groundwater constituent levels have returned to ambient conditions.

Suggested Revision: Each CVRWQCB post closure order, described above, includes a monitoring and reporting program to monitor the extent of the impacts in groundwater and the natural attenuation of the impacts over time.

0003-40

21. Page 4.9-69 (3rd paragraph)

Original: Small unlined surface impoundments have been, and continue to be, used in the Project Area to capture drilling muds and drilling fluids during well construction when closed-loop systems that avoid discharges to land are not utilized. Unless specifically permitted to accept additional discharges, the drilling mud pits may not be used to discharge other types of oilfield wastes, including well completion or well stimulation fluids and materials, or produced water. In 2013, a video of a well drilling operation north of the city of Shafter in the Central Subarea showing the discharge of non-drilling fluids to a drilling sump was posted online. In response, the CVRWQCB investigated the drilling operation, and the operator agreed to an administrative civil liability payment for 12 days of unpermitted discharges (Administrative Civil Liability Order R5-2013-0587).

Suggested Revision: Prior to December 4, 2013, unlined sumps were used throughout the Project area to contain drilling muds and drilling cuttings discharged when drilling a well. After December 4, 2013, these drilling mud pits have only been used in the Eastern and Western Subareas because coverage under the State Water Resources Control Board General Order 2003-0003-DWQ has not been obtained by any operator to use drilling mud pits in the Central Subarea. Drilling mud pits cannot be used for the discharge of other oilfield wastes such as, but not limited to, well completion fluids, WST fluids, or produced water. A video posted on-line in October 2012 of a well drilling operation to the east of the City of Shafter, in the Central Subarea, shows the discharge of WST fluids to a drilling sump. After an investigation by CVRWQCB staff determined that WST fluids were in the drilling sump for 12 days, the operator agreed to pay the maximum administrative civil liability amount for the unpermitted discharge to the sump (Administrative Civil Liability Order R5-2013-0587).

22. Page 4.9-70 (1st paragraph)

0003-41

0003-41 Continued

Original: In November 2013, the CVRWQCB also issued an investigative order to 78 oil and gas production and exploration operators requiring the submission of well drilling and well workover (repair and improvement) information during the period January 2012 to November 2013. In 2014, the CVRWQCB reported that all of the companies had responded and provided drilling information for 6,381 new wells and 8,291 workovers of existing wells (CVRWQCB 2014).

Suggested Revision: on November 15, 2013, the CVRWQCB issued 78 investigative orders (Section 13267 Orders) to operators that required submission of well drilling and workover (repair and improvement) information during the period from January 1, 2012 to November 15, 2013. In 2014, CVRWQCB staff reported that all operators responded with the required information for 6,381 new wells and 8,291 workovers of existing wells (CVRWQCB 2014).

23. Page 4.9-70 (3rd paragraph)

0003-42

Comment: Consider adding the sub-heading Underground Injection Control at the beginning of the 3rd paragraph. Prior paragraphs back to page 4.9-63 discuss water quality as it relates to discharges to land. This paragraph begins a discussion about water quality and subsurface injection that ends on page 4.9-75.

24. Page 4.9-75 (3rd paragraph)

0003-43

Comment: Consider adding the sub-heading Well Stimulation at the beginning of the 3rd paragraph. Prior paragraphs discuss underground injection control. This paragraph begins a lengthy discussion that ends on page 4.9-93.

25. Page 4.9-99 (2nd paragraph)

0003-44

Original: The State Board has adopted a general NPDES permit for construction activities that disturb more than one acre of land (NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities), Construction General Permit, Order No. 2012-0006-DWQ, NPDES No. CAS000002). The general permit applies to discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities. To comply with the general permit, a Notice of Intent (NOI) must be filed with the RWQCB…

Suggested Revision: The State Water Resources Control Board has adopted a general NPDES permit for construction activities that disturb one acre or more of land (NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities), Construction General Permit, Order No. 2009-0009-DWQ, NPDES No. CAS000002 as amended by 2010-0014-DWQ and 2012-0006-DWQ. The general permit applies to discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities. To comply with the

0003-44 Continued

general permit, a Notice of Intent (NOI) must be filed with the State Water Resources Control Board…

0003-45

26. Page 4.9-102 (2nd paragraph)

Original: On November 15, 2013, the CVRWQCB issued an order pursuant to California Water Code (CWC) §13267 requiring a large number of operators of oil and gas wells to provide information about discharges of drilling muds into sumps from January 1, 2012, to present. CWC §13267 authorizes the regional water board to require any person who has discharged waste to submit technical or monitoring program reports to assist the staff in its assessment of potential water quality impacts resulting from the discharge. The order identified for reporting those companies that had produced more than 1,000 barrels of oil or 10 million cubic feet of natural gas in a month or those companies, that may have drilled exploratory wells. These operators were required to describe the procedures used to close unlined drilling mud pits at new wells and to close smaller temporary operational sumps next to existing wells. If waste was solidified during closure of a sump, then the company was required to describe that solidification process in the report. The CVRWQCB staff reported on its progress to the Board on June 5-6, 2014, and again on February 5-6, 2015. According to the project applicant, both reports were informational and no written report has yet been issued. The CVRWQCB staff has indicated to the project applicants that it intends to prepare general WDRs for drilling mud pits, but has not yet proposed tentative WDRs. If adopted, the general WDRs would supersede the need for coverage under the State Water Board General Order.

Suggested Revision: On November 15, 2013, the CVRWQCB issued 78 orders pursuant to California Water Code (CWC) §13267, that required operators to provide information about discharges of drilling muds into sumps from January 1, 2012 to November 2013. The orders were sent to those operators that had produced more than 1,000 barrels of oil or 10 million cubic feet of natural gas per month or to those operators that drilled exploratory wells. The operators were required to describe the procedures used to close drilling mud pits and smaller temporary operational sumps. If waste was solidified during closure of a sump, then a company was required to describe that solidification process in their response. Staff has informed operators that the CVRWQCB may prepare a general order for the discharge of drilling mud and cuttings to drilling mud pits. If prepared and adopted, the CVRWQCB General Order would replace coverage under the State Water Resources Control Board General Order.

27. Page 4.9-102 (3rd paragraph)

0003-46

Original: Produced water has been historically disposed of in unlined ponds (surface impoundments), in reliance on an exemption contained in the State Water Board regulations applicable to “discharges of [nonhazardous] wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leach fields” where the discharge was in compliance with an adopted water quality control plan,

0003-46
Continued

including the Tulare Lake Basin Plan (23 CCR §2511(b)). According to the RWQCB website, there are an estimated 933 produced water ponds in the Central Valley region, many of which are located in the Project area. Over 500 of these ponds have been issued WDRs.

Comment: Based on recently completed inspections of ponds by CVRWQCB staff, there are estimated 1,069 active and inactive produced water ponds in the Central Valley region with approximately 643 of these regulated under WDRs.

28. Page 4.9-126, Table 4.9-27

Comment: Table 4.9-27, Section for Treated Produced Water Demand and the three Scenarios presented on pages 4.9-127-128 should be revised to reflect the reduction in volume of produced water due to new WST regulations and the effect of this reduction regarding the potential uses of this water.

29. Page 4.9-128 (1st paragraph, last sentence)

0003-47

Original: Although the Kern-Tulare Water District has proposed to use 8,000 AF per year of treated produced water in the Western Subarea, no agreements to reuse produced water for agriculture other than with the Cawelo Water District have been approved and implemented in the Project area.

Comment: "In 1998, the CVRWQCB prepared WDRs R5-1998-205, including a Monitoring and Reporting Program (MRP) for an operator in the Jasmin Field. The WDRs/MRP provides regulatory oversight for the operator to re-use good quality produced water, not exceeding Basin Plan limitations for re-use by local agriculture applications by blending with other surface and/or groundwater for distribution by the Jasmin Ranchos Mutual Water District in the Eastern Subarea." Also, see the similar comments below for Page 4.17-58 (2nd paragraph).

30. Page 4.9-128 (2nd paragraph, lines 6 and 7)

0003-48

Original: …for other oilfield activities, such as discharge for dust suppression, would require additional permitting and approvals to avoid impacts to biological, water and other resources.

Suggested Revision: …for other oilfield activities, such as discharge for dust suppression, would require additional permitting and approvals to avoid impacts to biological, surface water, groundwater and other resources.

0003-49

31. Page 4.9-133 (2nd paragraph, following line 1)

Suggested Revision: Oil field related spills reported to DOGGR by operators are also reported to the Office of Emergency Services (OES) within 24 hours. CVRWQCB, including other agencies is immediately notified by OES via e-mail describing location, contact names and phone numbers, nature and volume of the spilled materials, and other related details. Depending on the spill/leak conditions, CVRWQCB staff may conduct an inspection to document conditions observed and evaluate the likelihood of the spill affecting surface and/or groundwater. A written inspection report is completed with photographs and possibly including soil/water sample results.

0003-50

32. Page 4.9-137 through 143 - Discussion of produced Water

Comment: The discussion of Produced Water, its volume, and potential uses should be revised to reflect new WST regulations (see General Comment 1).

0003-51

33. Page 4.9-144 (Bottom paragraph, line 5) and Page 4.9-152 (1st paragraph, line 8)

Original: …owners may request baseline and follow-up water quality testing at the operator's expense, and prior notice of any such testing must be provided to the…

Suggested Revision: …owners may request baseline and follow-up water quality testing of their domestic and/or agricultural well(s) at the operator's expense, and prior notice of any such testing must be provided to the …

0003-52

34. Page 4.9-146 (MM4.9-2)

Original: The plan shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving offsite and into receiving waters. The requirements of the Plan shall be incorporated into design specifications. Recommended best management practices for the construction phase shall include the following…

Comment: The use of "Best Management Practices" needs to be required.

0003-53

35. Page 4.9-147 (MM4.9-5)

Suggestion: The discussion of produced water disposal into a surface disposal facility should include the prohibition of any WST production water.

0003-54

36. Page 4.9-154 (2nd paragraph, line 12)

Original: …and utilize higher quality produced water to minimize treatment requirements…

Suggested Revision: …and utilize higher quality produced water, primarily within the Eastern Subarea where better quality produced water is available, to minimize treatment requirements…

0003-55

37. Page 4.9-164 (Impact 4.9-11) Contribute to Cumulative Hydrology and Water Quality Impacts – Mitigation Measures and Level of Significance After Mitigation (page 4.9-165)

The DEIR should to be revised to include a discussion of Produced Water, its volume, and potential uses to reflect new WST regulations (see General Comment 1). The discussion of WST water needs to include a determination of whether or not the waste is hazardous and if hazardous how disposal will be handled. Best management practices for construction pollutants must be required not recommended. If these changes are made to the document, then implementation of Mitigation Measures MM 4.9-1 through MM 4.9-6 may reduce potential impacts to water quality. However, impact is likely to remain to be Significant and unavoidable with mitigation.

0003-56

38. Page 4.17-57 (3rd paragraph, line 9)

Original: …in lieu of M&I supplies by oil and gas operators, would effectively increase the supply of higher quality…

Suggested Revision: …in lieu of M&I supplies by oil and gas operators, primarily located in the Eastern Subarea, would effectively increase the supply of higher quality…

0003-57

39. Page 4.17-58 (2nd paragraph)

Comment: The last three sentences of this paragraph (and elsewhere in the text where referenced) should be modified to incorporate the following: “In 1998, the CVRWQCB prepared WDRs R5-1998-205 (WDRs), including a Monitoring and Reporting Program (MRP) for an operator in the Jasmin Field. The WDRs/MRP provides regulatory oversight for the operator to re-use good quality produced water, not exceeding Basin Plan limitations. The produced water is re-used for local agriculture applications by blending with other surface and/or groundwater for distribution by the Jasmin Ranchos Mutual Water District.

0003-58

40. Figure 4.9-11 – Approved Groundwater Beneficial Use Aquifer Exemptions (Map)

Comment: The title should be "Locations of Exempted Aquifers". Remove reference to beneficial use, and consider adding footnote to indicate that not all aquifers in these areas are exempt since it is depth dependent.

D. Appendices

0003-59

1. Appendix S, Page ES-2 (4th paragraph)

Original: (3) the East sub-area, which encompasses the western foothill of the Sierra up to an elevation of 1,000 feet.

Suggested Revision: …up to an elevation of 2,000 feet.

0003-60

2. Appendix S, Page 5 (Last paragraph)

Original: Figure 1-1 shows that north of Bakersfield, the East Subarea consists of the area west of Interstate 5.

Suggested Revision: Figure 1-1 shows that the West Sub-area consists of the area west of Interstate 5.

0003-61

3. Appendix S, Page 6 (1st paragraph)

Original: Figure 1-1 shows that north of Bakersfield, the East Subarea consists of the area east of Interstate 5 and west of Highway 65.

Suggested Revision: Figure 1-1 shows that the Central Subarea consists of the area east of Interstate 5 and west of Highway 65.

0003-62

4. Appendix S, Page 6 (2nd paragraph)

Original: …includes the West Sierra Foothills, up to an elevation of approximately 1,000 feet msl…"

Suggested Revision: …includes the West Sierra Foothills, up to an elevation of approximately **2,000** feet msl…

0003-63

5. Appendix S, Table 4-7

Comment: Revise Table 4-7 - Ten Section Field is located the Central Subarea.

0003-64

6. Appendix S, Page 59 last paragraph) and Page 60 (first sentence)

Original: The Board considered potential impacts to water quality based on numerous factors and determined that Waiver Category No. 2 should be renewed only for fresh water supply well wastes; stating that discharge of drilling muds/boring wastes from oil and gas operations will be considered in a separate action. Consequently, drilling wastes associated with oil and gas exploration must be removed from open sumps upon completion of the drilling activities and managed according to existing handling and disposal regulations.

Suggested Revision: CVRWQCB staff considered potential impacts to water quality and determined that Waiver Category No. 2 should be renewed by the CVRWQCB only for the discharge of drilling wastes from fresh water supply wells. On December 5, 2013, the CVRWQCB adopted Resolution R5-2013-0145 without including the discharge of drilling wastes associated with oil and gas well drilling. Consequently, as of December 5, 2013, oil and gas drilling wastes cannot be discharged to drilling sumps without first obtaining conditional coverage under SWRCB General Order 2003-0003-DWQ.

0003-65

7. Appendix T, Table 28 and Figures 16 (page 65) through 20 (page 69)

Comment: The produced water volumes for the three sub-areas in Table 28 do not match the same produced water volumes in the produced water pie charts (Figures 16 through 20).

0003-66

The Water Boards appreciate the opportunity to provide Kern County with feedback on the DEIR. If you have any questions or require further assistance, please contact Ms. Christine York at (916) 341-5493.

Sincerely,



John Borkovich, P.G.
Groundwater Monitoring Section Chief
State Water Resources Control Board

cc: Jonathan Bishop, Chief Deputy Director
SWRCB

Clay Rodgers, Assistant Executive Officer,
CVRWQCB

Saul Gomez, California Natural Resources
Agency

Steve Bohlen, State Oil and Gas
Supervisor

0003-1

The comment is noted for the record.

0003-2

The comment is noted for the record.

0003-3

The Division of Oil, Gas and Geothermal Resources (DOGGR) filed a separate comment letter on the DEIR and recommended reconciliation of various mitigation measures from the SB 4 EIR with those proposed by the County. Responses to those recommendations can be found in RTCs 3-98 – 3-134. Further, the Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implements, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR.

0003-4

Please see GR 12 - CCST: General.

0003-4 cont'd

0003-5

Please see GR 10 - DOGGR: Regulations.

0003-6

Please see GR 10 - DOGGR: Regulations and GR Water-01 - Unlined Sumps and Ponds.

0003-7

Please see GR Water-02 - Exempt Aquifers and Underground Injection Program.

0003-8

The comment is noted and the suggested correction made in the Final EIR.

0003-9

Pursuant to Table 28 of the Water Supply Assessment, the total volume of produced water provided for agricultural use to Cawelo Water District, Jasmine ([sic] Mutual Water Company and Concordia Ranch. DEIR, Appendix T, p. 64. However, while the total volume of produced water provided for agricultural use was correctly stated in the DEIR, use of this water was attributed wholly to Cawelo Water District. Please see GR Water-8. This comment is noted and accepted for the Final EIR.

0003-10

Please see GR Water-01 for updated calculations reflecting new regulations prohibiting disposal of produced waters from stimulated wells into percolation ponds.

0003-11

The comment is noted and accepted in the Final EIR.

0003-11 cont'd

0003-12

Please see revised MM 4.9-3 in FEIR section 7.1.4.

0003-13

The comment is noted for the record.

0003-14

The comment is noted and accepted in the Final EIR.

0003-15

The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implements, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR.

0003-16

The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implements, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR.

0003-17

The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implements, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR.

0003-17 cont'd

0003-18

All applications for a WST permit shall be required to comply with the final SB 4 regulations, which took effect on July 1, 2015. Please see GR 10 – DOGGR Regulations.

0003-19

All applications for a WST permit shall be required to comply with the final SB 4 regulations, which took effect on July 1, 2015. Please see GR 10 – DOGGR Regulations.

0003-20

The comment is noted and accepted in the Final EIR

0003-21

The comment is noted and accepted in the Final EIR. All applicants for a WST permit shall be required to comply with the final SB 4 regulations, which took effect on July 1, 2015. Please see GR 10 – DOGGR Regulations.

0003-22

The comment is noted.

0003-23

The comment is noted. All applicants for a WST permit shall be required to comply with the final SB 4 regulations, which took effect on July 1, 2015. Please see GR 10 – DOGGR Regulations.

0003-24

The comment is noted. The requested reference for the statement is: tp://ftp.consrv.ca.gov/pub/oil/UIC%20Files/FINAL_Dual%20Letterhead_US%20EPA%20Letter.pdf). The specific quote from this letter concerning this issue is: "To date, the analytical data from the water supply wells that the State ordered to be tested have not shown any contamination of the water supply wells by oil and gas injection activities." Please see GR Water-02.

0003-24 cont'd

0003-25

Please see GR Water-01.

0003-26

The comment is noted and accepted in the Final EIR.

0003-27

The comment is noted and accepted in the Final EIR.

0003-28

The comment is noted and accepted for the Final EIR.

0003-29

The comment is noted and accepted for the Final EIR. All applications for a WST permit shall be required to comply with the final SB 4 regulations, which took effect on July 1, 2015. Please see GR 10 – DOGGR Regulations.

0003-30

The comment is noted.

0003-30 cont'd

0003-31

The comment is noted and accepted in the Final EIR.

0003-32

Please see RTC 3-9.

0003-33

The comment is noted and accepted in the Final EIR.

0003-34

The comment is noted and accepted in the Final EIR.

0003-35

The comment is noted. This appears to be an error in the EIR. Please see GR Water-08 – Produced Water Agriculture.
0003-35 cont'd

0003-36

The comment is noted. This appears to be an error in the EIR. Please see GR Water-08 – Produced Water Irrigation.

0003-37

The comment is noted. Please see GR Water-08 – Produced Water Irrigation.

0003-38

The comment is noted and accepted in the Final EIR. Please see GR Water-08 – Produced Water Irrigation.
0003-38 cont'd

0003-39

The comment is noted and accepted in the Final EIR.

0003-40

Please see GR Water-01. The comment is noted and accepted for the Final EIR.

0003-41

The comment is noted and accepted in the Final EIR.
0003-41 cont'd

0003-42

The comment is noted and accepted in the Final EIR.

0003-43

The comment is noted and accepted in the Final EIR.

0003-44

The comment is noted and accepted in the Final EIR.

0003-44 cont'd

0003-45

The comment is noted and accepted in the Final EIR.

0003-46

Please GR Water-01 – Unlined Sumps and Ponds. The comment is noted and accepted in the Final EIR.

0003-46 cont'd

0003-47

The comment is noted and accepted in the Final EIR.

0003-48

The comment is noted and accepted Final EIR.

0003-49

The comment is noted and accepted in the Final EIR.

0003-50

Please see RTC 3-3.

0003-51

The comment is noted and accepted in the Final EIR.

0003-52

The intent of MM 4.9-2 is to require the use of Best Management Practices, as indicated by the revisions to MM 4.9-2 shown in FEIR Section 7.1.4. These revisions include the elimination of discretion and provide that the BMPs "shall include" the specified components.

0003-53

Please see FEIR section 7.1.4 for revised mitigation text.

0003-54

The comment is noted and accepted in the Final EIR.

0003-55

The DEIR has been revised to reflect the requested recalculation. Please see GR Water-0_ . Regarding the determination of whether or not waste water is hazardous, please see RTC 2-68-69 and RTC 2-70-71. Regarding implementation of Best Management Practices for construction stormwater, please see RTC 353. The DEIR identifies Impact 4.9-1 as less than significant with implementation of MM 4.9-1 – 4.9-6. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implements, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR. The County believes that Impact 4.9-1 continues to be less than significant mitigation based on the revisions in section 7.1.4.

0003-56

The comment is noted and accepted in the Final EIR.

0003-57

The comment is noted and accepted in the Final EIR.

0003-58

The comment is noted and accepted in the Final EIR.

0003-59

The comment is noted and accepted in the Final EIR.

0003-60

The comment is noted and accepted in the Final EIR.

0003-61

The comment is noted and accepted in the Final EIR.

0003-62

The comment is noted and accepted in the Final EIR.

0003-63

The comment is noted and accepted in the Final EIR.

0003-64

The comment is noted and accepted in the Final EIR.

0003-65

The comment is noted and will be forward to the Planning Commission and Board of Supervisors for their consideration.

0003-66

The comment is noted and will be forward to the Planning Commission and Board of Supervisors for their consideration.

4 California Department of Fish and Wildlife

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

September 11, 2015

Christopher B. Mynk
Kern County Planning and
Community Development Department
2700 "M" Street, Suite 100
Bakersfield, California 93301-2323

Subject: Draft Environmental Impact Report: Revisions to the Kern County Zoning Ordinance – 2015 C, Focused on Oil and Gas Local Permitting SCH No. 2013081079

Dear Mr. Mynk:

The California Department of Fish and Wildlife (Department) has reviewed the Draft Environmental Impact Report (DEIR) prepared for the Revisions to the Kern County Zoning Ordinance- 2015 C, Focused on Oil and Gas Local Permitting (Project), submitted by the Kern County Planning and Community Development Department (County). The proposed Project consists of revisions to various Chapters of Title 19 Kern County Zoning Ordinance to implement a new permit process for oil and gas activities. The revisions include new site development standards and review processes for all oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County by: 0004-1

(a) Removing the "Unrestricted Drilling" Section in Chapter 19.98 and update "Drilling by Ministerial Permit" and "Drilling by Conditional Use Permit" Sections; 0004-2

(b) Establishing a new "Tier Area" map to address different land uses and zone districts where oil and gas activities occur and are proposed to occur in the future; 0004-3

(c) Establishing and Oil and Gas Conformity Review and Minor Activity Review, as part of the "Drilling by Ministerial Permit" Section in Chapter 19.98, to ensure compliance with all applicable Development and Implementation Standards and Conditions; 0004-4

(d) Establishing a new Development and Implementation Standards and Conditions Section in Chapter 19.98; 0004-5

(e) Establishing new requirements for site plan sign-off by owners of the surface and minerals for split estate ownership; 0004-6

(f) Establishing a new fee structure to ensure that all mitigation is complied with and that the County will be sufficiently staffed to review all new applications; 0004-7

(g) Revising additional Chapters of the Zoning Ordinance to ensure consistency with the new requirements of the Environmental Impact Report. These Chapters include: 19.08- Interpretations and General Standards, 19.48- Drilling Island (DI) District, 19.50- Floodplain Primary District, 19.66- Petroleum Extraction (PE) Combining District, 19.81 Outdoor Lighting (Dark Skies Ordinance), 19.88- Hillside Development, 19.102- Permit Procedures, and 19.108- Nonconforming Uses, Structures, and Lots. 0004-8

The Project Boundary (Local Permitting Boundary Area) encompasses 3,100 square miles and generally includes the San Joaquin Valley Floor portion of Kern County up to an elevation 2,000 feet. The boundary includes: the San Luis Obispo County line on the west side; the Kings and Tulare County lines on the north side, the 2,000-foot elevation contours, squared off to the nearest section line, on the east and south sides. 0004-9

The DEIR, once certified, will be used to satisfy the California Environmental Quality Act (CEQA) requirements for multiple State and local agency discretionary approvals on evaluated oil and gas activities in Kern County, which will include the Department's discretion on the issuance of Incidental Take Permits (ITPs) pursuant to Fish and Game Code Section 2081 and Lake or Streambed Alteration (LSA) Agreements pursuant to Fish and Game Code sections 1600 *et seq*. 0004-10

On September 26, 2013, the Department commented on the Notice of Preparation for the Project and offered recommendations to avoid, minimize, and mitigate potential impacts to biological resources. We are now providing document specific comments and recommendations for the DEIR. 0004-11

Department Comments 0004-12

The Department is providing specific recommendations to the text of the DEIR. The intent is to ensure that there are no obstacles for the Department to use the Environmental Impact Report (EIR) for CEQA compliance when issuing an ITP or LSAA for oil and gas projects in Kern County and to also provide technical assistance to the biological resources information in the document. Our recommended actions are in **bold**; additions are in ***bold italics***; and deleted language is in ~~strikethrough~~.

Executive Summary Chapter 1

0004-13

Section 1.2, Project Summary, Page 1-2, # 5: The Department recommends the following **addition**- "California Department of Fish and Wildlife incidental take permits ***and Lake or Streambed Alteration Agreements***."

Project Description Chapter 3

0004-14

Section 3.5.3 Construction Activities in Detail- Vegetation Control, Page 3-64: The first sentence of this section states, "Vegetation along roadsides and critical facilities such as tank settings and compressor stations is controlled as needed through the use of mowing, grading, weed-whacking, and spot treatments of herbicides approved by USFWS and CDFW." The Department is unclear if we're being asked to approve herbicides or the vegetation removal itself. Please make note, the Department does not have authority to approve herbicides outside of a LSA Agreement for a specific project, so we are recommending the following **edits**- "Vegetation along roadsides and critical facilities such as tank settings and compressor stations is controlled as needed through the use of mowing, grading, weed-whacking, and spot treatments of herbicides***. If vegetation removal would occur in potential habitat for special-status species, approval*** ~~approved~~ by USFWS and CDFW ***may be required***."

0004-15

Section 3.5.5 Best Management Practices- Biological Resources, Page 3-73 through 74: The first applicant proposed Best Management Practice (BMP) states, "Within 14 days before any ground disturbance activities on previously undisturbed property, a qualified biologist shall conduct a focused survey to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential impacts to sensitive species onsite. The survey shall be conducted in accordance with the standard protocol of USFWS and CDFW."

0004-16

The Department recommends that focused surveys for special-status species be conducted well in advance of ground-disturbing activities to accommodate seasonal restrictions and potential permitting needs. The Department recommends that a reconnaissance biological survey be conducted as early as possible during project planning so that qualified wildlife biologist(s) have the opportunity to determine whether focused/protocol surveys are warranted, and by so doing would give project proponents plenty of time to incorporate them into their project schedule. In the event that a State-listed species is detected during a reconnaissance survey effort or during a focused/protocol survey, the project proponents need plenty of time to accommodate necessary ITP issuance to prevent project delays.

0004-17

In relation to the first applicant proposed BMP, DEIR mitigation measure (MM) 4.4-1 of Biological Resources, currently states, "With the exception of focused surveys that are seasonally restricted, special status wildlife surveys must be completed by a qualified biologist within a 30-day period prior to commencement of new ground-disturbance construction activities." The Department is recommending that the BMPs be consistent with the DEIR MMs to reflect a 30-day window for pre-disturbance surveys, and split BMP one (1) into three new BMPs to clarify when biological reconnaissance surveys, focused/protocol special-status species surveys, and pre-disturbance surveys are warranted. This would require an adjustment of the numbering of the BMPs.

0004-18

For the applicant proposed BMPs, the Department recommends the following **addition**- 1. ***A qualified biologist shall conduct a biological reconnaissance survey in potential special-status species habitat to advise the project proponent of potential project impacts, potential permitting needs, and advise on the need for focused special status species surveys. Early consultation with USFWS and CDFW would confirm the biologist's advice and/or inform project proponents of additional recommendations.***

0004-19

The Department recommends the following **edits and additions**- ~~1~~***2***. ~~Within 14 days before any ground disturbance activities on previously undisturbed property, a qualified biologist shall conduct a~~ ***Based on the information gathered from the biological reconnaissance survey and informal consultation with USFWS and CDFW,*** focused/***protocol*** survey***s shall be conducted by a qualified or permitted biologist (whichever is applicable) well in advance of ground disturbing activities*** to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential ***project*** impacts to ~~sensitive~~ ***those*** species ~~onsite~~. The survey shall be conducted in accordance with the ***most current*** standard protocol of USFWS and CDFW.

0004-20

The Department also recommends the following **edits** to applicant proposed BMP # 3- If take of covered endangered or threatened species has the potential to occur, the appropriate USFWS and CDFW Endangered Species Act ***permits be acquired and*** compliance provisions shall be followed.

0004-21

The Department recommends the following **edits and additions** after applicant proposed BMP # 3- ***4.*** Within ~~14~~ ***30*** days before any ground-disturb~~ance~~***eing*** activities ~~on previously undisturbed property~~ ***in special-status species habitat,*** a qualified biologist shall conduct a ~~focused~~ ***pre-disturbance*** survey to ~~determine~~ ***record*** ~~the presence/absence~~ ***existing conditions*** of ***the site, determine if conditions have changed since the reconnaissance or focused/protocol surveys were conducted, and to determine where*** sensitive species ~~protected by state and federal Endangered~~

~~Species Acts and potential impacts to sensitive species onsite~~ ***avoidance buffers will be established***. ~~The survey shall be conducted in accordance with the standard protocol of USFWS and CDFW.~~ 0004-21 Continued

The Department recommends that a new BMP be **added** before the current applicant proposed BMP #4 to include the requirement of a biological monitor during ground-disturbing activities in project locations that have potential special-status species habitat or is adjacent to potential special-status species habitat. 0004-22

The Department recommends the following **edit** to applicant proposed BMP # 6- All pipe***s*** ~~3~~***1.5***-inch***es*** or greater in diameter stored overnight on a ***project*** location must have end caps that prevent wildlife from entering the pipe. 0004-23

The Department recommends the following **edits** to applicant proposed BMP #8- An educational briefing shall be conducted for all Project personnel on ~~previously undisturbed property~~ ***project sites that have potential special-status species habitat or is adjacent to potential special-status species habitat*** prior to the start of the covered Project/activity. 0004-24

The Department recommends the following **edits** to applicant proposed BMP #9- The Applicant/Operator shall consult with the CDFW as necessary to determine if a Section ~~1600~~ ***1602 Lake or*** Streambed Alteration Agreement will be required for Project implementation. 0004-25

Section 3.5.5 Best Management Practices- Water Resources, Page 3-75: BMP #1 for Water Resources states, "Avoid streams, wetlands, and drainages, where possible. Locate access roads to minimize stream crossings and to minimize impacts where crossings cannot be avoided. Obtains CDFW Streambed Alteration Agreement prior to any work in a state jurisdictional waterway." Please make note and **update** the DEIR to reflect the actual name of the permit discussed above as ***Lake or Streambed Alteration Agreement***. Also, a Lake or Streambed Alteration Agreement is one of three possible outcomes following notification to the Department that could result in authorizing a project's activities. Following notification to the Department, a project may not legally occur until after the Department does one of the following: 1) executes a Lake or Streambed Alteration Agreement; 2) determines that an agreement is not necessary and informs the applicant in writing; or 3) fails to issue an agreement within mandated time lines. 0004-26

Biological Resources Chapter 4, Section 4.4

Section 4.4.2 Environmental Setting- Land Cover Types, Urban and Developed Lands, Page 4.4-11: Sentence three of this paragraph states, "Developed lands do not provide substantial wildlife habitat, but a few occurrences of protected or sensitive species, such as the San Joaquin kit fox, have been documented, primarily in unpaved and fallow parcels interspersed in developed areas (USFWS 1998; Bjurlin et al. 2005)." Currently the San Joaquin kit fox population is quite robust in urban settings such as Bakersfield, Oildale, Maricopa, McKittrick, and Taft and utilizes developed areas such as schools, parking lots, green space, road right-of-ways, sumps, etc. The Department recommends **updating** this section to include the current status of the San Joaquin kit fox population and their urban setting use. 0004-27

Section 4.4.2 Environmental Setting- Wildlife Refuges and Protected Habitat Areas, Page 4.4-11: This section lists the 'permanently preserved conservation lands' located in the Project Area. The Department recommends including a definition of permanently protected conservation lands or lands preserved in perpetuity. Also, some of the private lands listed in this section which are owned by project proponents for compensatory mitigation do not yet have recorded conservation easements (parcels with recorded conservation easements are what the Department recognizes as permanently protected lands) or preserves owned and managed by non-governmental organizations (NGOs) that do not have conservation easements recorded. There are also lands identified for future protection that are not yet protected. We recommend including a different category for lands that are not preserved in perpetuity and a different category for government owned lands. In addition, not all lands that have an element of conservation protection are included in this section and in some instances the information is not correct or not complete. See below for Department comments, and recommended edits and additions. 0004-28

- Bullet #1- "The Coles Levee Ecosystem Preserve HCP conserved 6,059 acres under ~~an existing~~ ***previous*** oil and gas HCP to the east of the Elk Hills Oil Field (EHOF) and south of the Kern Water Bank in the Western Subarea***. CDFW holds a conservation easement that has been recorded upon the Coles Levee Ecosystem Preserve***;" Please make note, the Department holds the conservation easement on the Coles Levee Ecosystem Preserve, although oil and gas extraction are allowable uses (not precluded activities). 0004-29

- Bullet #2- "The Kern Water Bank HCP, which will permanently preserve ***up to*** ~~10,349~~ ***3,267*** acres ***through conservation easements*** for habitat purposes in the Central and Western Subareas***. Currently the Kern Water Bank has recorded 1,321 acres of habitat to conservation easements***;" 0004-30

- Bullet #3- "~~The Freeport-McMoRan Oil and Gas HCP conserved 1,519 acres under an oil and gas HCP in the Western Subarea~~;" The Department recommends **removing** this bullet from the list as none of these lands have recorded conservation easements yet. Further, this HCP has been partially split to California Resources Corporation and the current compensatory mitigation acreage obligation is contingent on what has been impacted by project activities. 0004-31

- Bullet #4- "The EHOF conservation area, which consists of 8,028 gross acres and 7,878 net acres of undisturbed habitat, of which a minimum of 7,075 acres undisturbed acres must be preserved under a Section 7 permit and agreements with state and federal agencies in conjunction with the sale of former Naval Petroleum Reserve properties in the Western Subarea. ***In addition, a conservation easement, held by CDFW, has been recorded on over 6,314 of these acres. A conservation easement of the remaining acreage is pending***;" 0004-32

- Bullet #5- "~~The LINN Energy Enos conservation lands, 400 acres of conservation lands held in the Poso Creek oilfield within the Eastern Subarea~~;" The Department recommends **removing** this bullet from the list as we are not aware of these lands being permanently preserved conservation lands nor having a conservation easement recorded on them. 0004-33

- Bullet #6- "~~The LINN Energy Lokern-Buena Vista Valley conservation lands are 2,895 acres of conservation lands held in the Western Subarea~~;" The Department recommends **removing** this bullet from the list as we are not aware of these lands being permanently preserved conservation lands nor having a conservation easement recorded on them. 0004-34

- Bullet #7- "The Lokern-Buena Vista ~~BLM~~ Areas of Critical Environmental Concern***, owned and managed by BLM,*** located to the north of the Elk Hills and east of the Cymric-McKittrick oilfields in the Western Subarea;" The Department recommends **moving** this bullet to a different category, as these lands are not permanently protected and can be impacted by oil and gas extraction. In addition, to follow the format of the other land information provided, the Department recommends including the acreage of the Areas of Critical Environmental Concern (ACEC). It's the Departments understanding that BLM has ACECs in other areas within Kern County; we recommend that BLM be consulted on acres and location descriptions. 0004-35

- Bullet #8- "The Kern National Wildlife Refuge, 11,249 acres ***owned and managed by the USFWS*** located 18 miles west of the city of Delano in the Central Subarea;" 0004-36

- Bullet #9- "The ~~Hart Park~~ ***Bakersfield Cactus*** Ecological Reserve, ~~500~~ ***consists of 780*** acres***, owned and*** managed by the CDFW***,*** in ~~three separate parcels~~ ***five disjunct areas*** located north ***and east*** of Bakersfield in the Eastern Subarea;" 0004-37

- Bullet # 11- "The Lokern ***Natural Area is a large undeveloped area consisting of approximately 50,600 acres of land with differing property owners. Property owners and managers that hold the largest tracts of land include*** ~~Ecological Reserve, 4,000 acres in the Semitropic Ridge area and the 295 acres Sand Ridge Wildflower preserve east of Bakersfield managed by~~ the Center for Natural Land***s*** Management ~~in the Central and Eastern Subareas~~***, Chevron, Bureau of Land Management, and CDFW. CDFW owns and manages 3,965 acres in the Lokern Natural Area known as the Lokern Ecological Reserve***;" 0004-38

- Bullet # 12- "The Semitropic Ecological Reserve~~, 4,800~~ ***consists of approximately 14,900*** acres ***which is owned and managed by CDFW in the Central Subarea. Adjacent to the Semitropic Ecological Reserve are neighboring*** ~~adjacent to~~ ***parcels collectively totaling approximately*** 3,100 acres of land ***in the Semitropic Ridge area owned and*** managed by the Center for Natural Lands Management ~~and the Kern National Wildlife Refuge in the Central Subarea~~;" Please make note, currently there are no recorded conservation easements on these properties. 0004-39

- Bullet # 14- "A portion of the 97,000 acre Windwolves ~~(Wildlands Conservancy)~~ Preserve ***owned and managed by the Wildlands Conservancy is*** located along the southwest border of the Project Area***. Also, the northern most area of the preserve which is in the Central Valley supports valley floor species***;" Please make note, currently there are no recorded conservation easements on this preserve. 0004-40

- **Add-** ***A portion of the Allensworth Ecological Reserve (South Unit), 1,110 acres (in Kern County) owned and managed by CDFW is located along the northern border of the Central Subarea.*** 0004-41

- **Add-** ***The Sand Ridge Wildflower preserve, 295 acres owned and managed by the Center for Natural Lands Management east of Bakersfield in the Eastern Subarea.*** 0004-42

- **Add-** ***Other preserved undesignated lands owned and managed by CDFW throughout the Project Area.*** 0004-43

Section 4.4.2 Environmental Setting- Methods, Category 1 Species Analysis Approach, Page 4.4-32 through 33: The DEIR includes three different modeling approaches that use various environmental parameters to produce mapping and acreage estimates depicting habitat suitability for 9 plant and 28 wildlife species within the Project Area. The Department recognizes that these are data models used for large scale environmental planning. However, Department staff have identified multiple areas where mapping in Figures 4.4-1 through 4.4-37 of Appendix N may have different habitat quality than what the models display. The Department recommends that the DEIR be extremely clear that these maps are not to be used for determining individual project impacts on the 37 special-status species used for the models, and that individual projects need to be ground-truthed by a qualified biologist familiar with the species potentially impacted by project activities. 0004-44

Table 4.4-26: Special Status Plant Species with Potential to Occur in the Project Area, Page 4.4-47: In the bottom row of the table, Tracy's eriastrum (*Eriastrum tracyi*) is listed as CR for the State although CR is not defined in the status abbreviations list at the end of the table. The Department recommends that this listing abbreviation in the table be **changed** to SR (State Rare) and to **add** SR in the status abbreviations list at the end of the table. In addition, for the column for "Potential to Occur in Project Area", this species location is listed in the wrong subarea. The Department recommends that this box be **changed** to read, "Yes, in Tier 2 of the ~~Western~~ ***Eastern*** Subarea." 0004-45

Section 4.4.2 Environmental Setting- Plant and Wildlife Species Summary, Special Status Plant Species, Page 4.4-36 through 37: The Department recommends the following **edits** to this section, "Special-status plant species are defined herein as those that are listed as ***candidate,*** threatened and/or endangered by the USFWS***;*** ~~***or***~~ ***candidate, rare, threatened and/or endangered by the*** CDFW; designated as ~~SSC or locally significant by CDFW~~ ***sensitive by BLM***; ~~fully protected under state law;~~ or species that meet the definition of ~~rare or~~ endangered***, rare, or threatened*** under CEQA Sections 15380(b) and (d). The status and known distributions of special-status plant species in the Project Area were evaluated based on a review of available literature, and from federal and state databases, including the CNDDB. Data collected from previous conservation-related studies and projects within the Project Area were 0004-46

also reviewed. No critical habitat has been designated by the USFWS for any plant species in the Project Area. Data sources included:" 0004-46 Continued

- Bullet # 4- Plant species listed as rare, threatened, or endangered under California Endangered Species Act (CESA) ***and the Native Plant Protection Act (NPPA)*** (~~Wildlife, CCR Title 14, Section 670.5, 1971 as amended; Plants,~~ CCR Title 14, Section 670.2, 1978 as amended). 0004-47

- ***Add- Plant species considered sensitive by BLM.*** 0004-48

Section 4.4.2 Environmental Setting- Special Status Wildlife, Page 4.4-71: The Department recommends the following **edits** to the second paragraph of this section, bullet number four : 0004-49

- Wildlife species listed as rare, ***candidate,*** threatened, or endangered under CESA (Wildlife, CCR Title 14, Section 670.5, 1971 as amended~~; Plants, CCR Title 14, Section 670.2, 1978 as amended~~).

Table 4.4-36: Special-Status Wildlife Species with Potential to Occur in the Project Area, Page 4.4-73: In the fifth row down in the table, golden eagle (*Aquila chrysaetos*) is listed as CFP, although SFP (California Department of Fish and Wildlife Designated (State) Fully Protected) is defined in the status abbreviations list at the end of the table. The Department recommends that this listing abbreviation in the table be **changed** to ***SFP*** to reflect the status abbreviations list at the end of the table. 0004-50

Section 4.4.2 Environmental Setting- Special Status Wildlife, Blunt-Nosed Leopard Lizard (*Gambelia sila*), Page 4.4-86: The Department recommends the following **edits** to the first sentence of the second paragraph of this section: "The current distribution of the blunt-nosed leopard lizard is restricted to scattered sites in the southern San Joaquin Valley, Carrizo Plain, Elkhorn Plain, and southeastern Cuyama Valley, roughly corresponding to the western half of Kern County, the eastern boundary of San Luis Obispo ***County,*** ~~and~~ ***the western portion of*** Kings ~~Counties~~ ***County***, the western boundary of Fresno County, and extreme southwestern Tulare County." 0004-51

Section 4.4.2 Environmental Setting- Special Status Wildlife, Least Bell's Vireo (*Vireo bellii pusilus*), Page 4.4-95: The Department recommends the following **edits** to the first sentence of the first paragraph of this section: "The least Bell's vireo is a ~~federally~~ ***federal and state*** listed endangered species." 0004-52

Section 4.4.2 Environmental Setting- Special Status Wildlife, Swainson's Hawk (*Buteo swainsoni*), Page 4.4-102: Paragraph three of this section states, "URS SBM habitat 0004-53

modeling data are available for this species and has strong predictive power. The primary environmental conditions for determining nesting habitat suitability were primarily elevation, followed by water availability, soil type, annual precipitation, and winter low temperature. The results indicate that high quality suitable habitat does not occur within the portions of the Project Area below about 2,000 feet included in the URS analysis. Table 4.4-52 summarizes modeled Swainson's hawk high quality and poor to moderate quality habitat acreage by tier and subarea. The locations of modeled suitable habitat for this species in the Project Area are shown on Figure 4.4-25 in Appendix N." The Department recommends **including** a definition of 'high quality suitable habitat' for Swainson's hawk. The Department also recommends that the County recognize that there are nesting Swainson's hawk in areas of active agriculture in the Project Area, although the minimal number of suitable nest trees are the main limiting factor for the species low population numbers in the southern end of the Central Valley.

0004-53
Continued

Section 4.4.2 Environmental Setting- Special Status Wildlife, Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*), Page 4.4-114 through 115: Paragraph two of this section states, "The historical geographic range of the Tipton kangaroo rat was over 1.7 million acres of arid-land communities occupying the valley floor of the Tulare Basin. Currently, the Tipton kangaroo rat inhabits small, scattered, isolated fragments of remnant habitat. In the southern San Joaquin Valley, this includes the Kern and Pixley National Wildlife Refuges, and other scattered areas within Kern, Tulare, and Kings Counties (USFWS 2010c)." The reference to the USFWS 2010c document is not actually in the EIRs References Cited section, an **addition** to the References Cited section is warranted. The Department believes that the intended referenced document is the most recent USFWS 5-year review Summary and Evaluation of the Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), dated February 16, 2010. If this is not the document referenced, the Department recommends that this document also be cited.

0004-54

Section 4.4.3 Regulatory Setting- State, California State Fish and Game Code §1600-1616, Page 4.4-140: This section currently states, "Sections 1600 to 1616 of the CFGC states that it is unlawful to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake" without first notifying CDFW of that activity. If CDFW determines and informs the project proponent that the activity will not substantially adversely affect any existing fish or wildlife resources, the activity may be undertaken without further permitting. If CDFW determines that the proposed activity may substantially and adversely affect an existing fish or wildlife resource, a Lake or Streambed Alteration Agreement must be completed and approved by the CDFW, including reasonable measures necessary to protect the affected resources may be required prior to initiating the proposed activity (CFGC 1602)."

0004-55

The Department recommends that this section be **updated** to clarify the process of compliance with California State Fish and Game Code §1600-1616. Following notification to the Department, a project may not legally occur until after the Department does one of the following: 1) executes a Lake or Streambed Alteration Agreement; 2) determines that an agreement is not necessary and informs the applicant in writing; or 3) fails to issue an agreement within mandated time lines.

0004-55
Continued

Section 4.4.3 Regulatory Setting- State, California Native Plant Protection Act of 1977; California Fish and Game Code §1900 et seq., Page 4.4-141: The Department recommends the following **additions**, "The Native Plant Protection Act ***(NPPA)*** of 1977 (CFGC 1900 et seq.) authorizes CDFW to designate rare and endangered native plants and provides specific protection measures for state listed species. ***The Fish and Game Commission has adopted regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants (CCR Title 14, Section 786.9, 2014). CDFW may issue permits and plans that authorize rare plant impacts using the same procedures and under the same conditions as take authorizations issued pursuant to Title 14 CCR Section 783 et seq. relating to incidental take permits and Fish and Game Code Section 2800 et seq. relating to natural community conservation plans, as if rare plants were listed as endangered, threatened, or candidate species."***

0004-56

Section 4.4.3 Regulatory Setting- State, Natural Community Planning Act (Fish and Game Code 2800 et seq.), Page 4.4-143: There is an abbreviation (MCPC) that is not defined in two sentences of this section, and the Department believes that they are meant to actually be NCCP. If this is the case **edits** are warranted in sentences three and four of the paragraph to change MCPC to NCCP. If not, 'MCPC' needs to be defined.

0004-57

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State **HCP** in the Planning Area, Page 4.4-154: This heading needs to be **edited** as the State does not issue Habitat Conservation Plans (HCPs). The Department believes that either 'ITPs' or 'NCCPs' need to replace 'HCP'. In addition, the Department believes that there is a typo in the first sentence of the second paragraph where a deletion is in order, "The following sections summarize proposed and approved ~~and~~ HCPs for oil and gas activity, including oil and gas exploration, other HCPs within the Project Area, and approved regional plans or permits that address conservation and incidental take for oil and gas activities within the Project Area."

0004-58

In addition, this section does not include all HCPs and companion State ITPs that have been issued. The Department is not clear if this is necessary for this document. If it is, we can provide this information to the County. 0004-59

Table 4.4-66: Draft Valley Floor Habitat Conservation Plan Covered Plant Species List, Page 4.4-155: The federal listing for Hoover's eriastrum (*Eriastrum hooveri*) in this table is FT*, although * is not defined in the key at the end of the table. The Department recommends either **updating** the key to define the meaning of the *, or update the table to reflect the current listing of the species which is federally delisted and update the key to reflect the chosen abbreviation for that status. 0004-60

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Chevron North American Exploration and Production Lokern Habitat Conservation Plan, Page 4.4-158: The seventh and eighth paragraphs of this section, the following **edits** are in order: "The HCP would allow Chevron to generate conservation credits by using conversation easements to permanently preserve and ~~providing~~ ***provide*** funding for the management of Chevron Lokern Lands over the permit term. Chevron would permanently protect 1,500 acres of the Chevron Lokern Lands at the time that the HCP becomes effective. The credits created by preservation within the Chevron Lokern Lands would be used to mitigate for covered activity impacts in Chevron Lokern Lands, Lokern Contiguous Area, and the four oil fields included in the HCP. Chevron also proposes to allow for the use of conservation credits by Chevron or by sale to third parties to mitigate for impacts within ~~an~~ 2,261,715 acre (3,534 square mile) credit area that includes the San Joaquin Valley floor up to 2,000-foot elevation within Kern County ***once the conservation lands are federally and state approved as a mitigation bank pursuant to CFGC Section 1798 et seq.*** The state and federal incidental take permits that would be issued to Chevron by the USFWS and CDFW would not provide coverage for third party or Chevron activities outside of the Chevron Lokern Lands, Lokern Contiguous Area, and the four oil fields included in the HCP, and the use of credits generated by preservation within the Chevron Lokern Lands would be subject to separate approval/permitting processes as necessary. 0004-61

The activities for which take coverage would be provided under the proposed HCP and state 2081(~~a~~***b***) permits include existing and potential future oil and gas drilling and ***maintenance and*** operation~~al~~ activities ***for existing facilities*** described in Chapter 3, Project Description (Section 3.5, Potential Future Oil and Gas Development Scenario) together with the mitigation measures identified in Section 4.4.4, Impacts and Mitigation Measures." 0004-62

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, California Resources Corporation Elk Hills Habitat Conservation Plan (EHHCP), Requested ITP, Page 4.4-159: The first two sentences of this paragraph, the following **edits** are in order: "CRC is applying for an ITP from CDFW, Pursuant to Section 2081(b) of the ~~Fish and~~ CFGC. The Section 2081 application, which ~~includes an associated~~ ***would be a companion permit to the federal EH***HCP ~~that supports the proposed conservation and management program for the proposed EHOF~~, was deemed complete by CDFW on March 3, 2014. 0004-63

In addition, we are recommending that the discussion of the federal Endangered Species Act consultation status (currently on page 4.4-164) with the United States Fish and Wildlife Service (USFWS) be included in the 'Background' information of the EHHCP section. 0004-64

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, California Resources Corporation Elk Hills Habitat Conservation Plan (EHHCP), Proposed Covered Activities, Page 4.4-164: The last paragraph of this section would be best placed in the 'Background' section as discussed above. Also, the Department is unclear what the meaning of the second sentence is, as it currently it states, "There is no impending expiration date in the take authorization approved by the Service under FESA, or any other federal approval." In the sentence following this one, it discusses that NEPA still needs to be completed on the EHHCP, so we are unclear how there can be an impending expiration date for federal incidental take coverage when take has not been authorized by the USFWS. In addition, we recommend that the document be consistent in how it refers to the USFWS as this section calls them the 'Service', **edit** the second sentence of this section to clarify its meaning, and include more information on the federal Endangered Species Act consultation status. 0004-65

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Freeport-McMoRan Oil & Gas HCP, Page 4.4-164: The first paragraph of this section, the following **edits** are in order: "The Freeport-McMoRan Oil & Gas (formerly Nuevo-Torch then Plains Exploration and Production Company) HCP was adopted in 1999 and ***a companion state ITP was issued in 2000. The HCP and companion ITP*** addresses ongoing oilfield exploration***,*** ~~and~~ production ***and maintenance*** activities on oilfield properties located in western Kern County. The HCP encompasses 21,900 acres, including an initial 839.9 acres of conservation area lands in the Lokern area that will be set aside incrementally to compensate for habitat 0004-66

disturbances from oilfield activities. The federal incidental take statement authorized up to 1,700 acres of incidental take on the plan area lands. When Plains Exploration and Production Company acquired the properties from Nuevo-Torch in 2005, an additional 4,905 acres of land ~~and~~ were added to the HCP (an additional 414 acres of conservation area lands). In 2009, 300 acres of the incidental take acreage and 15 acres of the conservation land acreage were transferred to CRC (formerly Occidental) of Elk Hills, Inc., and Freeport-McMoRan (then Plains Exploration and Production Company) retained 1,400 acres of take acreage. ***In 2013 CDFW issued an ITP amendment addressing these changes.*** Covered species include…"

0004-66
Continued

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, CRC (formerly Occidental of Elk Hill, Inc) Non-Unit HCP, Page 4.4-165: **Edits** to this paragraph are in order: "The CRC Non-Unit HCP is a ***USFWS approved*** conservation plan that covers 7,050 acres (Live Oak Associates 2013). The HCP was originally prepared for Nuevo-Torch in February 1999. ***Federal*** ~~Incidental~~ ***incidental*** take authorization and responsibilities under the HCP were transferred to Plains Exploration and Production Company (PXP) on May 9, 2005. PXP subsequently transferred 300 acres of authorized ***federal*** incidental take and 15 acres of conservation lands to CRC on August 3, 2009. PXP retained take authorization and responsibilities on the remaining 1,400 acres of the original 1,700 acres authorized for incidental take, and these interests were subsequently conveyed to Freeport-McMoRan. In December 2009 USFWS approved the inclusion of 3,504 acres of new properties located in the vicinity of McKittrick Valley and the EHOF into the CRC Non-Unit HCP; 1,134 acres of the 3,504 acres were designated for use as mitigation land. No increase in the initially authorized 1,700 acres of take was included in the 2009 approval."

0004-67

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Kern Water Bank HCP/Natural Community Conservation Plan, Page 4.4-166 through 167: **Edits** to this paragraph are in order: "The Kern Water Bank HCP/Natural Community Conservation Plan (HCP/NCCP) is managed by the Kern Water Bank Authority and covers 19,900 acres. The plan was approved in 1997 and covers water conservation by developing water recharge and recovery facilities, the conservation and restoration of upland, intermittent wetland/rangeland, ~~and~~ other sensitive habitat, and the ***incidental take of*** San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), ~~giant kangaroo rat (*Dipodomys ingens*)~~, ***and blunt-nosed leopard lizard (Gambelia sila)*** ~~San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and Bakersfield cactus (*Opuntia basilaris var*~~). The plan also includes a conservation bank that allows for conservation credit sales to third parties under certain conditions and subject to USFWS and CDFW

0004-68

approval. In 1997, ~~5,592~~ ***3,267*** acres of the plan area were ~~permanently~~ ***set aside to be permanently*** preserved in the HCP area ***in conjunction with conservation credit sales***~~, and 3,267 acres were included in the conservation bank~~. ***Currently, conservation easements have been recorded on 1,321 acres of Kern Water Bank's Conservation Bank***" Since there are so many species covered by the Kern Water Bank HCP and NCCP, the Department recommends discussing species for which the USFWS is authorizing incidental take.

0004-68
Continued

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Pacific Gas and Electric (PG&E) San Joaquin Valley Operations and Maintenance Program HCP, Page 4.4-167: **Edits** to this paragraph are in order: "The PG&E San Joaquin Valley region HCP was approved ***by the USFWS*** ~~in early 2008~~ and ***CDFW issued a companion state ITP in early 2008. The HCP and companion*** covers routine operations and maintenance and minor new construction activities related to PG&E's electrical system ***and natural gas facilities*** in the San Joaquin Valley for 30 years. The HCP covers 23 wildlife and 42 plant species, including the San Joaquin kit fox, California red-Legged frog, vernal pool fairy shrimp, and Western burrowing owl. ***The companion state ITP initially covered 8 wildlife species and 18 plant species, until CDFW issued and amendment to include California tiger salamander (Ambystoma californiense) in 2012.*** PG&E facilities ~~that are~~ covered by the HCP occur throughout the Project Area, generally within existing ROWs owned by the company."

0004-69

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Metropolitan Bakersfield HCP, Page 4.4-167: The Department recommends that this section clarify the current status of the Metropolitan Bakersfield HCP (MBHCP) including when it expired and a discussion of the MBHCP extension issued by the USFWS and its expiration date. Also, the eighth sentence of this paragraph, **edits** are in order as it currently states, "The County and City have updated the HCP to support the extension of the plan or a new set of take permits." The Department is unclear what this meaning of this sentence is in relation to the current status of the MBHCP. The Department recommends the following **edits** and **additions** for this sentence, "The County and City have ~~updated the~~ ***requested a time extension for the MB***HCP ***from the USFWS*** to ***provide federal incidental take coverage for an additional five years from the date of initial expiration, while*** ~~support the extension of the plan or~~ a new ***HCP is prepared for the planning area*** ~~set of take permits~~."

0004-70

The Department also recommends that the ninth sentence have one word **added** for clarification, "A new ***state*** Incidental Take Permit was issued by CDFW …" This would provide the reader a clear distinction between the federal and state incidental take coverage for Metropolitan Bakersfield. 0004-71

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-1, Methodology, Page 4.4-173 through 204: The Department recommends the addition of a discussion in the EIR disclosing a description of impacts (direct and indirect) on species listed pursuant to CESA (e.g., state-listed species) and on lake and streambed resources to facilitate the Department's use of the DEIR as a CEQA Responsible Agency in issuance of ITPs and/or LSAAs for oil and gas projects in Kern County. The Department recommends that Section 4.4-1 be **updated** to include a comprehensive discussion on all potential Project impacts to special-status species and lake and streambed resources. A discussion needs to be **added** including, but not limited to, specifics as to what extent the activities and related impacts would result in the taking of state-listed species and disclose how those activities would potentially impact or take (Fish and Game Code Section 86) state-listed species. For lake and streambed resources, please include a discussion of what types of activities and related impacts are being analyzed by this DEIR, which could include for example, water diversion, fill activities, rerouting of streams, and/or removal of vegetation associated with streams. 0004-72

The Department recommends using the following example italicized language as a guide (but not limited to) to disclose potential Project impacts to state-listed species: 0004-73

> *Where project activities and their resulting impacts are expected to result in the incidental take of individuals of listed species, activities that would likely result in take include ground and vegetation clearing; grubbing; grading; leveling, excavating; scraping; land contouring; trenching; stockpiling; backfilling; compacting; paving; drilling; construction of roads, underground utilities, wastewater collection systems; materials and equipment transport and laydown; and development activities; vibroseis and shot-hole deployment; new access roads, pipeline and utility corridors; excavation of sumps; installment of sleepers or T-supports to accommodate pipelines; installation of overhead electrical lines; direct contact with moving parts of wells; clean-up of accidental spills or blowouts of oil, produced water, or other hazardous materials commonly used in oil fields; transport of drill rigs, and production materials and other project-related traffic; operations and maintenance activities; site restoration; and other activities described in the Project description section of the EIR.*
>
> *Incidental take of listed species in the form of mortality ("kill") may occur as a result of Project activities such as den or burrow collapse (in the case of fossorial*

species) resulting in crushing or suffocation of underground individuals due to site preparation and excavation; entrapment and burial within trenches and/or open pipelines; crushing by equipment in the Project Area; entanglement in, or crushing by, moving well parts; or by ingestion of, or entrapment in, spilled oil, produced water, or other hazardous materials. Incidental take, including mortality of listed species due to vehicle strikes may also occur in connection with increased project related traffic during construction and operations and maintenance activities. Incidental take of individuals of listed species may occur in the form of pursue, catch, capture, or attempt to do so of listed species via entrapment in holes or trenches, uncovering listed species through the excavation of dens and burrow systems, by corralling listed species into a confined area when exclusion fencing is constructed around work disturbance areas, and when individuals of listed species are relocated out of harm's way as maybe required by a project specific take authorization permit. Potential impacts to listed plant species include destruction of individuals from mowing, grading, or other construction activities; dust creation from project activities could settle on plant material and affect processes such as respiration, photosynthesis, pollination, and seed set; erosion and sedimentation; and increased competition from noxious weeds.

0004-73
Continued

The Department recommends using the following italicized example language as a guide (but not limited to) to disclose potential Project impacts to lake and streambed resources:

0004-74

The Project activities have the potential to result in adverse effects to fish and wildlife resources through the following project impacts: Sedimentation and erosion resulting from excavating material from the river bed channel, creating new slopes, removing vegetation, and influencing the path and thalweg of flow within the river bed; burying or crushing animals using the sediments of the river bed, including reptiles, small mammals, and ground nesting birds, and also by crushing plants or animal species that are unable to escape the path of moving equipment; sedimentation could result in material being carried by subsequent flows and carried downstream, relocated, and re-deposited in areas used by species; animal mortality from collisions with vehicles or heavy equipment or from excavation of trenches and roads; crushing of burrows or dens during vegetation removal, grubbing, clearing, grading, leveling, and compaction of well sites, entombment of animals during grading, trenching, and road construction; fugitive dust impacts to animals and plants; noise disturbance; nest abandonment; and increased predation. Potential impacts to plant species include destruction of individuals from mowing, grading, or other construction activities; dust creation from project activities could settle on plant material and

affect processes such as respiration, photosynthesis, pollination, and seed set; erosion and sedimentation; and increased competition from noxious weeds. Indirect impacts to downstream areas could include increased erosion and/or sedimentation as a result of vegetation removal, bank alteration, channel de-stabilization, and introduction of fill material. This could affect wildlife habitat functions and values, including forage production and burrowing substrate.

0004-74
Continued

In addition, the Department recommends an edit to the last sentence of the third paragraph of this section: "Oil and gas activities could also indirectly affect special status plants and wildlife by generating dust, emissions, noise, light, and unintentional spills or discharges; introducing invasive species; or increasing the risk of unauthorized vehicular use or other human activity that disturb occupied or suitable ~~species~~ ***special-***status species habitats."

0004-75

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-1, Mitigation Measures, Page 4.4-204 through 215: The Department has recommended edits to the Biological Resources MMs, see below:

0004-76

MM 4.4-1: As discussed in the Department comments above for BMPs, it is recommended that the BMPs in Chapter 3 are consistent with the MMs. The Department recommends the following **deletions** and **edits** to MM 4.4-1: "~~With the exception of focused surveys that are seasonally restricted,~~ ***A qualified biologist shall conduct a biological reconnaissance survey in potential special-status species habitat to advise the project proponent of potential project impacts, potential permitting needs, and advise on the need for focused special status species surveys. Early consultation with USFWS and CDFW would confirm the biologist's advice and/or inform project proponents of additional recommendations. Based on the information gathered from the biological reconnaissance survey and informal consultation with USFWS and CDFW, focused/protocol surveys shall be conducted by a qualified or permitted biologist (whichever is applicable) well in advance of ground disturbing activities to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential project impacts to those species. The survey shall be conducted in accordance with the most current standard protocol of USFWS and CDFW*** ~~special status wildlife surveys must be completed by a qualified biologist within a 30-day period prior to commencement of new ground-disturbance construction activities~~. The purpose of the ~~pre-disturbance surveys~~ ***focused/protocol surveys*** is to confirm the presence or absence of any species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the

California Endangered Species Act, ***rare or endangered in the California Native Plant Protection Act,*** or designated as fully-protected in the California Fish and Game Code (Collectively, "Protected Species), and to confirm the presence or absence of any other species considered "sensitive" under California Environmental Quality Act ("Sensitive Species), and to identify and implement feasible avoidance and minimization measures for such species. The surveys…" 0004-76 Continued

The Department also recommends that the County create a criterion for determining qualified biologists. The Department is available to help the County with this task. 0004-77

MM 4.4-2: The Department recommends the following **addition** to MM 4.4-2: "No incidental take of any species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the California Endangered Species Act, ***rare or endangered in the California Native Plant Protection Act,*** or designated as fully-protected in the California Fish and Game Code (Protected Species) may occur unless the incidental take is authorized by applicable state and federal wildlife agencies in the form of a permit or other written authorization, an approved state or federal conservation plan, or in accordance with an approved regional plan such as the Draft Valley Floor Habitat Conservation Plan and/or Natural Community Conservation Plan." 0004-78

The Department recommends that clarification on how this MM will be verified during the County's administrative process as verification that a project proposal is following the County's requirements. 0004-79

Add a new MM: ***Within 30 days before any ground disturbing activities in special-status species habitat, a qualified biologist shall conduct a pre-disturbance survey to record existing conditions of the site, determine if conditions have changed since the reconnaissance or focused/protocol surveys were conducted, and to determine where sensitive species avoidance buffers will be established.*** 0004-80

MM 4.4-3: The Department recommends the following **edits** to MM 4.4-3: ~~Exclusion barriers or~~ ***Protective*** buffers ~~may~~ ***shall*** be used, where effective and feasible in the opinion ***and guidance*** of ~~the~~ ***a*** qualified biologist, to avoid any unauthorized incidental take of Projected Species, and to minimize any incidental take of Sensitive Species, by separating the planned disturbance area from any locations where ~~pre-disturbance~~ ***biological reconnaissance*** surveys***,*** ~~or~~ previously conducted focused/***protocol*** surveys***, or pre-disturbance surveys*** have detected the presence of Projected Species or Sensitive Species. ***Protective buffers shall be delineated using brightly colored stakes and/or*** 0004-81

flagging or similar materials and remain until construction activities are complete, at which time of completion the buffers shall be removed. ~~All buffers must extend for a minimum of 50 feet from the nearest point of disturbance unless a smaller avoidance buffer has been established by either the United States Fish and Wildlife Service or the California Department of Fish and Wildlife as the minimum~~ ***If special-status plant or animal species are found adjacent to the a project during biological surveys, protective buffers shall be established around active dens and/or burrows of special-status animal species, or populations of special-status plant species*** to avoid unauthorized take of protected species ***as listed in the table below***~~, and the barriers must prevent the potential migration of wildlife into the construction area and unlawful incidental take of any Protected Species during ground disturbance activities~~. The ~~minimum~~ ***protective*** buffer distance shall be increased if required to avoid unauthorized incidental take of any Protected Species as determined by a qualified biologist. ~~Exclusion barriers,~~ ***Protective*** buffer distances~~,~~ and other avoidance measures that may be implemented to avoid impacts to Protected Species or Sensitive Species must be consistent with the ~~United States Fish and Wildlife Service~~ ***USFWS*** and/or the ~~California Department of Fish and Wildlife~~ ***CDFW***, and shall be implemented and overseen by ~~the~~ ***a*** qualified biologist.

0004-81
Continued

Table
Disturbance Buffers for Sensitive Resources

Sensitive Resource	*Buffer Zone from Disturbance (feet)*
Potential San Joaquin kit fox den	*50*
Known San Joaquin kit fox den	*100*
Natal San Joaquin kit fox den	*Contact CDFW, USFWS*
Atypical San Joaquin kit fox den	*50*
Rodent burrows	*50*
Listed bird species active nests	*0.5 mile*
Burrowing owl burrow (breeding and non-breeding seasons)	*Pursuant to CDFW guidelines (see Table 4.4-85)*
San Joaquin coachwhip, silvery legless lizard, coast horned lizard	*30*
American badger: *Non-maternity dens* *Maternity dens*	 *50* *200*
Special-status plants	*50*

Add a new MM to include the requirement of a biological monitor during ground-disturbing activities in project locations that have potential special-status species habitat or is adjacent to potential special-status species habitat.

0004-82

MM 4.4-6: The Department recommends the following **edits** to MM 4.4-6: Any potential San Joaquin kit fox dens (as defined in ~~United States Fish and Wildlife Service~~ ***USFWS*** 2011) detected during ~~pre-disturbance~~ ***reconnaissance or focused/protocol*** *surveys* shall be reevaluated for species activity no more than ~~14~~ ***30*** days prior to the commencement of ground disturbance. Potential kit fox dens shall be marked and a 50-foot avoidance buffer shall be delineated using ***brightly colored*** stakes and flagging or similar materials to prevent inadvertent damage to the potential den. If a potential den cannot feasibly be avoided, the den may be hand excavated in accordance with the United States Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (~~United States Fish and Wildlife Service~~ ***USFWS*** 2011). If species activity is detected, the location shall be identified as a "known" kit fox den in accordance with the ~~U.S. Fish and Wildlife Service~~ ***USFWS*** species guidelines (~~United States Fish and Wildlife Service~~ ***USFWS*** 2011). A minimum 100-foot buffer from any disturbance area shall be maintained for known dens and a minimum 500-foot buffer from any disturbance area shall be maintained for natal dens. No excavation of a known or natal den shall occur without prior authorization from the ~~United States Fish and Wildlife Service~~ ***USFWS*** and the ~~California Department of Fish and Wildlife~~ ***CDFW***. For activities occurring on land covered under an approved ~~Habitat Conservation Plan~~ ***federal and/or State incidental take authorization***, the requirements set forth in those documents shall be implemented. Other standard measures to protect San Joaquin kit fox, including capping pipes, covering trenches, adding exit ramps to excavated areas, shall be implemented in accordance with MM 4.4-~~19~~***15***. 0004-83

MM 4.4-10(c): The Department recommends that a discussion be **included** in this section disclosing whom the blunt-nosed leopard lizard avoidance plan would be submitted to and if regulatory agencies would review the plan. 0004-84

MM 4.4-12(b): The Department recommends the following **edits** to MM 4.4-12(b): No incidental take or relocation of any plant listed under the ***federal Endangered Species Act, the*** California Endangered Species Act***, or the California Native Plant Protection Act*** may occur unless the incidental take is authorized by the ***USFWS and/or the*** California Department of Fish and Wildlife in a permit or other authorization, or in an approved ***Habitat Conservation Plan or*** Natural Communities Conservation Plan. If ~~pre-construction~~ ***focused plant*** surveys detect the presence of any ~~California Endangered Species Act Plant~~ listed plant, the plant populations shall be buffered from disturbance activities by implementing applicable impact avoidance protocols established by the ***USFWS and/or*** California Department of Fish and Wildlife ***unless incidental take*** 0004-85

authority is obtained. Projects covered under incidental take authority shall conduct activities in accordance with the take authorization. The California Department of Fish and Wildlife may be contacted to determine the appropriate buffer required to prevent incidental take of a ~~California Endangered Species Act Plant~~ ***listed plant*** if avoidance protocols have not been established for the species. The qualified biologist shall confirm that all applicable ***listed plant*** buffers have been implemented prior to the commencement of any disturbance activity. 0004-85 Continued

The Department recommends that clarification on how this MM will be verified during the County's administrative process that a project proposal is following the County's requirements. 0004-86

MM 4.4-13: The Department recommends that this MM be **deleted** as it is a repeat of MM 4.4-12(b). 0004-87

MM 4.4-15 (a-v): The Department recommends that the following MM be added to this section: ***All pipes 1.5 inches or greater in diameter stored overnight on a project location must have end caps that prevent wildlife from entering the pipe.*** 0004-88

MM 4.4-16: The Department recommends that the County create a clear way to identify and track temporary disturbance (<2 year disturbance). Also, how is the County determining or going to determine what areas are already disturbed? The Department is currently unclear how this will be calculated and has concerns; for example, if a well pad is planned in an open area within an oilfield, the open area may have no previous disturbance and thus should not be considered disturbed. Also, in contrast, if an entire oil field is considered in the calculation, there may be more than 70% disturbance as there would be existing disturbance which may not be counted as additional disturbance. We are recommending that the County include in the EIR clarification on how the existing disturbance calculations will be determined. The Department also recommends that the County include a criteria for selecting compensatory mitigation lands, such as "of equal or greater value" for the species. 0004-89

c. "Removal of legacy oil and gas equipment, inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), restoration of the surface grade to be consistent with surrounding lands, complete a reseeding effort using native species, ~~and~~ notification of the site owner (if not the Applicant) of 0004-90

the completion of the removal and grading restoration work***, and record a conservation easement on the land to protect it in perpetuity***."

0004-90 Continued

d. "Enhancement or restoration of existing habitat on lands already subject to a conservation easement or similar agreement, or which become subject to a conservation easement or similar agreement subsequent to the certification of this Environmental Impact Report, provided that such activities are covered in a permit or authorization, conservation plan, Habitat Conservation Plan, or Natural Community Conservation Plan, approved by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife." The Department recommends that the County clarify how the value of the restoration work will be assessed. The Department recommends that the County establish specific parameters and biological value/improvement goals if this option is to be included in the EIR.

0004-91

Add the header ***e.*** to the last measure of this section:

0004-92

"e. Payment of a biological resources..." In addition to this heading edit, the Department recommends that this program (and associated fees) be in place and approved by the appropriate regulatory agencies before project proponents are allowed to use this as a mitigation option.

Also, the Department is concerned that currently as proposed, there is no discussion as to where the compensatory mitigation land would or could be located. The Department highly recommends that this mitigation measure be **updated** to include a plan for land acquisition target areas to provide wildlife movement and habitat connectivity corridors.

0004-93

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-1, Level of Significance After Mitigation, Page 4.4-215: This section states, "Impacts would be less than significant." The Department recommends that the County discuss why the proposed mitigation measures would offset Project impacts to species identified as a candidate, sensitive, or special-status species to less than significant. A description in this section would explain the reason for the County's determination. Currently, because there is no justification why this determination was made.

0004-94

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-2, Page 4.4-216: The Department recommends the following **edits** in the fifth sentence of paragraph one of this section, "As discussed in Section 4.4.2***1***, Environmental Setting, the sensitive natural communities identified within the Project Area include wetlands, water and other riparian habitat that are subject to state or federal permit requirements

0004-95

prior to physical disturbance***, including but not limited to Section 1600 of the CFGC and the Clean Water Act 401 and 404***."

0004-95 Continued

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-2, MM 4.4-17, Page 4.4-219: The Department recommends the following **edits** to the fourth sentence of MM 4.4-17: "The site plan for the proposed activity shall identify waters, wetlands***, resources subject to section 1600 of the CFGC,*** and other riparian habitats that occur in and within 100 feet of the disturbance area."

0004-96

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-2, Level of Significance After Mitigation, Page 4.4-219: This section also states, "Impacts would be less than significant." The Department recommends that the County also discuss in this section why the proposed mitigation measures (including the mitigation measures in the Biological Resources section 4.4-1) would offset Project impacts to riparian habitat or other sensitive natural community to less than significant, for the same reasons described above (in comments on Page 4.4-215).

0004-97

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-3, Level of Significance After Mitigation, Page 4.4-221: This section also states, "Impacts would be less than significant." The Department recommends that the County also discuss in this section why the proposed mitigation measures in the Biological Resources section 4.4-1 would offset Project impacts to riparian habitat or other sensitive natural community to less than significant, for the same reasons described above (in comments on Page 4.4-215).

0004-98

Section 4.4.4 Impacts and Mitigation Measures, Impact 4.4-4, Page 4.4-222: This section states,

0004-99

> "As discussed in Section 4.4.2, Environmental Setting, and shown in Figure 4.4-11, the generalized patterns of wildlife movement in and through the Project Area have been characterized in certain studies. The length and width of these corridors have not been precisely determined and most correspond with major geographic features that are likely to facilitate species movement, including the Kern River and Poso Creek channels, and along the base of the mountain ranges that border the Project Area to the east, south and west.
>
> Oil and gas exploration and production activities are more porous and maintain wildlife movement to a greater extent than urban development, and, depending on species requirements, agricultural uses that modify surface vegetation, soils and irrigation. A recent study conducted in

> 2008-2010 for the BLM found that species assemblages in saltbush scrub habitat remain relatively intact in oilfield locations with up to 70% disturbance in Kern County (Fiehler, C.A. and B. Cypher, 2011). This result indicates that even moderately developed oilfields as documented in the 2011 survey would retain the capacity for wildlife movement. However, oilfield development with more than 70% disturbance could reduce species movement, and potential impacts to wildlife movement in higher density locations would be significantly impacted by project activities without mitigation."

0004-99 Continued

The Department does not believe that this section is sufficient. We are concerned that without a landscape scale conservation plan addressing oilfield development with more than 70% disturbance wildlife movement in high density locations would be significantly impacted by Project activities, even with the proposed mitigation measures in the Biological Resources section 4.4-1. In addition, 'relatively intact' species assemblages in saltbush scrub habitat (as referenced above by (Fiehler and Cypher, 2011) in oilfield locations with up to 70% disturbance in Kern County, does not mean that there is no impact to species movement by the maintenance, expansion, or establishment of new oilfields. The Department is recommending that this section fully describe and disclose all potential Project impacts to the movement of native resident or migratory wildlife species, established native resident or migratory wildlife corridors, and the use of wildlife nursery sites.

0004-100

In addition, the DEIR should identify a conservation strategy that identifies areas to target for conservation (e.g., areas on which the habitat mitigation fees would be expended). We recommend including the western Kern County corridors/conservation targets identified in the California Council on Science and Technology (CCST) document entitled "*An Independent Scientific Assessment of Well Stimulation in California*", July 2015 as a starting point.

0004-101

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-4, Level of Significance After Mitigation, Page 4.4-222: This section also states, "Impacts would be less than significant with mitigation." The Department recommends that the County also discuss in this section why the proposed mitigation measures in impact section 4.4-1 would offset Project impacts to riparian habitat or other sensitive natural community to less than significant, for the same reasons described above (in comments on Page 4.4-215).

0004-102

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-5, Level of Significance After Mitigation, Page 4.4-223: This section also states, "Impacts would be less than significant with mitigation." The Department recommends that the County also

0004-103

discuss in this section why the proposed mitigation measure 4.4-19 would offset Project impacts to biological resources such as a tree preservation policy or ordinance to less than significant, for the same reasons described above (in comments on Page 4.4-215). 0004-103 Continued

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-6, Page 4.4-223: **Move** the "California Aqueduct - San Joaquin Field Division HCP" from HCPs that have been adopted list to HCPs that are proposed list. 0004-104

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-6, Page 4.4-224: **Edits** to the seventh paragraph of this section are in order: "The Project Area also includes ~~five~~ ***four*** HCPs that do not cover oil and gas production activities: ~~the California Aqueduct - San Joaquin Field Division HCP,~~ the Kern County Waste Facilities HCP, the Pacific Gas and Electric Company San Joaquin Valley Operations and Maintenance Program HCP, the TUMSHCP, and the Metropolitan Bakersfield HCP. The original term of the Metropolitan Bakersfield HCP has expired, and a renewal process is underway. The Project is likewise not inconsistent with these ~~five~~ ***four*** HCPs that do not include oil and gas production as "Covered Activities."" A new paragraph will need to be **included** to disclose that the California Aqueduct - San Joaquin Field Division HCP is proposed and does not cover oil and gas production activities. 0004-105

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-6, Level of Significance After Mitigation, Page 4.4-229: This section also states, "Impacts would be less than significant with mitigation." The Department recommends that the County also discuss in this section why the proposed mitigation measure in section 4.4-6 would offset Project impacts regarding conflicts with the provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other Approved Local, Regional, or State Habitat Conservation Plan to less than significant, for the same reasons described above (in comments on Page 4.4-215). 0004-106

Section 4.4.5 Cumulative Setting, Impacts and Mitigation Measures, Impact 4.4-7, Cumulative Impacts to Biological Resources, Page 4.4-230: The Department recommends the following edits in the second sentence of paragraph four of this section, "Future land uses and development could affect biological resources in each of these jurisdictions and would be undertaken as independent actions with associated impacts, avoidance and minimization requirements, and ***compensatory*** mitigation, if required, under applicable federal, state, regional and local agency law." 0004-107

Hazards and Hazardous Materials Chapter 4, Section 4.8

Section 4.8.3 Regulatory Setting, State, Hazardous Materials and Hazardous Waste, Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990, Page 4.8-49: 0004-108

The DEIR discusses the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 in this section and mentions that the Act was amended in 2014 by Senate Bill 861 to expand application of its provisions to all waters of the state, and not solely coastal and marine waters. Additionally, throughout the entire document are many references to Spill Prevention Countermeasure and Contingency Plans; Spill Prevention, Control and Countermeasure Plans; Spill Contingency Plans; and Division of Oil Gas and Geothermal Resources Assembly Bill 1960 spill plans. Senate Bill 861 which created the Statewide Oil Spill Prevention and Response Program authorized the Administrator of the Department of Fish and Wildlife's Office of Spill Prevention and Response (OSPR) to develop emergency regulations to begin program implementation. As of September 4, 2015, the emergency regulations addressing Inland Production Facility Contingency Plans, Certificates of Financial Responsibility, and Drills and Exercises have been approved by the Office of Administrative Law. These emergency regulations now require certain inland production facilities to submit an Oil Spill Contingency Plan to OSPR and to demonstrate the financial ability to pay for costs and damages caused by a spill, and to begin a drills and exercises program. The Department recommends that the EIR **reference** and **add** these new requirements. The OSPR emergency regulations and associated guidance documents are available at the following website:
https://www.wildlife.ca.gov/OSPR/Preparedness/Inland-Facilities-Contingency-Plan

0004-108
Continued

If you have any questions on these comments, please contact Reagen O'Leary, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014, extension 244, or by electronic mail at Reagen.OLeary@wildlife.ca.gov.

Sincerely,

Julie Vance
Acting Regional Manager

cc: See Page Twenty-nine

cc: Regional Water Quality Control Board
Central Valley Region
1685 E Street
Fresno, California 93706

United States Army Corps of Engineers
Sacramento District
California South Branch
1325 J Street
Sacramento, California 95814-2922

ec: United States Fish and Wildlife Service
Thomas Leeman (thomas_leeman@fws.gov)
Justin Sloan (justin_sloan@fws.gov)
Timothy Ludwick (timothy_ludwick@fws.gov)

Saul Gomez (saul.gomez@resources.ca.gov)
California Natural Resources Agency

Dr. Steven Bohlen (Steven.Bohlen@conservation.ca.gov)
Dan Wermiel (dan.wermiel@conservation.ca.gov)
Division of Oil, Gas and Geothermal Resources

California Department of Fish and Wildlife
Kevin Takei
Diana Grosso
Melissa Boggs
Mia Roberts
Julie Vance
Craig Bailey
Linda Connolly
Krista Tomlinson
Dave Hacker
John Battistoni
Charles Walbridge

0004-1

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-2

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-3

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-4

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-5

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-6

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-7

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-8

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-9

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-10

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-11

These comments are a general introduction and summarize aspects of the Project. No response is necessary and they are noted for the record.

0004-12

The comment is a general introduction to comments. No response is necessary and it is noted for the record.

0004-13

The Department's suggested text edit is added to the Final EIR.

0004-14

The Department's suggested text edit is added to the Final EIR.

0004-15

These comments, as well as comments 4-18 through 4-26, make specific recommendations regarding the applicant-proposed Best Management Practices (BMPs).

The Best Management Practices (BMPs) set forth in DEIR section 3.55 are Applicant-proposed measures that reflect current practice and, in many instances are already required by applicable law and regulations. As stated on DEIR p. 3-72, the EIR does not assume that any of these BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project. Applicant-suggested BMPs are provided for informational purposes sine these were proposed as part of the Project, but the EIR includes specific mitigation measures that must be implemented, and these mitigation measures supersede any inconsistent or less stringent BMP.

These comments recommend that the first Applicant-proposed BMP should be changed to reflect the mitigation measures are noted. The BMPs were included as part of the Project Description as applicant proposals, but this biological survey BMP is superseded by the detailed survey mitigation measures included in Chapter 4.4, Biological Resources. Because the EIR does not assume BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project, it is not necessary to change the Applicant-proposed BMPs in order to mitigate potential adverse impacts. As the comment notes, MM 4.4-1 provides for an adequate 30-day window for pre-disturbance surveys for special status species (excepting seasonally restricted focused surveys).

The Department's recommendation that early reconnaissance-level surveys be completed in order to provide for adequate time for Applicants to obtain any required Incidental Take Permit (ITP) approvals is noted for the record.

0004-16

These comments, as well as comments 4-18 through 4-26, make specific recommendations regarding the applicant-proposed Best Management Practices (BMPs).

The Best Management Practices (BMPs) set forth in DEIR section 3.55 are Applicant-proposed measures that reflect current practice and, in many instances are already required by applicable law and regulations. As stated on DEIR p. 3-72, the EIR does not assume that any of these BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project. Applicant-suggested BMPs are provided for informational purposes sine these were proposed as part of the Project, but the EIR includes specific mitigation measures that must be implemented, and these mitigation measures supersede any inconsistent or less stringent BMP.

These comments recommend that the first Applicant-proposed BMP should be changed to reflect the mitigation measures are noted. The BMPs were included as part of the Project Description as applicant proposals, but this biological survey BMP is superseded by the detailed survey mitigation measures included in Chapter 4.4, Biological Resources. Because the EIR does not assume BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project, it is not necessary to change the Applicant-proposed BMPs in order to mitigate potential adverse impacts. As the comment notes, MM 4.4-1 provides for an adequate 30-day window for pre-disturbance surveys for special status species (excepting seasonally restricted focused surveys).

0004-17

These comments, as well as comments 4-18 through 4-26, make specific recommendations regarding the applicant-proposed Best Management Practices (BMPs).

The Best Management Practices (BMPs) set forth in DEIR section 3.55 are Applicant-proposed measures that reflect current practice and, in many instances are already required by applicable law and regulations. As stated on DEIR p. 3-72, the EIR does not assume that any of these BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project. Applicant-suggested BMPs are provided for informational purposes sine these were proposed as part of the Project, but the EIR includes specific mitigation measures that must be implemented, and these mitigation measures supersede any inconsistent or less stringent BMP.

These comments recommend that the first Applicant-proposed BMP should be changed to reflect the mitigation measures are noted. The BMPs were included as part of the Project Description as applicant proposals, but this biological survey BMP is superseded by the detailed survey mitigation measures included in Chapter 4.4, Biological Resources. Because the EIR does not assume BMPs will be implemented for purposes of analyzing or mitigating the potential significance of an environmental impacts of the Project, it is not necessary to change the Applicant-proposed BMPs in order to mitigate potential adverse impacts. As the comment notes, MM 4.4-1 provides for an adequate 30-day window for pre-disturbance surveys for special status species (excepting seasonally restricted focused surveys).

The Department's recommendation that early reconnaissance-level surveys be completed in order to provide for adequate time for Applicants to obtain any required Incidental Take Permit (ITP) approvals is noted for the record.

0004-18

The Department's suggested revision to the Applicant BMP's is noted for the record and included in the Final EIR. Mandatory survey and avoidance mitigation measures are included in Chapter 4.4, Biological Resources.

0004-19

The Department's recommended modifications to the Applicant BMPs are noted for the record and included in the Final EIR. The Department's distinction between biologists who are "qualified" to perform survey and monitoring activities that do not involve the capture or take of protected species, and biologists who are "permitted" by being specifically authorized by the Department to complete protocol-level surveys and/or engage in management activities that result in temporary capture or other forms of "take" is also noted, and included in the Final EIR.

0004-20

The Department's suggested edit, clarifying that required permits must be obtained, is noted and added to the Final EIR.

0004-21

The Department's recommended modifications to the Applicant BMPs are noted for the record, and included in the Final EIR. Mandatory survey and avoidance mitigation measures are included in Chapter 4.4, Biological Resources.

0004-21 cont'd

0004-22

The Department's suggested revision to this Applicant BMP is included in the Final EIR.

0004-23

The Department's suggested revision to this Applicant BMP is included in the Final EIR.

0004-24

The Department's suggested revision to this Applicant BMP is included in the Final EIR. A Worker Awareness Educational Program (WEAP) for sensitive biological resources is included as Mitigation Measure 4.4-14.

0004-25

The Department's suggested revision to this Applicant BMP is included in the Final EIR.

0004-26

The Department's suggested revision to this Applicant BMP is included in the Final EIR.

0004-27

The comment observes that the San Joaquin kit fox population is quite robust in urban settings in the Project Area, and recommends updating the section of the EIR to include the current status of the kit fox and their use of urban settings. The Final EIR is revised to include updated information on the San Joaquin kit fox as follows.

Habitats used by the San Joaquin kit fox are typically grassland and saltbush scrub in areas of flat or rolling topography (Cypher et al. 2013). However, this taxon is quite tolerant of human-caused impacts and will, to a varying extent, utilize urban areas, oil fields and cultivated agricultural lands (Fiehler and Cypher 2011). For example, the San Joaquin kit fox is known to use oil fields, even those with intensive impacts, for all life-history activities such as foraging, cover, reproduction, and traveling (CEC, 1996). A study conducted in the former Naval Petroleum Reserves in California (NPRC) found that conversion of 30 percent of the native habitat to oil/gas field development did not impact movements and home ranges of San Joaquin kit foxes in the area (Zoellick et al. 2002). San Joaquin kit foxes within the NPRC have smaller home ranges when compared to the size of home ranges in other portions of the geographic range of the species, indicating that NPRC lands provide some of the highest quality habitat remaining for kit foxes in the San Joaquin Valley (Zoellick et al., 2002). It is notable that remaining suitable habitat for San Joaquin kit fox is currently concentrated on the west side of the southern San Joaquin Valley Floor from the Lokern Natural Area to Maricopa (Cypher 2013), which overlaps with areas where oil and gas activities have been focused for over a century.

The comment notes recent studies by Cypher et al (2013) that emphasize the need to protect high suitability habitat for San Joaquin kit fox. The cited study by Cypher emphasizes that the historic losses of habitat are largely due to agricultural conversion and urban development. As described above, the largest blocks of remaining suitable habitat are located in the area of the southern San Joaquin Valley that is also associated with more than 100 years of intensive oil and gas development. The blocks of contiguous habitat in Kern County include lands that are proposed for conservation in regional plans such as the Lokern HCP and the Elk Hills HCP that will be important for the long-term survival and recovery of the species by protecting core populations identified in the SJV Recovery Plan (USFWS, 1998). Mitigation Measure 4.4-16 in the DEIR will provide a mechanism for the dedication and conservation of wildlife habitats, including lands in the Lokern area, the Elk Hills area, and other lands along the west side of the southern San Joaquin Valley that are considered highly suitable for San Joaquin kit fox (Cypher et al 2013).

San Joaquin kit foxes in the southern San Joaquin Valley occur in and adjacent to several urban areas including the cities of Taft (Zoellick et al. 2002), Tulare, Visalia, and Porterville (USFWS 1998), and Bakersfield, where kit foxes have been observed throughout the city (Frost 2005). Additionally, urban kit foxes have been found to den close to human activities and structures, including water sumps (catchment basins) and landscaped areas in and adjacent to urban development in Bakersfield (Frost 2005). Frost (2005) concluded that urban habitat can support viable kit fox populations when sufficient food and den sites are available, mortality is minimal, and reproduction occurs at reasonable rates (Frost 2005). As noted by Cypher et al. (2013), several hundred kit foxes may inhabit the City of Bakersfield in Kern County despite the general absence of natural habitat. This urban population of kit fox is persistent and stable (Cypher and Frost 1999, Cypher 2010).

In 2005, a study was undertaken to investigate the effects of roads on urban kit fox populations. The study found that arterial roads accounted for 72.9% of kit fox strikes and approximately 90% of road kill were retrieved from roads with posted speed limits of greater than 45 mph (Bjurlin et al. 2005). These data contrast with all other studies on San Joaquin kit fox outside of urban areas in which vehicle strike rarely exceeded 10% of mortalities and was not considered a significant influence on fox demographics or population ecology (Bjurlin et al. 2005). Based on this information, Mitigation Measure 4.4-11, which places a speed limit of between 25 and 10 mph on dirt access roads, should be reasonably sufficient to prevent vehicle strikes of San Joaquin kit fox.

As described in GR Bio-1, the avoidance and minimization requirements in the mitigation measures are modelled after measures typically required by the USFWS or CDFW to reduce potential effects to ESA and CESA-listed species With their incorporation as conditions of the Project, these measures would be applied to all oil and gas activities under the purview of the County, including entities that do not typically undertake Section 7 or Section 10 consultation for ESA-listed species or Section 2081 for CESA-listed species. Where complete avoidance is not possible, Mitigation Measures 4.4-2, 4.4-11 and 4.4-12 prohibit take of listed species such as San Joaquin kit fox without authorization from the USFWS or CDFW.

References

Bjurlin, Curtis D., Brian L. Cypher, Carie M. Wingert, and Christine L. Van Horn Job. 2005. Urban Roads and the Endangered San Joaquin Kit Fox. Prepared by the California State University, Stanislaus, Endangered Species Recovery Program for California Department of Transportation.

California Energy Commission (CEC), 1996. Studies of the San Joaquin Kit Fox in Undeveloped and Oil-Developed Areas. August 1996 Staff

Report. Sacramento, California.

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Cypher, B.L. and Frost, N. 1999. Condition of kit foxes in urban and exurban habitats. Journal of Wildlife Management. 63:930-939.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Frost, Nancy. 2005. San Joaquin Kit Fox Home Range, Habitat Use, and Movements in Urban Bakersfield

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0004-28

The Department recommends providing a definition of permanently protected conservation lands or lands preserved in perpetuity. The Department further recommends restructuring this section to differentiate between, and recognize different categories of, lands such as lands that do not yet have a recorded conservation easement, lands identified for future protection and government owned lands. The comment is noted and accepted for the Final EIR.

0004-29

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-30

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-31

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-32

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-33

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-34

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-35

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-36

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-37

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-38

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-39

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-40

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-41

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-42

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-43

The comments are noted and accepted for the record for consideration by the Planning Commission and Board of Supervisors.

0004-44

The comment states that the large-scale mapping shown on Figures 4.4-1 through 4.4-37 of Appendix N of the EIR may have different habitat than what the other modeling methods show, and that suggests that the EIR clarify that these maps should not be used for determining impacts on the 37 special status species used for the models. The Final EIR acknowledges that they maps are not to be used for determining impacts on the 37 special-status species used for the models, and acknowledges that these maps will not be used for purposes of obtaining ITPs or other approvals from CDFW related.

Section 4.4-33 of the EIR includes the following description of habitat suitability modeling: "Habitat suitability modeling has been used to estimate potential species distribution and impacts in larger landscapes. The model results identify potentially suitable habitat for each modeled species and not actual species distribution in the Project Area." DEIR p. 4.4-33. Mitigation measure 4.4-1 requires that pre-construction surveys for special status wildlife species be performed by a qualified biologist within a 30-day period prior to the commencement of any new ground-disturbing activities. All biological mitigation measures are required to be performed at each new construction area. The habitat models that were used in this EIR include three different modeling approaches using various environmental parameters to produce maps and acreage

estimates depicting habitat suitability for each species within the Project Area. The model results did not predict the presence or absence of a species within the Project Area or the suitability of the habitat to support an individual species. Please also refer to RTC 44-91 for additional discussion of the modeling techniques used.

0004-45

The Department's suggested text edits to clarify text and correct a typographical error are noted and included in the record.

0004-46

The comment clarifies and expands the definition of special-status species. The Department's suggested text edits are noted and included in the record.

0004-46 cont'd

0004-47

The Department's suggested text edits that the referenced bullet clarifying the reference to the Native Plant Protection Act are noted and included for the record.

0004-48

0004-49

The Department's text edit is included in the Final EIR.

0004-50

The Department's text edit is included in the Final EIR.

0004-51

The Department's text edit is included in the Final EIR.

0004-52

The Department's text edit is included in the Final EIR.

0004-53

The Department recommends including a definition of "high quality suitable habitat" for Swainson's hawk.

In California's Central Valley, high quality suitable habitat for Swainson's hawk consists of riparian forests or remnant riparian trees of appropriate distribution and size adjacent to irrigated crop lands, such as alfalfa, and fallow fields that are used to forage. For the purposes of the modeling analysis for this species, environmental conditions used for determining high quality habitat suitability were primarily elevation, followed by water availability, soil type, annual precipitation, and winter low temperature. The modeling did not indicate that high quality habitat occurs within portions of the Project Area below 2000 feet. Swainson's hawks are known to nest in the Project Area.

0004-53 cont'd

0004-54

The comment states that the full reference authority for the discussion of the Tipton Kangaroo Rat on pages 4.4-114 through 115 does not appear to be in the DEIR. The comment suggests that the intended reference might be: U.S. Fish and Wildlife Service 2010 Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) 5-Year Review: Summary and Evaluation, and that if it is not, that reference should be included in the DEIR references. That reference is the correct reference, and it does appear in the DEIR in the bibliography section at page 10-15.

0004-55

The Department's suggested clarification text regarding the three circumstances under which a project may legally occur pursuant to these statutory provisions is added to the Final EIR as an update to the regulatory setting section.

0004-55 cont'd

0004-56

The Department's suggested text edits are included in the Final EIR.

0004-57

The Department is correct that the reference was intended to be an "NCCP" not "MCPC".

0004-58

The Department's text edits are added to the Final EIR.

0004-59

The comment states that the list of HCPs and companion ITPs provided on p. 4.4-154 does not include all HCPs and companion ITPs that have been issued. The comment is noted for the record. The list provided was not intended to be an exhaustive list; rather it is intended to be illustrative of the regulatory requirements in effect for some oil and gas operators in the Project Area. It is not intended to be comprehensive, and will continue to evolve over time as existing take authorizations expire or are amended, and new take authorizations are approved. Applicants may not cause the incidental take of a protected species without an HCP and/or state take permit, as applicable.

0004-60

The Department's suggestions to update the table will be added to the Final EIR, and the Table 4.4-66 key for "FT*" is "Federally Threatened Delisted."

0004-61

The Department's text edits are added to the Final EIR.

0004-62

The Department's text edits are added to the Final EIR.

0004-63

The Department recommends some minor changes to the text discussing the requested ITP. CRC is applying for an ITP from CDFW pursuant to Section 2081 (b) of the CFGC. The Section 2081 application which would be a companion permit to the federal EHHCP, was deemed complete by CDFW on March 3, 2014. The revised text is suggested by the Department is added to the Final EIR. Please also see GR Bio-2 discussing the status of the CRC EHHCP.

0004-64

The Department recommends adding the discussion of the Federal Endangered Species Act consultation status with the USFWS (currently on page 4.4-164) to the Background information of the EHHCP section. The Department's text edit is added to the Final EIR.

0004-65

The Department reiterates its prior comment to move the last paragraph of this section to the Background section on Page 4.4-159. This comment is noted and included for the record.

The comment further recommends clarifying the FESA consultation status. With respect to the FESA, CRC is currently operating the EHOF consistent with a 1995 Biological Opinion (1995 BO) and associated Incidental Take Statement (ITS) which provides federal incidental take coverage of listed species. The Department is correct that there is no expiration date for this still-pending permit application for take authorization by the USFWS. However, in anticipation of a need for future additional federal take authorization, CRC has prepared a draft HCP for the EHOF pursuant to Section 10 of FESA. At this time CRC is using the draft EHHCP in support of its request for a Section 2081 ITP from the CDFW. When it is determined, in consultation with the USFWS that additional federal approval is necessary, CRC will prepare an Environmental Impact Statement (EIS) to comply with the requirements of NEPA (42 U.S.C. 4321; 40 CFR 1500.1) with the USFWS as lead agency.

The Department also recommends that the document be consistent in how it refers to the USFWS as this section is using the term "Service." The Final EIR is hereby revised to define the terms "Service" and "USFWS" as used in Section 4.4.3 to mean the US Fish and Wildlife Service.

0004-66

The Department's text edits are added to the Final EIR.

0004-66 cont'd

0004-67

The Department's text edits are added to the Final EIR.

0004-68

The Department's text edits are added to the Final EIR.

0004-68 cont'd

0004-69

The Department's text edits are added to the Final EIR.

0004-70

The comment recommends clarification of the current status of the MBHCP and recommends text edits. Comments are noted and accepted for the Final EIR.

The comment also recommends text edits; the Department's suggested text edits are added to the Final EIR.

0004-71

The Department's suggested text edit is added to the Final EIR.

0004-72

The comment recommends including a discussion of direct and indirect impacts on special-status species and on lake and streambed resources. Further information is provided here which addresses potential impacts to special-status species and streambed resources that may result from a wide range of oil and gas project activities.

Impacts to state-listed species could result in a proximate cause of take. Impacts could result from increased levels of human disturbance, destruction or excavation of burrows and dens, entrapment in open pipes and construction-related trenches, and other factors. Activities may avoid direct impacts to individuals, but these individuals may be forced into unfamiliar territory that could in turn increase the likelihood of predation, exposure (to the elements), stress through disorientation, and lack of shelter.

During construction activities, inadvertent entombment or crushing in collapsed burrows and dens and through entrapment in construction related holes or trenches could result in direct impacts, including mortality and/or injury. State-listed species may also be subject to vehicular strikes, direct contact with heavy equipment while in use, pouring of materials, contact with moving parts of wells or other heavy equipment, wildfire inadvertently ignited during welding or other operations, contact with oil spills, sumps, and inundation of animals during release of hydrostatic pipeline test water and drilling and completion fluids, including hydraulic fracturing flowback fluids.

With respect to lake and streambed resources, because many of the impacts to streambeds would occur in dry intermittent streambeds which are the more commonly occurring type of this resource in the Project Area, these areas typically have the same species composition as areas outside of the streambeds. Because of this aspect, it is recognized that impacts to dry intermittent streambed resources will generally be the same as to upland area resources surrounding such streambeds. Further, work along and within streambeds will, if possible, be scheduled to occur during naturally dry conditions when there is no surface flow.

A typical activity may include removal of vegetation, such as ruderal grasses and weeds. The activity could result in animal mortality from collisions with vehicles or heavy equipment or from sediment and vegetation excavation; crushing of burrows or dens, or entombment of animals during sediment and vegetation removal; fugitive dust impacts to animals and plants; noise disturbance; nest abandonment; and increased predation.

Most of the state-listed species that occur in the Project Area are assumed to generally occur throughout the area, with the exception of a few species that are highly restricted in occurrence such as the Bakersfield cactus as discussed in the Environmental Setting. Therefore it is assumed that state-listed species would also be subject to the same general impacts in dry intermittent streambeds as the adjacent upland areas surrounding the streambeds. Impacts to bona fide riparian areas adjacent to rivers and lakes would tend to be more intense such as vegetation removal to safely accommodate the activity.

However, the level of oil and gas activities adjacent to flowing streams, rivers and lakes would be restricted and would only represent a fraction of the level of typical oil and gas activities that occur throughout the Project Area due to the sensitive nature of these resources. Because of this greater sensitivity such resources are protected with overlapping layers of regulations and consultation/permitting requirements as described in Section 4.4-1. Please also refer to GR Bio-1.

Such regulations and permitting agency oversight would subject any proposed activity to careful review and any permit(s) issued for the project will normally include a requirement to implement protective measures and conditions to ensure that adverse impacts are avoided, minimized and mitigated as much as possible. For a discussion of lake and streambed resources comprised of sensitive natural communities, and federally protected wetlands, see the discussions in Impacts 4.4-2 and 4.4-3 where the amounts of potential impacts to these resources are evaluated. Additionally, see the discussion in Mitigation Measures MM 4.4-17 and 4.4-18 on page 4.4-219 for further detail.

0004-73

The comment recommends including a discussion of direct and indirect impacts on special-status species and on lake and streambed resources. Further information is provided here which addresses potential impacts to special-status species and streambed resources that may result from a wide range of oil and gas project activities.

Impacts to state-listed species could result in a proximate cause of take. Impacts could result from increased levels of human disturbance, destruction or excavation of burrows and dens, entrapment in open pipes and construction-related trenches, and other factors. Activities may avoid direct impacts to individuals, but these individuals may be forced into unfamiliar territory that could in turn increase the likelihood of predation, exposure (to the elements), stress through disorientation, and lack of shelter.

During construction activities, inadvertent entombment or crushing in collapsed burrows and dens and through entrapment in construction related holes or trenches could result in direct impacts, including mortality and/or injury. State-listed species may also be subject to vehicular strikes, direct contact with heavy equipment while in use, pouring of materials, contact with moving parts of wells or other heavy equipment, wildfire inadvertently ignited during welding or other operations, contact with oil spills, sumps, and inundation of animals during release of hydrostatic pipeline test water and drilling and completion fluids, including hydraulic fracturing flowback fluids.

With respect to lake and streambed resources, because many of the impacts to streambeds would occur in dry intermittent streambeds which are the more commonly occurring type of this resource in the Project Area, these areas typically have the same species composition as areas outside of the streambeds. Because of this aspect, it is recognized that impacts to dry intermittent streambed resources will generally be the same as to upland area resources surrounding such streambeds. Further, work along and within streambeds will, if possible, be scheduled to occur during naturally dry conditions when there is no surface flow.

A typical activity may include removal of vegetation, such as ruderal grasses and weeds. The activity could result in animal mortality from collisions with vehicles or heavy equipment or from sediment and vegetation excavation; crushing of burrows or dens, or entombment of animals during sediment and vegetation removal; fugitive dust impacts to animals and plants; noise disturbance; nest abandonment; and increased predation.

Most of the state-listed species that occur in the Project Area are assumed to generally occur throughout the area, with the exception of a few species that are highly restricted in occurrence such as the Bakersfield cactus as discussed in the Environmental Setting. Therefore it is assumed that state-listed species would also be subject to the same general impacts in dry intermittent streambeds as the adjacent upland areas surrounding the streambeds. Impacts to bona fide riparian areas adjacent to rivers and lakes would tend to be more intense such as vegetation removal to safely accommodate the activity.

However, the level of oil and gas activities adjacent to flowing streams, rivers and lakes would be restricted and would only represent a fraction of the level of typical oil and gas activities that occur throughout the Project Area due to the sensitive nature of these resources. Because of this greater sensitivity such resources are protected with overlapping layers of regulations and consultation/permitting requirements as described in Section 4.4-1. Please also refer to GR Bio-1.

Such regulations and permitting agency oversight would subject any proposed activity to careful review and any permit(s) issued for the project will normally include a requirement to implement protective measures and conditions to ensure that adverse impacts are avoided, minimized and mitigated as much as possible. For a discussion of lake and streambed resources comprised of sensitive natural communities, and federally protected wetlands, see the discussions in Impacts 4.4-2 and 4.4-3 where the amounts of potential impacts to these resources are evaluated. Additionally, see the discussion in Mitigation Measures MM 4.4-17 and 4.4-18 on page 4.4-219 for further detail.

0004-73 cont'd

0004-74

The comment recommends including a discussion of direct and indirect impacts on special-status species and on lake and streambed resources. Further information is provided here which addresses potential impacts to special-status species and streambed resources that may result from a wide range of oil and gas project activities.

Impacts to state-listed species could result in a proximate cause of take. Impacts could result from increased levels of human disturbance, destruction or excavation of burrows and dens, entrapment in open pipes and construction-related trenches, and other factors. Activities may avoid direct impacts to individuals, but these individuals may be forced into unfamiliar territory that could in turn increase the likelihood of predation, exposure (to the elements), stress through disorientation, and lack of shelter.

During construction activities, inadvertent entombment or crushing in collapsed burrows and dens and through entrapment in construction related holes or trenches could result in direct impacts, including mortality and/or injury. State-listed species may also be subject to vehicular strikes, direct contact with heavy equipment while in use, pouring of materials, contact with moving parts of wells or other heavy equipment, wildfire inadvertently ignited during welding or other operations, contact with oil spills, sumps, and inundation of animals during release of hydrostatic pipeline test water and drilling and completion fluids, including hydraulic fracturing flowback fluids.

With respect to lake and streambed resources, because many of the impacts to streambeds would occur in dry intermittent streambeds which are the more commonly occurring type of this resource in the Project Area, these areas typically have the same species composition as areas outside of the streambeds. Because of this aspect, it is recognized that impacts to dry intermittent streambed resources will generally be the

same as to upland area resources surrounding such streambeds. Further, work along and within streambeds will, if possible, be scheduled to occur during naturally dry conditions when there is no surface flow.

A typical activity may include removal of vegetation, such as ruderal grasses and weeds. The activity could result in animal mortality from collisions with vehicles or heavy equipment or from sediment and vegetation excavation; crushing of burrows or dens, or entombment of animals during sediment and vegetation removal; fugitive dust impacts to animals and plants; noise disturbance; nest abandonment; and increased predation.

Most of the state-listed species that occur in the Project Area are assumed to generally occur throughout the area, with the exception of a few species that are highly restricted in occurrence such as the Bakersfield cactus as discussed in the Environmental Setting. Therefore it is assumed that state-listed species would also be subject to the same general impacts in dry intermittent streambeds as the adjacent upland areas surrounding the streambeds. Impacts to bona fide riparian areas adjacent to rivers and lakes would tend to be more intense such as vegetation removal to safely accommodate the activity.

However, the level of oil and gas activities adjacent to flowing streams, rivers and lakes would be restricted and would only represent a fraction of the level of typical oil and gas activities that occur throughout the Project Area due to the sensitive nature of these resources. Because of this greater sensitivity such resources are protected with overlapping layers of regulations and consultation/permitting requirements as described in Section 4.4-1. Please also refer to GR Bio-1.

Such regulations and permitting agency oversight would subject any proposed activity to careful review and any permit(s) issued for the project will normally include a requirement to implement protective measures and conditions to ensure that adverse impacts are avoided, minimized and mitigated as much as possible. For a discussion of lake and streambed resources comprised of sensitive natural communities, and federally protected wetlands, see the discussions in Impacts 4.4-2 and 4.4-3 where the amounts of potential impacts to these resources are evaluated. Additionally, see the discussion in Mitigation Measures MM 4.4-17 and 4.4-18 on page 4.4-219 for further detail.

0004-74 cont'd

0004-75

The Department's suggested text edit is included in the Final EIR.

0004-76

The Department recommends edits to MM 4.4-1. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implemented, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-76 cont'd

0004-77

The Department recommends that the County create a criterion for determining qualified biologists. The County will work with appropriate stakeholders, including the Department, to develop an appropriate definition of a qualified biologist as part of the Mitigation Monitoring and Reporting implementation process.

0004-78

The Department recommends edits to MM 4.4-2, and recommends clarifying how compliance with this mitigation measure will be verified. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-79

The Department recommends edits to MM 4.4-2, and recommends clarifying how compliance with this mitigation measure will be verified. The

Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-80

The Department recommends a new mitigation measure regarding requirements for pre-disturbance surveys. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-81

The Department recommends edits to MM 4.4-3. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-81 cont'd

0004-82

The Department recommends a new mitigation measure to include a requirement for presence of a biological monitor during certain ground-disturbing activities. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-83

The Department recommends edits to MM 4.4-6. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-84

The Department recommends edits to MM 4.4-10(c). The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-85

The Department recommends edits to MM 4.4-12(b), and recommends clarifying how compliance with this mitigation measure will be verified. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-85 cont'd

0004-86

The Department recommends edits to MM 4.4-12(b), and recommends clarifying how compliance with this mitigation measure will be verified. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-87

The Department recommends deletion of MM 4.4-13 as it is a repeat of 4.4-12(b). The Department is correct and the mitigation measure has been deleted. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-88

The Department recommends an addition to MM 4.4-15(a-v) regarding end caps on pipes. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-89

The Department recommends changes to MM 4.4-16. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR. Please see GR-19 regarding the Mitigation Monitoring and Reporting Program. The County will consult with various stakeholders, including the Department, to implement the MMRP in such a way as to allow the County to identify and track temporary disturbances.

0004-90

The Department recommends changes to MM 4.4-16. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR. Please see GR-19 regarding the Mitigation Monitoring and Reporting Program. The County will consult with various stakeholders, including the Department, to implement the MMRP in such a way as to allow the County to identify and track temporary disturbances.

0004-90 cont'd

0004-91

The Department recommends changes to MM 4.4-16. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR. Please see GR-19 regarding the Mitigation Monitoring and Reporting Program. The County will consult with various stakeholders, including the Department, to implement the MMRP in such a way as to allow the County to identify and track temporary disturbances.

0004-92

The Department recommends a text change to a header; this edit is included in the Final EIR. The comment also recommends that the program referenced in MM 4.4-16(e) be in place and approved by the appropriate regulatory agencies before project proponents may use it as a mitigation option.

0004-93

The Department recommends MM 4.4-16 be updated. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-94

The Department recommends discussion of why the proposed mitigation measures would offset Project impacts to species identified as candidate, sensitive, or special-status species to less than significant.

The avoidance and minimization requirements in the mitigation measures are modelled after measures typically required by the USFWS or CDFW to reduce potential effects to ESA and CESA-listed species, as found in management plans or recovery plans adopted by those agencies, or in take authorizations previously approved by them. With their incorporation as conditions of the Project, these measures would be applied to all oil and gas activities under the purview of the County, including entities that do not typically undertake Section 7 or Section 10 consultation for ESA-listed species or Section 2081 for CESA-listed species. This extension and standardization of these measures will, in some cases, provide more protection for special status species than would occur under the No Action alternative.

Where complete avoidance is not possible, Mitigation Measures 4.4-2, 4.4-11 and 4.4-12 prohibit take without authorization from the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. Similarly, if wetlands and riparian areas cannot be completely avoided, Mitigation Measure 4.4-18 prohibits disturbance without authorization by appropriate federal or state agencies. These regulatory programs provide meaningful additional oversight and protections for biological resources. The mitigation measures in the Draft EIR reflect the measures needed to reduce impacts to less than significant under CEQA. The California Department of Fish and Wildlife may determine that additional requirements must be met to comply with the CESA or the other permitting programs that agency administers. The same is true of the U.S. Fish

and Wildlife Service when administering the ESA, or the Army Corps of Engineers administering Section 404 of the Clean Water Act. In this way, the survey, avoidance and compensation measures in the Draft EIR may be augmented by measures imposed by these other agencies.

As described in the DEIR a majority of new wells, approximately 95%, would be located in the Eastern and Western Subareas, which include the Project Area locations that have been subject to oil and gas exploration and production activities for several decades. The Applicant will be required to conduct pre-construction surveys for federal and state listed species, and sensitive species. If the pre-construction surveys identify listed species within the project disturbance area the Applicant will be required to consult with USFWS and CDFW. Through the consultation process the agencies may require the Applicant obtain a Take permit for impacts to listed species. Results from the surveys must be submitted to the USFWS, CDFW and Kern County Planning and Community Development Department, and must contain avoidance and minimization measures if sensitive species were documented within the survey area.

Specifically with respect to special status species, pre-disturbance surveys are required by Mitigation Measures 4.4-1 (special status wildlife) and much of the mitigation lands provided under Mitigation Measure 4.4-16 will be part of large scale conservation plans, such as the Lokern HCP or Elk Hills HCP, or will utilize a mitigation bank or other similar entity that is protecting habitat of regional importance for special status species. The regional HCPs and mitigation banks are usually centered on lands that have been identified in recovery goals established for special status species (i.e. recovery goals established in the Recovery Plan for Upland Species of the San Joaquin Valley, USFWS, 1998).

Please refer to GR Bio-1 for further discussion on the adequacy of mitigation measures for biological resources, including special-status species. Please also refer to GR Bio-2 for further discussion of some of the Project Area HCPs, which discuss the protections in place for special-status species.

0004-95

The Department's text edit is added to the Final EIR.

0004-95 cont'd

0004-96

The Department's text edit is added to the Final EIR.

0004-97

The comments request discussion on mitigation of impacts 4.4-2 and 4.4-3. The project mitigation measures require the applicant to obtain permits from CDFW (Stream Alteration Permit) and the USCOE for impacts to wetlands and waterbodies. The permits will require restoration for impacts to wetlands and waterbody. Impacts to sensitive natural commumity will be mitigated through implementation of MM 4.4-15 and MM 4.4-16. Please also refer to GR Bio-1 and GR Bio-2, which both address Project impacts in riparian habitats and sensitive natural communities. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-98

The comments request discussion on mitigation of impacts 4.4-2 and 4.4-3. The project mitigation measures require the applicant to obtain permits from CDFW (Stream Alteration Permit) and the USCOE for impacts to wetlands and waterbodies. The permits will require restoration for impacts to wetlands and waterbody. Impacts to sensitive natural commumity will be mitigated through implementation of MM 4.4-15 and MM 4.4-16. Please also refer to GR Bio-1 and GR Bio-2, which both address Project impacts in riparian habitats and sensitive natural communities. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments. The revised mitigation measures are set forth in Section 7.1.4 of this Final EIR.

0004-99

These comments restate some of the EIR's discussion on wildlife movement through disturbed areas, and notes the Department's concern that mitigation measures may not be sufficient to protect against impacts to wildlife movement through areas with disturbance greater than 70%. The comments note the potential for impacts to species in saltbrush scrub habitat, and recommends that the EIR fully describe and disclose potential

impacts to wildlife movement. The comments also recommend a conservation strategy that identifies target conservations areas.

Oil/gas field development in Kern County does not displace wildlife or interfere substantially with wildlife movement in the same manner as other development activities such as agricultural or urban development. Existing regional conservation documents such as the SJV Recovery Plan acknowledge that oil/gas production retains more habitat value for special-status species of the southern San Joaquin Valley compared to agricultural lands (USFWS, 1998). Initial oil/gas field development in natural lands affects small patches of land (e.g., well locations) and results in some linear disturbance (e.g., access roads and pipelines), but the ability of wildlife to utilize adjacent habitat and traverse active oil and gas field areas is less impeded than it is for more intensive development types such as agriculture and urban lands. This conclusion is demonstrated by the documented use of oil and gas field production areas by species such as the San Joaquin kit fox (Fiehler and Cypher, 2011).

The effects of habitat disturbance and fragmentation as a result of oil/gas development have been an ongoing subject of study in the San Joaquin Valley. The Ecosystem Analysis of Oil Fields in Western Kern County, California study conducted for BLM in 2008-2010 found that native species (including some special-status species) persist in areas of oil/gas field development up to a "medium level of disturbance" (ranging from 15 percent to 70 percent of the area disturbed). The study found that species such as Le Conte's Thrasher, San Joaquin antelope squirrel, and short-nosed kangaroo rat were present on all but the most disturbed study plots, and at high levels of oil/gas field development (Fiehler and Cypher, 2011). The vast majority of oil field areas of moderate to high disturbance occur within the DOGGR delineated productive zones, which are variously subject to current or proposed conservation planning by BLM or Habitat Conservation Plans, which seek to minimize the effects of habitat disturbance and fragmentation.

The effects of oil and gas field development disturbance in other habitat types, such as hardwood forests or sagebrush scrub, are not an accurate predictor of the effects on special status wildlife species in Kern County. The majority of the upland special-status species that occur within the southern San Joaquin Valley lands require dry, open grassland or habitats with scattered shrubs (USFWS, 2010b; USFWS, 2010c; USFWS, 1998). Dense herbaceous vegetation in uplands of the southern San Joaquin Valley (largely due to the growth of non-native grasses) may decrease habitat suitability for many of these species (Germano et al., 2012). The creation of small barren areas (unpaved access roads and well pads) can create open areas that are used by species such as blunt-nosed leopard lizard and giant kangaroo rats, especially in areas of previously dense non-native vegetation. In addition, roads and pipeline rights-of-way are utilized by San Joaquin kit fox for movement and foraging. The avoidance and minimization measures included in the DEIR would provide additional protection for special status species that utilize active oil/gas fields.

The persistence of special-status species in Kern County oil/gas fields is attributed to their "permeability" for movement and dispersal. Medium levels of disturbance and below provide for habitat connectivity for movement and dispersal as documented by Fiehler and Cypher (2011). For example, San Joaquin kit foxes are relatively common in the oil/gas fields of western Kern County, and appear to be tolerant of oil/gas field development (Cypher et al 2013). A study conducted in the former Naval Petroleum Reserves in California (NPRC) found that conversion of 30 percent of the native habitat to oil/gas field development did not impact movements and home ranges of San Joaquin kit foxes in the area. San Joaquin kit foxes within the NPRC have smaller home ranges when compared to the size of home ranges in other portions of the geographic range of the species, indicating that NPRC lands provide some of the highest quality habitat remaining for kit foxes in the San Joaquin Valley (Zoellick et al., 2002). Unlike highways, agricultural fields, and urban areas, which may present an insurmountable barrier to many species, the development associated with oil/gas fields (i.e. dirt access roads, utility ROW, and well pads) is generally porous to most wildlife.

The mitigation lands that will be provided under Mitigation Measure 4.4-16 will include the dedication of regionally important wildlife habitats identified in large scale, regional conservation plans, such as the Lokern HCP or Elk Hills HCP, or acquisition of credits from agency-approved mitigation banks or other similar entity that are protecting habitat of regional importance for special status species. The regional HCPs and mitigation banks include lands that have been identified in recovery goals established for special status species (i.e., recovery goals established in the SJV Recovery Plan) and seek to protect land in large blocks to minimize edge effects, increase the likelihood that ecosystem functions will remain intact, and facilitate management. Such planning also seeks to connect blocks of conservation lands, allowing greater movement of wildlife between blocks. For example, future conservation lands identified in the Lokern HCP and the Elk Hills HCP would expand existing contiguous areas of intact habitat along the western side of the southern San Joaquin Valley that will further enhance the value of existing conservation lands by providing habitat connectivity and wildlife movement corridors.

The comment's suggestion of conservation targets is appreciated. Through the CCST report, the numerous habitat conservation plans, and other regional natural resource documents, the identification of desired or favorable conservation areas are known to most applicants. As some applicants may have conservation opportunities within their own properties, purchasing mitigation credits, or other considerations for locating compensatory mitigation, an identified conservation strategy directing where mitigation should occur was not included in the Draft EIR. Please see GR Bio-2 for further information on Project Area HCPs.

Please also refer to responses to comments 44-95 through 44-97 which discuss similar issues. Please also see GR Bio-1, which further discusses the suite of mitigation measures prescribed here, along with explanation of measures in place to protect habitat connectivity and wildlife movement corridors. References relied on this response are cited below.

References:

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

U.S. Fish and Wildlife Service (USFWS). 2010b. San Joaquin kit fox (Vulpes macrotis mutica) 5- Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 2010c. Tipton kangaroo rat (Dipodomys nitratoides nitratoides) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0004-99 cont'd

0004-100

These comments restate some of the EIR's discussion on wildlife movement through disturbed areas, and notes the Department's concern that mitigation measures may not be sufficient to protect against impacts to wildlife movement through areas with disturbance greater than 70%. The comments note the potential for impacts to species in saltbrush scrub habitat, and recommends that the EIR fully describe and disclose potential impacts to wildlife movement. The comments also recommend a conservation strategy that identifies target conservations areas.

Oil/gas field development in Kern County does not displace wildlife or interfere substantially with wildlife movement in the same manner as other development activities such as agricultural or urban development. Existing regional conservation documents such as the SJV Recovery Plan acknowledge that oil/gas production retains more habitat value for special-status species of the southern San Joaquin Valley compared to agricultural lands (USFWS, 1998). Initial oil/gas field development in natural lands affects small patches of land (e.g., well locations) and results in some linear disturbance (e.g., access roads and pipelines), but the ability of wildlife to utilize adjacent habitat and traverse active oil and gas field areas is less impeded than it is for more intensive development types such as agriculture and urban lands. This conclusion is demonstrated by the documented use of oil and gas field production areas by species such as the San Joaquin kit fox (Fiehler and Cypher, 2011).

The effects of habitat disturbance and fragmentation as a result of oil/gas development have been an ongoing subject of study in the San Joaquin Valley. The Ecosystem Analysis of Oil Fields in Western Kern County, California study conducted for BLM in 2008-2010 found that native species (including some special-status species) persist in areas of oil/gas field development up to a "medium level of disturbance" (ranging from 15 percent to 70 percent of the area disturbed). The study found that species such as Le Conte's Thrasher, San Joaquin antelope squirrel, and short-nosed kangaroo rat were present on all but the most disturbed study plots, and at high levels of oil/gas field development (Fiehler and Cypher, 2011). The vast majority of oil field areas of moderate to high disturbance occur within the DOGGR delineated productive zones, which are variously subject to current or proposed conservation planning by BLM or Habitat Conservation Plans, which seek to minimize the effects of habitat disturbance and fragmentation.

The effects of oil and gas field development disturbance in other habitat types, such as hardwood forests or sagebrush scrub, are not an accurate predictor of the effects on special status wildlife species in Kern County. The majority of the upland special-status species that occur within the southern San Joaquin Valley lands require dry, open grassland or habitats with scattered shrubs (USFWS, 2010b; USFWS, 2010c;

USFWS, 1998). Dense herbaceous vegetation in uplands of the southern San Joaquin Valley (largely due to the growth of non-native grasses) may decrease habitat suitability for many of these species (Germano et al., 2012). The creation of small barren areas (unpaved access roads and well pads) can create open areas that are used by species such as blunt-nosed leopard lizard and giant kangaroo rats, especially in areas of previously dense non-native vegetation. In addition, roads and pipeline rights-of-way are utilized by San Joaquin kit fox for movement and foraging. The avoidance and minimization measures included in the DEIR would provide additional protection for special status species that utilize active oil/gas fields.

The persistence of special-status species in Kern County oil/gas fields is attributed to their "permeability" for movement and dispersal. Medium levels of disturbance and below provide for habitat connectivity for movement and dispersal as documented by Fiehler and Cypher (2011). For example, San Joaquin kit foxes are relatively common in the oil/gas fields of western Kern County, and appear to be tolerant of oil/gas field development (Cypher et al 2013). A study conducted in the former Naval Petroleum Reserves in California (NPRC) found that conversion of 30 percent of the native habitat to oil/gas field development did not impact movements and home ranges of San Joaquin kit foxes in the area. San Joaquin kit foxes within the NPRC have smaller home ranges when compared to the size of home ranges in other portions of the geographic range of the species, indicating that NPRC lands provide some of the highest quality habitat remaining for kit foxes in the San Joaquin Valley (Zoellick et al., 2002). Unlike highways, agricultural fields, and urban areas, which may present an insurmountable barrier to many species, the development associated with oil/gas fields (i.e. dirt access roads, utility ROW, and well pads) is generally porous to most wildlife.

The mitigation lands that will be provided under Mitigation Measure 4.4-16 will include the dedication of regionally important wildlife habitats identified in large scale, regional conservation plans, such as the Lokern HCP or Elk Hills HCP, or acquisition of credits from agency-approved mitigation banks or other similar entity that are protecting habitat of regional importance for special status species. The regional HCPs and mitigation banks include lands that have been identified in recovery goals established for special status species (i.e., recovery goals established in the SJV Recovery Plan) and seek to protect land in large blocks to minimize edge effects, increase the likelihood that ecosystem functions will remain intact, and facilitate management. Such planning also seeks to connect blocks of conservation lands, allowing greater movement of wildlife between blocks. For example, future conservation lands identified in the Lokern HCP and the Elk Hills HCP would expand existing contiguous areas of intact habitat along the western side of the southern San Joaquin Valley that will further enhance the value of existing conservation lands by providing habitat connectivity and wildlife movement corridors.

The comment's suggestion of conservation targets is appreciated. Through the CCST report, the numerous habitat conservation plans, and other regional natural resource documents, the identification of desired or favorable conservation areas are known to most applicants. As some applicants may have conservation opportunities within their own properties, purchasing mitigation credits, or other considerations for locating compensatory mitigation, an identified conservation strategy directing where mitigation should occur was not included in the Draft EIR. Please see GR Bio-2 for further information on Project Area HCPs.

Please also refer to responses to comments 44-95 through 44-97 which discuss similar issues. Please also see GR Bio-1, which further discusses the suite of mitigation measures prescribed here, along with explanation of measures in place to protect habitat connectivity and wildlife movement corridors. References relied on this response are cited below.

References:

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

U.S. Fish and Wildlife Service (USFWS). 2010b. San Joaquin kit fox (Vulpes macrotis mutica) 5- Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 2010c. Tipton kangaroo rat (Dipodomys nitratoides nitratoides) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0004-101

These comments restate some of the EIR's discussion on wildlife movement through disturbed areas, and notes the Department's concern that mitigation measures may not be sufficient to protect against impacts to wildlife movement through areas with disturbance greater than 70%. The comments note the potential for impacts to species in saltbrush scrub habitat, and recommends that the EIR fully describe and disclose potential impacts to wildlife movement. The comments also recommend a conservation strategy that identifies target conservations areas.

Oil/gas field development in Kern County does not displace wildlife or interfere substantially with wildlife movement in the same manner as other development activities such as agricultural or urban development. Existing regional conservation documents such as the SJV Recovery Plan acknowledge that oil/gas production retains more habitat value for special-status species of the southern San Joaquin Valley compared to agricultural lands (USFWS, 1998). Initial oil/gas field development in natural lands affects small patches of land (e.g., well locations) and results in some linear disturbance (e.g., access roads and pipelines), but the ability of wildlife to utilize adjacent habitat and traverse active oil and gas field areas is less impeded than it is for more intensive development types such as agriculture and urban lands. This conclusion is demonstrated by the documented use of oil and gas field production areas by species such as the San Joaquin kit fox (Fiehler and Cypher, 2011).

The effects of habitat disturbance and fragmentation as a result of oil/gas development have been an ongoing subject of study in the San Joaquin Valley. The Ecosystem Analysis of Oil Fields in Western Kern County, California study conducted for BLM in 2008-2010 found that native species (including some special-status species) persist in areas of oil/gas field development up to a "medium level of disturbance" (ranging from 15 percent to 70 percent of the area disturbed). The study found that species such as Le Conte's Thrasher, San Joaquin antelope squirrel, and short-nosed kangaroo rat were present on all but the most disturbed study plots, and at high levels of oil/gas field development (Fiehler and Cypher, 2011). The vast majority of oil field areas of moderate to high disturbance occur within the DOGGR delineated productive zones, which are variously subject to current or proposed conservation planning by BLM or Habitat Conservation Plans, which seek to minimize the effects of habitat disturbance and fragmentation.

The effects of oil and gas field development disturbance in other habitat types, such as hardwood forests or sagebrush scrub, are not an accurate predictor of the effects on special status wildlife species in Kern County. The majority of the upland special-status species that occur within the southern San Joaquin Valley lands require dry, open grassland or habitats with scattered shrubs (USFWS, 2010b; USFWS, 2010c; USFWS, 1998). Dense herbaceous vegetation in uplands of the southern San Joaquin Valley (largely due to the growth of non-native grasses) may decrease habitat suitability for many of these species (Germano et al., 2012). The creation of small barren areas (unpaved access roads and well pads) can create open areas that are used by species such as blunt-nosed leopard lizard and giant kangaroo rats, especially in areas of previously dense non-native vegetation. In addition, roads and pipeline rights-of-way are utilized by San Joaquin kit fox for movement and foraging. The avoidance and minimization measures included in the DEIR would provide additional protection for special status species that utilize active oil/gas fields.

The persistence of special-status species in Kern County oil/gas fields is attributed to their "permeability" for movement and dispersal. Medium levels of disturbance and below provide for habitat connectivity for movement and dispersal as documented by Fiehler and Cypher (2011). For example, San Joaquin kit foxes are relatively common in the oil/gas fields of western Kern County, and appear to be tolerant of oil/gas field development (Cypher et al 2013). A study conducted in the former Naval Petroleum Reserves in California (NPRC) found that conversion of 30 percent of the native habitat to oil/gas field development did not impact movements and home ranges of San Joaquin kit foxes in the area. San Joaquin kit foxes within the NPRC have smaller home ranges when compared to the size of home ranges in other portions of the geographic range of the species, indicating that NPRC lands provide some of the highest quality habitat remaining for kit foxes in the San Joaquin Valley (Zoellick et al., 2002). Unlike highways, agricultural fields, and urban areas, which may present an insurmountable barrier to many species, the development associated with oil/gas fields (i.e. dirt access roads, utility ROW, and well pads) is generally porous to most wildlife.

The mitigation lands that will be provided under Mitigation Measure 4.4-16 will include the dedication of regionally important wildlife habitats identified in large scale, regional conservation plans, such as the Lokern HCP or Elk Hills HCP, or acquisition of credits from agency-approved mitigation banks or other similar entity that are protecting habitat of regional importance for special status species. The regional HCPs and mitigation banks include lands that have been identified in recovery goals established for special status species (i.e., recovery goals established in the SJV Recovery Plan) and seek to protect land in large blocks to minimize edge effects, increase the likelihood that ecosystem functions will remain intact, and facilitate management. Such planning also seeks to connect blocks of conservation lands, allowing greater movement of wildlife between blocks. For example, future conservation lands identified in the Lokern HCP and the Elk Hills HCP would expand existing

contiguous areas of intact habitat along the western side of the southern San Joaquin Valley that will further enhance the value of existing conservation lands by providing habitat connectivity and wildlife movement corridors.

The comment's suggestion of conservation targets is appreciated. Through the CCST report, the numerous habitat conservation plans, and other regional natural resource documents, the identification of desired or favorable conservation areas are known to most applicants. As some applicants may have conservation opportunities within their own properties, purchasing mitigation credits, or other considerations for locating compensatory mitigation, an identified conservation strategy directing where mitigation should occur was not included in the Draft EIR. Please see GR Bio-2 for further information on Project Area HCPs.

Please also refer to responses to comments 44-95 through 44-97 which discuss similar issues. Please also see GR Bio-1, which further discusses the suite of mitigation measures prescribed here, along with explanation of measures in place to protect habitat connectivity and wildlife movement corridors. References relied on this response are cited below.

References:

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

U.S. Fish and Wildlife Service (USFWS). 2010b. San Joaquin kit fox (Vulpes macrotis mutica) 5- Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 2010c. Tipton kangaroo rat (Dipodomys nitratoides nitratoides) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0004-102

These comments restate some of the EIR's discussion on wildlife movement through disturbed areas, and notes the Department's concern that mitigation measures may not be sufficient to protect against impacts to wildlife movement through areas with disturbance greater than 70%. The comments note the potential for impacts to species in saltbrush scrub habitat, and recommends that the EIR fully describe and disclose potential impacts to wildlife movement. The comments also recommend a conservation strategy that identifies target conservations areas.

Oil/gas field development in Kern County does not displace wildlife or interfere substantially with wildlife movement in the same manner as other development activities such as agricultural or urban development. Existing regional conservation documents such as the SJV Recovery Plan acknowledge that oil/gas production retains more habitat value for special-status species of the southern San Joaquin Valley compared to agricultural lands (USFWS, 1998). Initial oil/gas field development in natural lands affects small patches of land (e.g., well locations) and results in some linear disturbance (e.g., access roads and pipelines), but the ability of wildlife to utilize adjacent habitat and traverse active oil and gas field areas is less impeded than it is for more intensive development types such as agriculture and urban lands. This conclusion is demonstrated by the documented use of oil and gas field production areas by species such as the San Joaquin kit fox (Fiehler and Cypher, 2011).

The effects of habitat disturbance and fragmentation as a result of oil/gas development have been an ongoing subject of study in the San Joaquin Valley. The Ecosystem Analysis of Oil Fields in Western Kern County, California study conducted for BLM in 2008-2010 found that native species (including some special-status species) persist in areas of oil/gas field development up to a "medium level of disturbance" (ranging from 15 percent to 70 percent of the area disturbed). The study found that species such as Le Conte's Thrasher, San Joaquin antelope squirrel, and short-nosed kangaroo rat were present on all but the most disturbed study plots, and at high levels of oil/gas field development (Fiehler and Cypher, 2011). The vast majority of oil field areas of moderate to high disturbance occur within the DOGGR delineated productive zones, which are variously subject to current or proposed conservation planning by BLM or Habitat Conservation Plans, which seek to minimize the effects of habitat disturbance and fragmentation.

The effects of oil and gas field development disturbance in other habitat types, such as hardwood forests or sagebrush scrub, are not an accurate predictor of the effects on special status wildlife species in Kern County. The majority of the upland special-status species that occur within the southern San Joaquin Valley lands require dry, open grassland or habitats with scattered shrubs (USFWS, 2010b; USFWS, 2010c; USFWS, 1998). Dense herbaceous vegetation in uplands of the southern San Joaquin Valley (largely due to the growth of non-native grasses) may decrease habitat suitability for many of these species (Germano et al., 2012). The creation of small barren areas (unpaved access roads and well pads) can create open areas that are used by species such as blunt-nosed leopard lizard and giant kangaroo rats, especially in areas of previously dense non-native vegetation. In addition, roads and pipeline rights-of-way are utilized by San Joaquin kit fox for movement and foraging. The avoidance and minimization measures included in the DEIR would provide additional protection for special status species that utilize active oil/gas fields.

The persistence of special-status species in Kern County oil/gas fields is attributed to their "permeability" for movement and dispersal. Medium levels of disturbance and below provide for habitat connectivity for movement and dispersal as documented by Fiehler and Cypher (2011). For example, San Joaquin kit foxes are relatively common in the oil/gas fields of western Kern County, and appear to be tolerant of oil/gas field development (Cypher et al 2013). A study conducted in the former Naval Petroleum Reserves in California (NPRC) found that conversion of 30 percent of the native habitat to oil/gas field development did not impact movements and home ranges of San Joaquin kit foxes in the area. San Joaquin kit foxes within the NPRC have smaller home ranges when compared to the size of home ranges in other portions of the geographic range of the species, indicating that NPRC lands provide some of the highest quality habitat remaining for kit foxes in the San Joaquin Valley (Zoellick et al., 2002). Unlike highways, agricultural fields, and urban areas, which may present an insurmountable barrier to many species, the development associated with oil/gas fields (i.e. dirt access roads, utility ROW, and well pads) is generally porous to most wildlife.

The mitigation lands that will be provided under Mitigation Measure 4.4-16 will include the dedication of regionally important wildlife habitats identified in large scale, regional conservation plans, such as the Lokern HCP or Elk Hills HCP, or acquisition of credits from agency-approved mitigation banks or other similar entity that are protecting habitat of regional importance for special status species. The regional HCPs and mitigation banks include lands that have been identified in recovery goals established for special status species (i.e., recovery goals established in the SJV Recovery Plan) and seek to protect land in large blocks to minimize edge effects, increase the likelihood that ecosystem functions will remain intact, and facilitate management. Such planning also seeks to connect blocks of conservation lands, allowing greater movement of wildlife between blocks. For example, future conservation lands identified in the Lokern HCP and the Elk Hills HCP would expand existing contiguous areas of intact habitat along the western side of the southern San Joaquin Valley that will further enhance the value of existing conservation lands by providing habitat connectivity and wildlife movement corridors.

The comment's suggestion of conservation targets is appreciated. Through the CCST report, the numerous habitat conservation plans, and other regional natural resource documents, the identification of desired or favorable conservation areas are known to most applicants. As some applicants may have conservation opportunities within their own properties, purchasing mitigation credits, or other considerations for locating compensatory mitigation, an identified conservation strategy directing where mitigation should occur was not included in the Draft EIR. Please see GR Bio-2 for further information on Project Area HCPs.

Please also refer to responses to comments 44-95 through 44-97 which discuss similar issues. Please also see GR Bio-1, which further discusses the suite of mitigation measures prescribed here, along with explanation of measures in place to protect habitat connectivity and wildlife movement corridors. References relied on this response are cited below.

References:

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

U.S. Fish and Wildlife Service (USFWS). 2010b. San Joaquin kit fox (Vulpes macrotis mutica) 5- Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 2010c. Tipton kangaroo rat (Dipodomys nitratoides nitratoides) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0004-103

The Department recommends a discussion of why MM 4.4-19 would offset Project impacts to biological resources to less than significant.

Please refer to GR Bio-1 for a discussion on how mitigation measures prescribed in the Project will adequately reduce impacts to less than significant. Please also see GR Bio-2 for a discussion of the measures that are also in place to protect biological resources through the Valley Floor, Lokern and Elk Hills HCPs within the Project Area.

0004-103 cont'd

0004-104

The comments are noted and accepted for the Final EIR.

0004-105

The comments are noted and accepted for the Final EIR.

0004-106

The Department recommends a discussion of why MM 4.4-6 would offset project impacts regarding conflicts with the provisions of an Adopted HCP, NCCP, or other Approved, Local, Regional or State Habitat Conservation Plan to a level of less than significance.

As discussed in the DEIR the Revised Amended Ordinance amendment would not conflict with any adopted HCP in or adjacent to the Project Area. The Revised Amended Ordinance amendment would also be consistent with the proposed Chevron LHCP and California Resources Corporation EHHCP. The Project is also consistent with the overall framework of the LHCP, and imposes new mitigation measures, as well as substantive and procedural requirements, on most oil and gas production Covered Activities, including those within and outside of the three categories of lands included in the Chevron North American Exploration and Production LHCP. CEQA requires responsible agencies to use the EIR prepared by the lead agency for projects, or portions of projects, that are wholly or partially within the jurisdiction of a responsible agency. This EIR provides project-level coverage under CEQA for the specified Covered Activities described in the LHCP. The Project imposes new mitigation requirements, as well as procedural and substantive compliance requirements, on oil and gas activities that can currently be done "by right;" however, these new regulatory requirements are consistent with, and would not impede or otherwise interfere with, the draft HCP or ITP. The United States Fish and Wildlife Service, as the lead federal agency for the HCP, and the California Department of Fish and Wildlife as a responsible permitting agency for the Section 2081 permit for the Covered Activities described in the HCP and ITP, retain the jurisdiction to approve or disapprove the pending application, and to impose conditions of approval and other compliance requirements that fall within their respective jurisdictions.

0004-107

The Department's text edits are added to the Final EIR.

0004-108

The Department recommends that the EIR reference and add the new requirements associated with OSPR emergency regulations. The comment is noted and accepted in the EIR.

0004-108 cont'd

5 California Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Department of Toxic Substances Control

Barbara A. Lee, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

September 11, 2015

Mr. Christopher B. Mynk, AICP
Supervising Planner
Kern County Planning and Community Development Department
2700 "M" Street, Suite 100
Bakersfield, California 93301

DEPARTMENT OF TOXIC SUBSTANCES CONTROL COMMENTS ON DRAFT ENVIRONMENTAL IMPACT REPORT ON REVISIONS TO THE KERN COUNTY ZONING ORDINANCE – 2015 (C) FOCUSED ON OIL AND GAS LOCAL PERMITTING

Dear Mr. Mynk:

This letter transmits the Department of Toxic Substances Control (DTSC) comments on the "Draft Environmental Impact Report on Revisions to the Kern County Zoning Ordinance – 2015 (c) Focused on Oil and Gas Local Permitting," herein referred to as "the draft EIR." 0005-1

Below the following comments are indexed by the draft EIR page number, except for a general comment on the last page. 0005-2

Page 1-2 (Section entitled "Project Summary") 0005-3

- **FIRST PARAGRAPH, LAST SENTENCE –**
  Please change the phrase "will be used" to "may be used." If DTSC were to approve or oversee a cleanup of a non-petroleum spill or release at an oil and gas development site within the Project Area, DTSC would use its independent judgement to determine the appropriate CEQA document. This may or may not involve reliance upon the Kern County EIR.

Page 2-23 (Section entitled "Project Level EIR") 0005-4

- **FIRST PARAGRAPH, FIRST SENTENCE –**
  Delete the term "ministerial" since ministerial projects proposed to be carried out or approved by public agencies are not subject to CEQA. (Pub. Resources Code § 21080(b)(1).)

Page 2-28 (Subsection entitled "State Agencies") 0005-5

- **FOURTH AND FIFTH BULLETS –**
  Remove the abbreviation "DTSC" that follows California Department of Public Health, and use the "DTSC" abbreviation following California Department of Toxic Substances Control. Correction of this typographical error is important so that the abbreviation "DTSC" is used in its appropriate context in the draft EIR.

Printed on Recycled Paper

0005-6

Page 4.8-1 (Subsection entitled "Hazardous Materials and Waste")

- **FIRST PARAGRAPH –**
The paragraph inaccurately describes "hazardous substance" - "Hazardous substance" is defined in statute (Health & Saf. Code § 25316, Ch. 6.8, Hazardous Substance Account) and not defined in the title 22 regulations. Also, contrary to the second sentence in the paragraph, the definition of hazardous substance does not specifically invoke the term "hazardous materials" within its definition. For accuracy, DTSC suggests the second sentence be written as follows:

"Section 25316 of the Health and Safety Code defines 'hazardous substance' to mean:

(a) Any substance designated pursuant to Section 1321 (b)(2)(A) of Title 33 of the United States Code.

(b) Any element, compound, mixture, solution, or substance designated pursuant to Section 102 of the federal act (42 U.S.C. Sec. 9602).

(c) Any hazardous waste having the characteristics identified under or listed pursuant to Section 6921 of Title 42 of the United States Code, but not including any waste the regulation of which under the Solid Waste Disposal Act (42 U.S.C. Sec. 6901 et seq.) has been suspended by act of Congress.

(d) Any toxic pollutant listed under Section 1317 (a) of Title 33 of the United States Code.

(e) Any hazardous air pollutant listed under Section 7412 of Title 42 of the United States Code.

(f) Any imminently hazardous chemical substance or mixture with respect to which the Administrator of the United States Environmental Protection Agency has taken action pursuant to Section 2606 of Title 15 of the United States Code.

(g) Any hazardous waste or extremely hazardous waste as defined by Sections 25117 and 25115, respectively, unless expressly excluded."

0005-7

Definition of "hazardous material" – neither the definition quoted nor its citation is correct. Regarding the citation, while California Code of Regulations, title 22, section 66260.10 incorporates the statutory definition by reference, the true source of the "hazardous material" definition is Health and Safety Code, section 25501. That definition was amended by the Legislature effective January 1, 2015, and now reads as follows:

"(n)(1) 'Hazardous material' means a material listed in paragraph (2) that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to

0005-7
Continued

the environment if released into the workplace or the environment, or a material specified in an ordinance adopted pursuant to paragraph (3).

(2) Hazardous materials include all of the following:

(A) A substance or product for which the manufacturer or producer is required to prepare a material safety data sheet pursuant to the Hazardous Substances Information and Training Act (Chapter 2.5 (commencing with Section 6360) of Part 1 of Division 5 of the Labor Code) or pursuant to any applicable federal law or regulation.

(B) A substance listed as a radioactive material in Appendix B of Part 30 (commencing with Section 30.1) of Title 10 of the Code of Federal Regulations, as maintained and updated by the Nuclear Regulatory Commission.

(C) A substance listed pursuant to Title 49 of the Code of Federal Regulations.

(D) A substance listed in Section 339 of Title 8 of the California Code of Regulations.

(E) A material listed as a hazardous waste, as defined by Sections 25115, 25117, and 25316.

(3) The governing body of a unified program agency may adopt an ordinance that provides that, within the jurisdiction of the unified program agency, a material not listed in paragraph (2) is a hazardous material for purposes of this article if a handler has a reasonable basis for believing that the material would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment, and requests the governing body of the unified program agency to adopt that ordinance, or if the governing body of the unified program agency has a reasonable basis for believing that the material would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. The handler or the unified program agency shall notify the secretary no later than 30 days after the date an ordinance is adopted pursuant to this paragraph."

- **SECOND PARAGRAPH –**
  That definition of "hazardous waste" is incomplete and the following underlined text should be added to the definition (per Cal. Code Regs., tit. 22, § 66261.3), "In regulatory terms, a hazardous waste is a waste that <u>is either listed as a hazardous waste in federal or state regulations or</u> exhibits one of the four characteristics of a hazardous waste: ignitability, corrosivity, reactivity, or toxicity."

0005-8

Page 4.8-3 (Subsections entitled "Trucks" and "Pipelines")

- **THIRD AND FOURTH PARAGRAPHS –**
  DTSC recommends the following changes, (indicated in strikeout/underline):

  "A typical tanker truck is able to transport 9,000 gallons of crude oil. The transportation of crude oil via tanker truck is regulated by ~~the California~~

0005-9

~~Department of Transportation (Caltrans)~~ CHP and U.S. Department of Transportation (USDOT) motor carrier regulations. 0005-9 Continued

Pipelines
Crude oil is transported from the Project Area to refineries via pipeline. Refineries are located throughout the state including within the Project Area. Figure 4.8-1 illustrates the locations that transport crude oil and refineries where it could be processed. Inland California crude oils are typically first piped to local refineries in Bakersfield and Santa Maria due to their proximity. The balance of the inland crude oils is piped to Northern and Southern California refineries (Sheridan 2006). Transmission of hazardous materials via pipeline in the state is regulated by the California State Fire Marshal, Pipeline Safety Division and by USDOT." 0005-10

Page 4.8-13 (Subsection entitled "Hazardous Waste Generated During Oil and Gas Activities, Transport, and Disposal") 0005-11

- **FIRST PARAGRAPH, FOURTH SENTENCE –**
  The wording of following statement is unclear and misleading

  "California regulations exempt oilfield waste from being designated a California Non-RCRA hazardous waste based on toxicity characteristics. However, California did not adopt the federal exemption and does not offer a blanket exemption from state hazardous waste requirements."

  A more clear description would be as follows:

  "California did not adopt the federal exemption for wastes generated by oil and gas production. As discussed in the Regulatory Setting section, wastes exempted under RCRA are not exempt under California law if they either are listed as a hazardous waste in federal or state regulations or exhibit a hazardous characteristic such as ignitability, corrosivity, reactivity, or the California toxicity characteristic. However, wastes exempted under RCRA that are hazardous only due to the federal characteristic of toxicity as set forth in section 66261.24(a)(1), title 22, of the California Code of Regulations are also exempt in California."

Page 4.8-14 (Subsection entitled "Nonhazardous Oil and Gas Waste – Storage, Transport, Disposal") 0005-12

- **FIRST PARAGRAPH** *(under subheading "Produced Water")* **–**
  Reads as follows:

  "Drilling for oil and gas in California yields a mixture of oil, gas, and water from the formation; the water is separated from the oil and gas and stored in tanks and pits. This water is called 'produced water' and is usually very brackish and unsuitable for human use. The water is commingled naturally in the same zone with the oil and natural gas. Produced water is brought up from the formation during oil or gas production and is not considered a hazardous waste. Because it was commingled with hydrocarbons in the formation, the water typically

0005-12
Continued

contains chemicals associated with the formations, such as salts, oils and greases, inorganic and organic chemicals, and naturally occurring radioactive material, that exceed state and federal standards for drinking water."

0005-13

For that paragraph, DTSC suggests adding additional detail regarding produced water. While the paragraph mentions that produced water is unsuitable as drinking water, produced water may in some cases be unsuitable for agricultural use, and could be considered hazardous waste based on the toxicity characteristic. To express these additional details, DTSC recommends the following language for the paragraph:

"Drilling for oil and gas yields a mixture of oil, gas, and water from the target formation. In California, the water fraction, termed 'produced water,' comprises roughly 90% of the mixture, and is separated from the oil and gas and stored in tanks and pits. The produced water typically contains a high degree of salinity and low levels of oils, greases and other organic and inorganic chemicals, which can include low levels of naturally occurring radioactive materials (NORMs), and in some cases low levels of arsenic. The salinity and other pollutants render produced water unsuitable as drinking water and in some cases unsuitable for other uses such as agricultural. Past testing of produced water from conventional drilling operations has found the water not to be hazardous waste. The past testing, however, did not test produced water from WST operations, and did not test for toxicity by fish bioassay. Testing for exceedances of fish bioassay testing is one of the methods set forth at section 66261.24(a), title 22, California Code of Regulations for determining whether a waste is hazardous for the toxicity characteristic. More testing is needed to definitively establish that produced water from WST operations is not hazardous waste."

Page 4.8-37 (Subheading entitled "Resource Conservation and Recovery Act")

0005-14

- **FIRST PARAGRAPH, FIRST SENTENCE –**
  This sentence incorrectly references the federal Toxic Substances Control Act ("TSCA") in association with RCRA. Contrary to that sentence, TSCA did not establish the federal program administered by EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. That program was established solely by RCRA.

Page 4.8-44 (Subsection entitled "Hazardous Materials and Hazardous Waste")

0005-15

- **FIRST PARAGRAPH, SECOND SENTENCE –**
  The definition of "waste" is incomplete. Pursuant to Health and Safety Code section 25124, a material becomes a waste not only when it is disposed of or burned, but also when it is recycled (certain exclusions notwithstanding), mislabeled or badly packaged, or determined inherently waste-like in regulations. The designation of materials intended for recycling as wastes is an important regulatory point that the regulated community and the public needs to be aware of.

DTSC proposes a revision to the second sentence of the first paragraph as follows: 0005-15 Continued

"According to Health and Safety Code section 25124, materials become waste when the material is disposed of, burned or incinerated, or accumulated, stored or treated before or in lieu of being disposed of, burned or incinerated, or when the material is recyclable but not managed as provided in Health and Safety Code sections 25143.2 and 25143.9."

Page 4.8-53 (Subsection entitled "Discharges to Injection Wells") 0005-16

- **SECOND PARAGRAPH –**
  DTSC proposes that Kern County add text to the end of the second paragraph to inform the public of DTSC's regulation of certain injection wells. The language should read:

  "DTSC regulates injection of hazardous wastes into underground injection wells pursuant to the Toxic Injection Well Control Act of 1985 (Health & Saf. Code, § 25159.10 et seq.). This Act exempts Class II injection wells regulated by DOGGR and which are in compliance with DOGGR's regulations and counterpart federal regulations."

Page 4.8-81 (Subsection entitled "Hazardous Waste") 0005-17

- **FIRST PARAGRAPH, FIRST SENTENCE –**
  This sentence refers to "an estimated 267 pounds of 'classified waste' would be generated per well". Because it is within a subsection entitled "Hazardous Waste," DTSC believes that the phrase "classified waste" refers to various types of wastes that are classified as hazardous wastes. To avoid potential confusion, however, DTSC suggests that the phrase "hazardous waste" be used instead of "classified waste."

Page 4.8-81 (Subsection entitled "Other Wastes") 0005-18

- **FIRST PARAGRAPH, FIRST SENTENCE –**
  This sentence cites "An estimated 1,610 pounds of Non-RCRA drilling wastes … would be generated per well". For the benefit of readers unfamiliar with the term "Non-RCRA," DTSC suggests that the language should include the statement that such wastes may be regulated as hazardous waste under California law and include a reference back to section 4.8.2 of the draft EIR

Page 4.8-82 (Subsection entitled "Other Wastes") 0005-19

- **SECOND AND THIRD PARAGRAPHS –**
  These paragraphs discuss "produced water" and "flowback fluid." The second paragraph asserts that produced water is not considered a hazardous waste. While it is believed that produced water is not hazardous waste generally, more testing is needed to establish this for all cases. Testing is also needed for WST flowback, which is more likely to be hazardous waste than produced water. For these reasons, DTSC is in the planning stages of a new waste study of flowback fluid and produced

water at WST operations. If produced water is not a hazardous waste and flowback fluid is a hazardous waste, the act of deliberately mixing the flowback with non-hazardous produced water (e.g. for dilution purposes) would constitute "treatment" of hazardous waste pursuant to Health and Safety Code section 25123.5. Treatment of hazardous waste requires authorization from DTSC unless the resultant mixture is managed as hazardous waste. Disposal of the mixture by any means not authorized for the disposal of hazardous waste constitutes illegal disposal of hazardous waste, a violation of Health and Safety Code section 25187. Similarly, mixing well maintenance fluids with produced water that is not a hazardous waste would be treatment of hazardous waste if those maintenance fluids are hazardous waste, which may often be the case.

0005-19 Continued

Page 4.8-83 (Subsection entitled "Mitigation Measures")

- **GENERAL COMMENT –**
  The label or number of the mitigation measure does not correspond to the same label or number of the impact that is being addressed by the mitigation measure. Accordingly, it is difficult to tell which potential impact the proposed mitigation measure is supposed to address. This lack of clarity makes it particularly difficult to assess whether the mitigation measure will be effective.

0005-20

Page 4.8-84 (Subsection entitled "Mitigation Measures")

- **MM 4.8-3 –**
  b. This mitigation measure is limited to the storage of "fuels and lubricants," yet the potential impact identified in the draft EIR appears to more broadly apply to the release of hazardous materials. DTSC suggests that this mitigation measure apply to the storage of all hazardous materials, not just fuel and lubricants.

0005-21

  f. This mitigation measure does not provide specifications for the required berms and dikes (for secondary containment). It would be helpful to reference an existing regulatory standard for secondary containment, such as that provided at California Code of Regulations, title 22, section 66264.193.

0005-22

Page 4.8-86 (Subsection entitled "Mitigation Measures")

- **MM 4.8-6 –**
  a. This mitigation measure states, "Classify the various oil and gas exploration and production wastes for proper disposal as described in United States Environmental Protection Agency 2002." Wastes should be classified and disposed in accordance with California laws and regulations as well.

  i. For this mitigation measure add clarifying language to the end of "Recycle and reuse oil-based muds and high density brines, when practical" to remind the operator to check to determine whether such recycling is authorized under California hazardous waste laws before undertaking that activity..

k. For this mitigation measure add clarifying language to the end of "Reclaim oily debris and tank bottoms when practical" to remind the operator to check to determine whether such reclamation is authorized under California hazardous waste laws before undertaking that activity. 0005-23

Page 4.8-94 (Subsection entitled "Impact 4.8-3: Emit Hazardous Emissions or Handle Hazardous of Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School): 0005-24

- **SECOND PARAGRAPH, SECOND BULLET –**
  The citation at the end of "Extremely Hazardous Waste" should be section 66260.10 of title 22 of the California Code of Regulations.

Proposed Zoning Changes 0005-25

- **GENERAL COMMENT –**
  The following comment is merely an advisory and does not request changes to the draft EIR.

  The proposed changes to Kern's zoning ordinance may allow oil and gas well operations in or near residential zones. Such an operation would be of DTSC's concern if, for example, it prompted a hazardous waste transporter servicing the operation to set up a hazardous waste transfer facility in or near residential zones. State law prohibits the operation of a transfer facility within residential zones or within 500 feet of a residence in the absence of a hazardous waste storage permit (Health & Saf. Code, §§ 25123.3(b)(3) and 25201). The proposed change to Kern County's zoning ordinance would not necessarily induce a transporter to violate the transfer facility law. Nevertheless, if the zoning change is adopted, DTSC may undertake regulatory outreach to hazardous waste transporters to clarify the requirements regarding transfer facilities.

We thank you for the opportunity to comment on this draft EIR. If you so desire, we welcome discussion of any of our above comments. To schedule any such discussion, please feel free to contact me at (916) 327-1186 or via Rick.Brausch@dtsc.ca.gov, or contact Ms. Pauline Batarseh, Chief, of the Policy Implementation and Support Branch at (916) 322-2817 or Pauline.Batarseh@dtsc.ca.gov. 0005-26

Sincerely,

Rick Brausch, Chief
Policy and Program Support Division
Hazardous Waste Management Program

cc: See next page.

cc: Ms. Pauline Batarseh, Chief
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 "I" Street, 11th Floor
P.O. Box 806
Sacramento, California 95812-0806

Mr. Donn Diebert, Chief
Program Implementation Unit
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 "I" Street, 11th Floor
P.O. Box 806
Sacramento, California 95812-0806

Mr. Bob Gipson
Environmental Specialist
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 "I" Street, 11th Floor
P.O. Box 806
Sacramento, California 95812-0806

0005-1

Thank you for your comments on the Draft EIR. This introductory comment is noted.

0005-2

This introductory comment is noted.

0005-3

Please see GR 6 regarding use of this EIR by responsible agencies. The EIR scope includes cleanup of minor operational spills and releases of petroleum as well as non-petroleum products (insert page reference) but does not cover remediation of non-petroleum legacy releases or major remedial projects. The EIR may be used as an informational document by DTSC for such projects, but DTSC will determine the appropriate form of CEQA documentation required for these remediation activities that do not fall within the scope of this EIR.

0005-4

The Project under consideration in this EIR includes approval and implementation of of zoning ordinance amendments, and the amendments provide different procedures for County review and approval of oil and gas activities. The Site Conformity Review process, for example, includes a ministerial permit process. Implementation of this ministerial permit process falls within the scope of this EIR. For additional information about the scope of this EIR in relation to this ministerial permit approval process, please refer to GR 1.

0005-5

The comment is accurate that "DTSC" refers to the Department of Toxic Substances Control, and "DPH" is the appropriate acronym for referring to the Department of Public Health. This typographical error is noted and hereby corrected.

0005-6

This statutory definition of "hazardous substance" is added as requested by the Department to this Final EIR. The term "hazardous materials" is not specifically included in the regulatory definition of "hazardous substances," but for purposes of CEQA both hazardous substances and hazardous materials are considered in this EIR.

0005-7

The Department's addition of a statutory definition of "hazardous material" is added to the Final EIR.

0005-7 cont'd

The Department's addition of a statutory definition of "hazardous material" is added to the Final EIR.

0005-8

The Draft EIR included descriptive information derived from this and other cited regulations, but used verbatim regulatory quotations selectively in order to improve the readability of the EIR. In this case, hazardous waste that is "listed" also generally exhibits one or more of the four toxic characteristics, and the nuanced distinctions between between "listed" and "characteristic" waste goes beyond the level of regulatory detail required to describe the Project or to disclose, assess, and mitigate Project impacts.

0005-9

The regulatory reference should be to the California Highway Patrol, and this change is made to the Final EIR.

0005-9 cont'd

0005-10

The text suggested by the Department is hereby included in the Final EIR.

0005-11

The Department's suggested language is accurate (and also makes relevant the distinction between listed and characteristic hazardous waste categories as described above). The Department's suggested additional text clarifications are hereby added to the Final EIR.

0005-12

This introductory comment is noted.

0005-12 cont'd

0005-13

The Department's suggested additional descriptive text about produced water is noted; however, the quality of produced water varies within the Project Area. Produced water must be managed in compliance with applicable laws and regulations, including hazardous waste laws and regulations that obligate generators of waste to properly manage hazardous waste and to know (with testing, as appropriate) whether a waste is hazardous.

Under California hazardous waste regulations, it is the generator's responsibility to determine whether waste that it generates is hazardous. 22 CCR §66260.200(c). Assuming the waste is not otherwise excluded or exempted, and is not listed as a hazardous waste, the regulations provide for two primary means by which generators may make hazardous waste determinations: generator knowledge, and analytical testing. 22 CCR §66262.11(c).

To make a hazardous waste determination based on generator knowledge, the generator must obtain enough information to facilitate making a proper characterization of the waste. The information available may be of variable forms, including Material Safety Data Sheets for materials used in the process, process flow diagrams, information regarding the physical state and volume of wastes generated by the process, waste characterizations performed by industry associations for similar processes, chemical engineering designs or plans for the process showing inputs, chemical reactions expected, and products, literature from the supplier of materials or equipment used in the process, published data, documented studies on similar processes, and any previous waste analyses, if available. Ideally, the information available would enable the generator to calculate a materials balance of inputs and outputs of the process. Generator knowledge as a basis for hazardous waste classification comes with a greater risk of inaccurate characterization than analytical testing. The generator remains liable for its waste characterization, whether it employs generator knowledge or analytical testing. But if a generator determines that adequate information is available and the generator has confidence in its characterization of the waste based on the information, there is no legal requirement to conduct analytical testing to characterize the waste. If, however, the generator does not have sufficient information to serve as a reasonable basis upon which to characterize using process knowledge, the generator must perform analytical testing to accurately characterize the waste. Generators are expected to maintain documentation for at least three years demonstrating the information and/or data upon which its waste characterizations were made.

The Department's comment regarding these regulatory compliance obligations are included in the Final EIR.

0005-14

The quoted sentence was not intended to suggest that TSCA created RCRA. TSCA and RCRA are both federal statutory programs enacted by Congress, and are the subject of separate regulations promulgated by EPA.

0005-15

As with other Department comments on the regulatory setting, the Draft EIR includes descriptive text but is not intended to be a verbatim reprint of regulatory requirements, or include regulatory details that are not required to consider Project impacts and mitigation measures. The additional text suggested by the Department is included in the Final EIR.

0005-15 cont'd

As with other Department comments on the regulatory setting, the Draft EIR includes descriptive text but is not intended to be a verbatim reprint

of regulatory requirements, or include regulatory details that are not required to consider Project impacts and mitigation measures. The additional text suggested by the Department is included in the Final EIR.

0005-16

The requested additional text is hereby added to the Final EIR.

0005-17

The term "classified waste" includes wastes regulated as "hazardous" as well as other wastes (i.e., waste including only petroleum products) that are regulated but not classified as "hazardous." The requested text modification could be construed as inaccurately encompassing non-hazardous regulated wastes as hazardous wastes and is accordingly not included in the Final EIR.

0005-18

The Department's text edits are included in this Final EIR.

0005-19

The Department's clarifications regarding regulatory requirements applicable to hazardous waste, including information about the Department's upcoming study of flowback fluids at WST operations. Applicants are required to comply with all applicable laws and regulations, including but not limited to future hazardous waste laws and regulations, is noted and included in the Final EIR.

0005-19 cont'd

0005-20

A sequential numbering system is used for all required mitigation measures, which simplifies ongoing ongoing monitoring for compliance with mitigation measures. Sequential numbering of impacts is also required for tracking purposes. The Department's concern with this numbering system is acknowledged.

0005-21

Fuels and lubricants are the most common hazardous materials maintained at well sites and other field locations, and other types of hazardous materials (e.g., paints, cleaning fluids, and landscaping maintenance fluids) are generally brought to and from the site by maintenance workers. Hazardous waste is not generally stored at well sites and other field locations, and thus compliance with the hazardous waste storage secondary containment regulations applicable to hazardous waste transfer, treatment, storage and disposal facilities included in 22 CCR 66264.193 is not required. Compliance with laws and regulations is required, including compliance with hazardous materials and hazardous waste storage laws as applicable, including for secondary containment. The most relevant of these requirements is in DOGGR regulations (CCR 1773.1), which requires secondary containment in "an engineered impoundment such as a catch basin, which can include natural topographic features, that is designed to captured fluid relesaed from a production facility." This additional reference to applicable DOGGR secondary containment regulations is added to the Final EIR.

0005-22

The Draft EIR makes clear that Applicants are responsible for complying with all laws and regulations. The Department's requested clarification that compliance with hazardous waste laws, and recycling laws, in determining the extent to which reuse of oil-based muds and high-density brines is practical, is included in the Final EIR.

0005-23

As noted above, compliance with applicable laws and regulations is required for all Project activities. The Department's reminder that this compliance obligation extends to the management of debris and tank bottoms is added to this Final EIR.

0005-24

The requested citation is hereby added to the Final EIR.

0005-25

The Department's concern is noted. A hazardous waste transfer facility would either be prohibited outright, or require a Conditional Use Permit, in a zoning district that allows residential uses. The Department's outreach to hazardous waste transporters is welcomed.

0005-26

Commenter's concluding remarks regarding hazardous waste transfer facility permits is noted.

6 State of California – Governor's Office of Planning and Research

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

Memorandum

Date: July 7, 2015

To: All Reviewing Agencies

From: Scott Morgan, Director

Re: SCH # **2013091062**

Revisions to the Kern County Zoning Ordinance – 2015 C. Focused on Oil and Gas Local Permitting

---

Pursuant to the attachments, the State Clearinghouse distributed the above-referenced **Draft EIR** on **July 7, 2015** to your agency for review and comment. It has come to our attention that the document was issued an ***incorrect*** State Clearinghouse Number. For all future correspondence regarding this project, please use the original State Clearinghouse Number **SCH# 2013081079**.

We apologize for any inconvenience this may have caused and ask that you also note the end review period has been corrected to close on **August 24, 2015**.

All other project information remains the same.

0006-1

cc: Christopher B. Mynk
Kern County Planning Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2323

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY
DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

July 7, 2015

RECEIVED
JUL 07 2015
STATE CLEARING HOUSE

FILE: SCH# 2013091062
(Corrected SCH# 2013081079)

State Clearinghouse
Attn: Christine Asiata
1400 Tenth Street
Sacramento, CA 95814

RE: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Dear Ms. Asiata,

A mail courier erroneously delivered a Draft EIR, titled: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting, to your office this morning (July 7, 2015) with the incorrect SCH#. The incorrect number was SCH# 2013091062. The correct number is SCH# 2013081079. After speaking with you today, we determined that your office had already distributed the materials to the appropriate agencies.

At this time, I would like to request your office provide those agencies with a memo stating the document they received today should have a corrected title page, inside cover and NOC form. I have attached these pages for your reference. If you could kindly provide these with the memo to the agencies, it would be greatly appreciated.

I would also like to request that you change the comment period to match the NOC, from July 8, 2015 to August 24, 2015. If you cannot change the start date, please change the ending date to August 24th.

If you have any questions regarding this matter, please contact me directly at (661) 862-8607 or by email at MynkC@co.kern.ca.us.

Sincerely,

Christopher B. Mynk, AICP
Supervising Planner

PLANNING AND COMMUNITY
DEVELOPMENT DEPARTMENT

Lorelei H. Oviatt, AICP, Director
2700 "M" STREET, SUITE 100
BAKERSFIELD, CA 93301-2323
Phone: (661) 862-8600
FAX: (661) 862-8601 TTY Relay 1-800-735-2929
E-Mail: planning@co.kern.ca.us
Web Address: www.co.kern.ca.us/planning



DEVELOPMENT SERVICES AGENCY

Engineering, Surveying and Permit Services
Planning and Community Development
Roads

DATE: July 8, 2015

To: See Attached Mailing List

FROM: Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661) 862-8607; MynkC@co.kern.ca.us

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT

This is to advise that the Kern County Planning and Community Development Department has prepared an Environmental Impact Report (EIR) for the project identified below. As mandated by State law, the minimum public review period for this document is 45 days. The document and documents referenced in the Draft EIR are available for review at the Planning and Community Development Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301 or on the Departmental website (**http://pcd.kerndsa.com/planning/oil-gas-zoning-amendment**).

The Kern County Planning and Community Development Department will host a joint public briefing workshop with the Kern County Board of Supervisors and the Kern County Planning Commission to receive comments on the document on: **July 27, 2015** at 9:00 a.m., at the Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California.

Comments can be also be submitted at one of our additional public workshops that will be held at **6:00 p.m.** at the following locations and dates:

Shafter Veterans Building, Room 2, 309 California Avenue, Shafter CA	**August 10, 2015**
Taft Veterans Hall, Room 1, 218 Taylor Street, Taft, CA	**August 17, 2015**

A public hearing has been scheduled with the Kern County Planning Commission to receive comments on the document on: **October 5, 2015** at 5:00 p.m or soon thereafter, Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California.

The comment period for this document closes on **August 24, 2015**. Testimony at future public hearings may be limited to those issues raised during the public review period either orally or submitted in writing by 5:00 p.m. the day the comment period closes.

Project Title: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting.

Project Location: The Project Boundary (Local Permitting Boundary Area) encompasses 3,110 square miles and generally includes the San Joaquin Valley Floor portion of Kern County up to an elevation of 2,000 feet. The boundary includes: west side-the San Luis Obispo County line, north side- the Kings and Tulare county lines, east and south sides-the 2,000-foot elevation contours, squared off to the nearest section line.

Project Description: The proposed Project consists of revisions to various Chapters of Title 19 Kern County Zoning Ordinance to implement a new permit process for oil and gas activities. The revisions include new site development standards and review processes for all oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County by:

(a) Removing the "Unrestricted Drilling" Section in Chapter 19.98 and updated "Drilling by Ministerial Permit" and "Drilling by Conditional Use Permit" Sections;

(b) Establishing a new "Tier Area" maps to address different land uses and zone districts where oil and gas activities occur and are proposed to occur in the future;

(c) Establishing an Oil and Gas Conformity Review and Minor Activity Review, as part of the "Drilling by Ministerial Permit" Section in Chapter 19.98, to ensure compliance with all applicable Development and Implementation Standards and Conditions;

(d) Establishing new Development and Implementation Standards and Conditions Section in Chapter 19.98;

(e) Establishing new requirements for site plan sign-off by owners of the surface and minerals for split estate ownership;

(f) Revising additional Chapters of the Zoning Ordinance to ensure consistency with the new requirements of this EIR. These Chapters include: 19.08 – Interpretations and General Standards, 19.48 – Drilling Island (DI) District, 19.50 – Floodplain Primary District, 19.66 – Petroleum Extraction (PE) Combining District, 19.81 - Outdoor Lighting (Dark Skies Ordinance), 19.88 – Hillside Development, 19.102 – Permit Procedures, and 19.108 – Nonconforming Uses, Structures, and Lots.

Signature: _____

Name: Christopher B. Mynk, AICP,
Supervising Planner

Draft Environmental Impact Report

RECEIVED
JUL 07 2015
STATE CLEARING HOUSE

SCH# 2013081079

Volume 1
Chapters 1 through 11

REVISIONS to the KERN COUNTY ZONING ORDINANCE – 2015 (C)
Focused on Oil and Gas Local Permitting

Kern County
Planning and Community Development Department
Bakersfield, California

July 2015

Draft
Environmental Impact Report

SCH# 2013081079

Volume 1
Chapters 1 through 11

REVISIONS to the KERN COUNTY ZONING ORDINANCE – 2015 (C)
Focused on Oil and Gas Local Permitting

Kern County Planning and Community Development Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2370
(661) 862-8600

Technical Assistance by:
Ecology and Environment, Inc.
401 West A Street, Suite 775
San Diego, CA 92101
(619) 696-0578

July 2015

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2013081079

Project Title: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Lead Agency: Kern County Planning Department
Contact Person: Christopher B. Mynk
Mailing Address: 2700 "M" Street Suite 100
Phone: (661) 862-8607
City: Bakersfield
Zip: 93301-2323
County: Kern

Project Location: County: Kern
City/Nearest Community: Multiple
Cross Streets: n/a
Zip Code
Lat. / Long.:
Total Acres: 3,110 square miles
Assessor's Parcel No.: Multiple
Section: Twp.: Range: Base:
Within 2 Miles: State Hwy #: 99, 58, 43, 46, 119, 223, 204, 33
Waterways: Kern River (multiple)
Airports: Multiple
Railways: Multiple
Schools: Multiple

Document Type:

CEQA:
- ☐ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☐ Mit Neg Dec
- ☒ Draft EIR
- ☐ Supplement/Subsequent EIR (Prior SCH No.)
- Other

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI
- ☐ Other
- ☐ Joint Document
- ☐ Final Document
- ☐ Other

RECEIVED
JUN 07 2015
STATE CLEARING HOUSE

Local Action Type:

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☐ Rezone
- ☐ Prezone
- ☐ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☒ Amendment to Zone Ord.

Development Type:

- ☐ Residential: Units Acres
- ☐ Office: Sq.ft. Acres Employees
- ☐ Commercial: Sq.ft. Acres Employees
- Industrial: Sq.ft. Acres Employees
- ☐ Educational
- ☐ Recreational
- ☐ Water Facilities: Type MGD
- ☐ Transportation: Type
- ☐ Mining: Mineral
- ☐ Power: Type MW
- ☐ Waste Treatment: Type MGD
- ☐ Hazardous Waste: Type
- Other:

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☒ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☒ Biological Resources
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☐ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☒ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☒ Minerals
- ☒ Noise
- ☒ Population/Housing Balance
- ☒ Public Services/Facilities
- ☒ Recreation/Parks
- ☒ Schools/Universities
- ☒ Septic Systems
- ☒ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☒ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☒ Wildlife
- ☒ Growth Inducing
- ☒ Land Use
- ☒ Cumulative Effects
- ☐ Other

Present Land Use/Zoning/General Plan Designation: Developed and undeveloped land in Kern County. Current Zoning Classifications and General Plan Map Code Designations to remain the same.

The Project Boundary (Local Permitting Boundary Area) encompasses 3,110 square miles and generally includes the San Joaquin Valley Floor portion of Kern County up to an elevation of 2,000 feet. The boundary includes: west side-the San Luis Obispo County line, north side- the Kings and Tulare county lines, east and south sides-the 2,000-foot elevation contours, squared off to the nearest section line.

Project Description: The proposed Project consists of revisions to various Chapters of Title 19 Kern County Zoning Ordinance to implement a new permit process for oil and gas activities. The revisions include new site development

standards and review processes for all oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County by:

(a) Removing the "Unrestricted Drilling" Section in Chapter 19.98 and updated "Drilling by Ministerial Permit" and "Drilling by Conditional Use Permit" Sections;

(b) Establishing a new "Tier Area" maps to address different land uses and zone districts where oil and gas activities occur and are proposed to occur in the future;

(c) Establishing an Oil and Gas Conformity Review and Minor Activity Review, as part of the "Drilling by Ministerial Permit" Section in Chapter 19.98, to ensure compliance with all applicable Development and Implementation Standards and Conditions;

(d) Establishing new Development and Implementation Standards and Conditions Section in Chapter 19.98;

(e) Establishing new requirements for site plan sign-off by owners of the surface and minerals for split estate ownership;

(f) Revising additional Chapters of the Zoning Ordinance to ensure consistency with the new requirements of this EIR. These Chapters include: 19.08 – Interpretations and General Standards, 19.48 – Drilling Island (DI) District, 19.50 – Floodplain Primary District, 19.66 – Petroleum Extraction (PE) Combining District, 19.81 - Outdoor Lighting (Dark Skies Ordinance), 19.88 – Hillside Development, 19.102 – Permit Procedures, and 19.108 – Nonconforming Uses, Structures, and Lots.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

S	Air Resources Board		Office of Emergency Services
	Boating & Waterways, Department of	S	Office of Historic Preservation
S	California Highway Patrol		Office of Public School Construction
x	CalFire	S	Parks & Recreation
S	Caltrans District # 6 & 9		Pesticide Regulation, Department of
S	Caltrans Division of Aeronautics	x	Public Utilities Commission
S	Caltrans Planning (Headquarters)	S	Regional WQCB # Lahontan & Central Valley
x	Central Valley Flood Protection Board		Resources Agency
	Coachella Valley Mountains Conservancy		S.F. Bay Conservation & Development Commission
	Coastal Commission		San Gabriel & Lower L.A. Rivers and Mtns Conservancy
	Colorado River Board		San Joaquin River Conservancy
	Conservation, Department of		Santa Monica Mountains Conservancy
	Corrections, Department of	x	State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of		SWRCB: Water Quality
S	Energy Commission		SWRCB: Water Rights
S	Fish & Game Region # Fresno		Tahoe Regional Planning Agency
S	Food & Agriculture, Department of	S	Toxic Substances Control, Department of
	General Services, Department of	S	Water Resources, Department of
x	Health Services, Department of		
x	Housing & Community Development		Other _____
S	Integrated Waste Management Board		Other _____
S	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date July 8, 2015 Ending Date August 24, 2015

Lead Agency (Complete if applicable):

Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: _____

Applicant: _____
Address: _____
City/State/Zip: _____
Phone: _____

Signature of Lead Agency Representative: _____ **Date:** July 8, 2015

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

2013081079

0006

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # ~~2013091062~~

Project Title: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Lead Agency: Kern County Planning Department
Contact Person: Christopher B. Mynk
Mailing Address: 2700 "M" Street Suite 100
Phone: (661) 862-8607
City: Bakersfield
Zip: 93301-2323
County: Kern

Project Location: County: Kern
City/Nearest Community: Multiple
Cross Streets: n/a
Zip Code
Lat. / Long.:
Total Acres: 3,110 square miles
Assessor's Parcel No.: Multiple
Section: Twp.: Range: Base:
Within 2 Miles: State Hwy #: 99, 58, 43, 46, 119, 223, 204, 33
Waterways: Kern River (multiple)
Airports: Multiple
Railways: Multiple
Schools: Multiple

RECEIVED
JUL 07 2015
STATE CLEARING HOUSE

Document Type:

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☒ Draft EIR ☐ Supplement Subsequent EIR (Prior SCH No.) ☐ Other
EPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Amendment to Zone Ord.

Development Type:

☐ Residential: Units Acres
☐ Office: Sq.ft. Acres Employees
☐ Commercial: Sq.ft. Acres Employees
☐ Industrial: Sq.ft. Acres Employees
☐ Educational
☐ Recreational
☐ Water Facilities: Type MGD
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type MW
☐ Waste Treatment: Type MGD
☐ Hazardous Waste: Type
Other:

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☒ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☒ Biological Resources ☐ Coastal Zone ☒ Drainage/Absorption ☐ Economic/Jobs ☐ Other
☐ Fiscal ☒ Flood Plain/Flooding ☒ Forest Land/Fire Hazard ☒ Geologic/Seismic ☒ Minerals ☒ Noise ☒ Population/Housing Balance ☒ Public Services/Facilities
☒ Recreation/Parks ☒ Schools/Universities ☒ Septic Systems ☒ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☒ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation
☒ Vegetation ☒ Water Quality ☒ Water Supply/Groundwater ☒ Wetland/Riparian ☒ Wildlife ☒ Growth Inducing ☒ Land Use ☒ Cumulative Effects

Present Land Use/Zoning/General Plan Designation: Developed and undeveloped land in Kern County. Current Zoning Classifications and General Plan Map Code Designations to remain the same.

Project Description: The proposed Project consists of revisions to various Chapters of Title 19 Kern County Zoning Ordinance to implement a new permit process for oil and gas activities. The revisions include new site development standards and review processes for all oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County by:

State Clearinghouse Contact: (916) 445-0613 KRS

State Review Began: 7 - 7 - 2015

SCH COMPLIANCE 8 - 24 - 2015

Note: Review per Lead

Please note State Clearinghouse Number (SCH#) on all Comments

SCH#: 2013081079

Please forward late comments directly to the Lead Agency

AQMD/APCD 11

(Resources: 7 / 11)

Project Sent to the following State Agencies

- X Resources
- ___ Boating & Waterways
- ___ Coastal Comm
- ___ Colorado Rvr Bd
- X Conservation
- X CDFW # 4
- ___ Delta Protection Comm
- ___ Cal Fire
- ___ Historic Preservation
- X Parks & Rec
- ___ Central Valley Flood Prot.
- ___ Bay Cons & Dev Comm.
- X DWR
- ___ OES
- ___ Resources, Recycling and Recovery

State/Consumer Svcs

- ___ General Services

Cal EPA

- X ARB: ALL Other Projects
- ___ ARB: Transportation Projects
- X ARB: Major Industrial/Energy
- ___ SWRCB: Div. of Drinking Water
- ___ SWRCB: Div. Financial Assist.
- ___ SWRCB: Wtr Quality
- ___ SWRCB: Wtr Rights
- X Reg. WQCB # 5F
- X Toxic Sub Ctrl-CTC

Yth/Adlt Corrections

- ___ Corrections

CalSTA

- ___ Aeronautics
- X CHP
- X Caltrans # 6
- ___ Trans Planning

Independent Comm

- X Energy Commission
- X NAHC
- X Public Utilities Comm
- ___ State Lands Comm
- ___ Tahoe Rgl Plan Agency

Other

- ___ HCD
- ___ Food & Agriculture
- ___ Conservancy
- ___ Other:

EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

KEN ALEX
DIRECTOR

September 14, 2015

Christopher B. Mynk
Kern County
2700 M Street, Suite 100
Bakersfield, CA 93301-2323

Subject: Revisions to the Kern County Zoning Ordinance - 2015 C. Focused on Oil and Gas Local Permitting
SCH#: 2013081079

Dear Christopher B. Mynk:

0006-2

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on September 11, 2015, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2013081079
Project Title Revisions to the Kern County Zoning Ordinance - 2015 C. Focused on Oil and Gas Local Permitting
Lead Agency Kern County

Type EIR Draft EIR

Description Note: Extended Review per lead

The proposed project consists of an amendment to Title 19 Kern County Zoning Ordinance focused on Chapter 19.98 (Oil and Gas Production) include updated development standards and conditions for oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County.

Lead Agency Contact

Name Christopher B. Mynk
Agency Kern County
Phone 661 862 8607 **Fax**
email
Address 2700 M Street, Suite 100
City Bakersfield **State** CA **Zip** 93301-2323

Project Location

County Kern
City
Region
Lat / Long
Cross Streets
Parcel No. Multiple
Township **Range** **Section** **Base**

Proximity to:

Highways Hwy 99, 58, 43, 46, 119, 223, 20
Airports Multiple
Railways Multiple
Waterways Kern River
Schools Multiple
Land Use Developed and Undeveloped land in Kern County. Current Zoning Classifications and General Plan Map Code Designations to remain the same.

Project Issues Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects; Aesthetic/Visual

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Wildlife, Region 4; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 6; Air Resources Board; Air Resources Board, Major Industrial Projects; Regional Water Quality Control Bd., Region 5 (Fresno); Department of Toxic Substances Control; California Energy Commission; Native American Heritage Commission; Public Utilities Commission

Date Received 07/07/2015 **Start of Review** 07/07/2015 **End of Review** 09/11/2015

Note: Blanks in data fields result from insufficient information provided by lead agency.

State of California—Transportation Agency EDMUND G. BROWN Jr., Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
4040 Buck Owens Boulevard
Bakersfield, CA 93308
(661) 864-4444
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

CLEAR
9-11-15
E

July 30, 2015

File No.: 420.12586.12904

RECEIVED
AUG 06 2015
STATE CLEARING HOUSE

State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

scn#2013081079

To whom it may concern:

The Bakersfield Area of the California Highway Patrol received a "Notice of Completion" of the environmental document for the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance, State Clearinghouse ~~#2013091062.~~ The proposal concerns zoning and permitting procedures for oil and gas drilling throughout Kern County.

After review, we have determined there will be no impact on operations in the Bakersfield Area and there will be no long term adverse impact on departmental operations.

Sincerely,

Lt. Exc

P. MEDEIROS, Captain
Commander
Bakersfield Area

cc: Central Division
Special Projects Section

Memorandum

Date: July 21, 2015

To: Bakersfield Area (420)

From: **DEPARTMENT OF CALIFORNIA HIGHWAY PATROL**
Special Projects Section

File No.: 063.A04575.A14630.Noc.Doc

Subject: ENVIRONMENTAL DOCUMENT REVIEW AND RESPONSE
SCH# 2013091062

Special Projects Section (SPS) recently received a "Notice of Completion" environmental document from the State Clearinghouse outlining the information contained in the attached profile.

After a preliminary review, we believe this project will not have a significant impact on statewide departmental operations. However, because of your geographical proximity to the site, you are in a better position to provide a more accurate assessment of any traffic-related matters that may affect your local Area operations. Information and procedures outlined in Highway Patrol Manual 41.1, Transportation Planning Manual, Chapter 6, Environmental Impact Documents, should serve as a guideline when reviewing transportation-related documents.

If you determine departmental input is advisable, please provide your written comments referencing the above SCH number to the State Clearinghouse, 1400 Tenth Street, Room 121, Sacramento, CA 95814. Your comments must be received no later than August 20, 2015. Please forward a copy of your written comments to SPS. If you determine there is "no impact," please notify SPS by electronic mail (e-mail) to the analyst listed below, or by memorandum.

If you have any questions, please call Associate Governmental Program Analyst Leah Mora at (916) 843-3365, or e-mail at lemora@chp.ca.gov.

for

P. A. SLINEY, SSM III
Commander

Attachment

cc: Central Division
Assistant Commissioner, Field

2015 SEP 17 PM 4:11

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

CEQA
9-11-15
t

September 11, 2015

RECEIVED
SEP 11 2015
STATE CLEARING HOUSE

Christopher B. Mynk
Kern County Planning and
Community Development Department
2700 "M" Street, Suite 100
Bakersfield, California 93301-2323

Subject: Draft Environmental Impact Report: Revisions to the Kern County Zoning Ordinance – 2015 C, Focused on Oil and Gas Local Permitting SCH No. 2013081079

Dear Mr. Mynk:

The California Department of Fish and Wildlife (Department) has reviewed the Draft Environmental Impact Report (DEIR) prepared for the Revisions to the Kern County Zoning Ordinance- 2015 C, Focused on Oil and Gas Local Permitting (Project), submitted by the Kern County Planning and Community Development Department (County). The proposed Project consists of revisions to various Chapters of Title 19 Kern County Zoning Ordinance to implement a new permit process for oil and gas activities. The revisions include new site development standards and review processes for all oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County by:

(a) Removing the "Unrestricted Drilling" Section in Chapter 19.98 and update "Drilling by Ministerial Permit" and "Drilling by Conditional Use Permit" Sections;

(b) Establishing a new "Tier Area" map to address different land uses and zone districts where oil and gas activities occur and are proposed to occur in the future;

(c) Establishing and Oil and Gas Conformity Review and Minor Activity Review, as part of the "Drilling by Ministerial Permit" Section in Chapter 19.98, to ensure compliance with all applicable Development and Implementation Standards and Conditions;

(d) Establishing a new Development and Implementation Standards and Conditions Section in Chapter 19.98;

(e) Establishing new requirements for site plan sign-off by owners of the surface and minerals for split estate ownership;

(f) Establishing a new fee structure to ensure that all mitigation is complied with and that the County will be sufficiently staffed to review all new applications;

(g) Revising additional Chapters of the Zoning Ordinance to ensure consistency with the new requirements of the Environmental Impact Report. These Chapters include: 19.08- Interpretations and General Standards, 19.48- Drilling Island (DI) District, 19.50- Floodplain Primary District, 19.66- Petroleum Extraction (PE) Combining District, 19.81 Outdoor Lighting (Dark Skies Ordinance), 19.88- Hillside Development, 19.102- Permit Procedures, and 19.108- Nonconforming Uses, Structures, and Lots.

The Project Boundary (Local Permitting Boundary Area) encompasses 3,100 square miles and generally includes the San Joaquin Valley Floor portion of Kern County up to an elevation 2,000 feet. The boundary includes: the San Luis Obispo County line on the west side; the Kings and Tulare County lines on the north side, the 2,000-foot elevation contours, squared off to the nearest section line, on the east and south sides.

The DEIR, once certified, will be used to satisfy the California Environmental Quality Act (CEQA) requirements for multiple State and local agency discretionary approvals on evaluated oil and gas activities in Kern County, which will include the Department's discretion on the issuance of Incidental Take Permits (ITPs) pursuant to Fish and Game Code Section 2081 and Lake or Streambed Alteration (LSA) Agreements pursuant to Fish and Game Code sections 1600 *et seq*.

On September 26, 2013, the Department commented on the Notice of Preparation for the Project and offered recommendations to avoid, minimize, and mitigate potential impacts to biological resources. We are now providing document specific comments and recommendations for the DEIR.

Department Comments

The Department is providing specific recommendations to the text of the DEIR. The intent is to ensure that there are no obstacles for the Department to use the Environmental Impact Report (EIR) for CEQA compliance when issuing an ITP or LSAA for oil and gas projects in Kern County and to also provide technical assistance to the biological resources information in the document. Our recommended actions are in **bold**; additions are in ***bold italics***; and deleted language is in ~~strikethrough~~.

Executive Summary Chapter 1

Section 1.2, Project Summary, Page 1-2, # 5: The Department recommends the following **addition**- "California Department of Fish and Wildlife incidental take permits ***and Lake or Streambed Alteration Agreements***."

Project Description Chapter 3

Section 3.5.3 Construction Activities in Detail- Vegetation Control, Page 3-64: The first sentence of this section states, "Vegetation along roadsides and critical facilities such as tank settings and compressor stations is controlled as needed through the use of mowing, grading, weed-whacking, and spot treatments of herbicides approved by USFWS and CDFW." The Department is unclear if we're being asked to approve herbicides or the vegetation removal itself. Please make note, the Department does not have authority to approve herbicides outside of a LSA Agreement for a specific project, so we are recommending the following **edits**- "Vegetation along roadsides and critical facilities such as tank settings and compressor stations is controlled as needed through the use of mowing, grading, weed-whacking, and spot treatments of herbicides. ***If vegetation removal would occur in potential habitat for special-status species, approval*** ~~approved~~ by USFWS and CDFW ***may be required***."

Section 3.5.5 Best Management Practices- Biological Resources, Page 3-73 through 74: The first applicant proposed Best Management Practice (BMP) states, "Within 14 days before any ground disturbance activities on previously undisturbed property, a qualified biologist shall conduct a focused survey to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential impacts to sensitive species onsite. The survey shall be conducted in accordance with the standard protocol of USFWS and CDFW."

The Department recommends that focused surveys for special-status species be conducted well in advance of ground-disturbing activities to accommodate seasonal restrictions and potential permitting needs. The Department recommends that a reconnaissance biological survey be conducted as early as possible during project planning so that qualified wildlife biologist(s) have the opportunity to determine whether focused/protocol surveys are warranted, and by so doing would give project proponents plenty of time to incorporate them into their project schedule. In the event that a State-listed species is detected during a reconnaissance survey effort or during a focused/protocol survey, the project proponents need plenty of time to accommodate necessary ITP issuance to prevent project delays.

In relation to the first applicant proposed BMP, DEIR mitigation measure (MM) 4.4-1 of Biological Resources, currently states, "With the exception of focused surveys that are seasonally restricted, special status wildlife surveys must be completed by a qualified biologist within a 30-day period prior to commencement of new ground-disturbance construction activities." The Department is recommending that the BMPs be consistent with the DEIR MMs to reflect a 30-day window for pre-disturbance surveys, and split BMP one (1) into three new BMPs to clarify when biological reconnaissance surveys, focused/protocol special-status species surveys, and pre-disturbance surveys are warranted. This would require an adjustment of the numbering of the BMPs.

For the applicant proposed BMPs, the Department recommends the following **addition**- 1. ***A qualified biologist shall conduct a biological reconnaissance survey in potential special-status species habitat to advise the project proponent of potential project impacts, potential permitting needs, and advise on the need for focused special status species surveys. Early consultation with USFWS and CDFW would confirm the biologist's advice and/or inform project proponents of additional recommendations.***

The Department recommends the following **edits and additions**- ~~1~~2. ~~Within 14 days before any ground disturbance activities on previously undisturbed property, a qualified biologist shall conduct a~~ ***Based on the information gathered from the biological reconnaissance survey and informal consultation with USFWS and CDFW,*** focused/***protocol*** survey***s shall be conducted by a qualified or permitted biologist (whichever is applicable) well in advance of ground disturbing activities*** to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential ***project*** impacts to ~~sensitive~~ ***those*** species ~~onsite~~. The survey shall be conducted in accordance with the ***most current*** standard protocol of USFWS and CDFW.

The Department also recommends the following **edits** to applicant proposed BMP # 3- If take of covered endangered or threatened species has the potential to occur, the appropriate USFWS and CDFW Endangered Species Act ***permits be acquired and*** compliance provisions shall be followed.

The Department recommends the following **edits and additions** after applicant proposed BMP # 3- ***4.*** Within ~~14~~ ***30*** days before any ground-disturb~~ance~~***eing*** activities ~~on previously undisturbed property~~ ***in special-status species habitat,*** a qualified biologist shall conduct a ~~focused~~ ***pre-disturbance*** survey to ~~determine~~ ***record*** ~~the presence/absence~~ ***existing conditions*** of ***the site, determine if conditions have changed since the reconnaissance or focused/protocol surveys were conducted, and to determine where*** sensitive species ~~protected by state and federal Endangered~~

~~Species Acts and potential impacts to sensitive species onsite~~ ***avoidance buffers will be established***. ~~The survey shall be conducted in accordance with the standard protocol of USFWS and CDFW.~~

The Department recommends that a new BMP be **added** before the current applicant proposed BMP #4 to include the requirement of a biological monitor during ground-disturbing activities in project locations that have potential special-status species habitat or is adjacent to potential special-status species habitat.

The Department recommends the following **edit** to applicant proposed BMP # 6- All pipe***s*** ~~3~~***1.5***-inch***es*** or greater in diameter stored overnight on a ***project*** location must have end caps that prevent wildlife from entering the pipe.

The Department recommends the following **edits** to applicant proposed BMP #8- An educational briefing shall be conducted for all Project personnel on ~~previously undisturbed property~~ ***project sites that have potential special-status species habitat or is adjacent to potential special-status species habitat*** prior to the start of the covered Project/activity.

The Department recommends the following **edits** to applicant proposed BMP #9- The Applicant/Operator shall consult with the CDFW as necessary to determine if a Section ~~1600~~ ***1602 Lake or*** Streambed Alteration Agreement will be required for Project implementation.

Section 3.5.5 Best Management Practices- Water Resources, Page 3-75: BMP #1 for Water Resources states, "Avoid streams, wetlands, and drainages, where possible. Locate access roads to minimize stream crossings and to minimize impacts where crossings cannot be avoided. Obtains CDFW Streambed Alteration Agreement prior to any work in a state jurisdictional waterway." Please make note and **update** the DEIR to reflect the actual name of the permit discussed above as ***Lake or Streambed Alteration Agreement***. Also, a Lake or Streambed Alteration Agreement is one of three possible outcomes following notification to the Department that could result in authorizing a project's activities. Following notification to the Department, a project may not legally occur until after the Department does one of the following: 1) executes a Lake or Streambed Alteration Agreement; 2) determines that an agreement is not necessary and informs the applicant in writing; or 3) fails to issue an agreement within mandated time lines.

Biological Resources Chapter 4, Section 4.4

Section 4.4.2 Environmental Setting- Land Cover Types, Urban and Developed Lands, Page 4.4-11: Sentence three of this paragraph states, "Developed lands do not provide substantial wildlife habitat, but a few occurrences of protected or sensitive species, such as the San Joaquin kit fox, have been documented, primarily in unpaved and fallow parcels interspersed in developed areas (USFWS 1998; Bjurlin et al. 2005)." Currently the San Joaquin kit fox population is quite robust in urban settings such as Bakersfield, Oildale, Maricopa, McKittrick, and Taft and utilizes developed areas such as schools, parking lots, green space, road right-of-ways, sumps, etc. The Department recommends **updating** this section to include the current status of the San Joaquin kit fox population and their urban setting use.

Section 4.4.2 Environmental Setting- Wildlife Refuges and Protected Habitat Areas, Page 4.4-11: This section lists the 'permanently preserved conservation lands' located in the Project Area. The Department recommends including a definition of permanently protected conservation lands or lands preserved in perpetuity. Also, some of the private lands listed in this section which are owned by project proponents for compensatory mitigation do not yet have recorded conservation easements (parcels with recorded conservation easements are what the Department recognizes as permanently protected lands) or preserves owned and managed by non-governmental organizations (NGOs) that do not have conservation easements recorded. There are also lands identified for future protection that are not yet protected. We recommend including a different category for lands that are not preserved in perpetuity and a different category for government owned lands. In addition, not all lands that have an element of conservation protection are included in this section and in some instances the information is not correct or not complete. See below for Department comments, and recommended edits and additions.

- Bullet #1- "The Coles Levee Ecosystem Preserve HCP conserved 6,059 acres under ~~an existing~~ ***previous*** oil and gas HCP to the east of the Elk Hills Oil Field (EHOF) and south of the Kern Water Bank in the Western Subarea***. CDFW holds a conservation easement that has been recorded upon the Coles Levee Ecosystem Preserve***;" Please make note, the Department holds the conservation easement on the Coles Levee Ecosystem Preserve, although oil and gas extraction are allowable uses (not precluded activities).

- Bullet #2- "The Kern Water Bank HCP, which will permanently preserve ***up to*** ~~10,349~~ ***3,267*** acres ***through conservation easements*** for habitat purposes in the Central and Western Subareas***. Currently the Kern Water Bank has recorded 1,321 acres of habitat to conservation easements***;"

- Bullet #3- ~~"The Freeport-McMoRan Oil and Gas HCP conserved 1,519 acres under an oil and gas HCP in the Western Subarea~~;" The Department recommends **removing** this bullet from the list as none of these lands have recorded conservation easements yet. Further, this HCP has been partially split to California Resources Corporation and the current compensatory mitigation acreage obligation is contingent on what has been impacted by project activities.

- Bullet #4- "The EHOF conservation area, which consists of 8,028 gross acres and 7,878 net acres of undisturbed habitat, of which a minimum of 7,075 acres undisturbed acres must be preserved under a Section 7 permit and agreements with state and federal agencies in conjunction with the sale of former Naval Petroleum Reserve properties in the Western Subarea. ***In addition, a conservation easement, held by CDFW, has been recorded on over 6,314 of these acres. A conservation easement of the remaining acreage is pending***;"

- Bullet #5- ~~"The LINN Energy Enos conservation lands, 400 acres of conservation lands held in the Poso Creek oilfield within the Eastern Subarea~~;" The Department recommends **removing** this bullet from the list as we are not aware of these lands being permanently preserved conservation lands nor having a conservation easement recorded on them.

- Bullet #6- ~~"The LINN Energy Lokern-Buena Vista Valley conservation lands are 2,895 acres of conservation lands held in the Western Subarea~~;" The Department recommends **removing** this bullet from the list as we are not aware of these lands being permanently preserved conservation lands nor having a conservation easement recorded on them.

- Bullet #7- "The Lokern-Buena Vista ~~BLM~~ Areas of Critical Environmental Concern***, owned and managed by BLM,*** located to the north of the Elk Hills and east of the Cymric-McKittrick oilfields in the Western Subarea;" The Department recommends **moving** this bullet to a different category, as these lands are not permanently protected and can be impacted by oil and gas extraction. In addition, to follow the format of the other land information provided, the Department recommends including the acreage of the Areas of Critical Environmental Concern (ACEC). It's the Departments understanding that BLM has ACECs in other areas within Kern County; we recommend that BLM be consulted on acres and location descriptions.

- Bullet #8- "The Kern National Wildlife Refuge, 11,249 acres ***owned and managed by the USFWS*** located 18 miles west of the city of Delano in the Central Subarea;"

- Bullet #9- "The ~~Hart Park~~ ***Bakersfield Cactus*** Ecological Reserve, ~~500~~ ***consists of 780*** acres***, owned and*** managed by the CDFW***,*** in ~~three separate parcels~~ ***five disjunct areas*** located north ***and east*** of Bakersfield in the Eastern Subarea;"

- Bullet # 11- "The Lokern ***Natural Area is a large undeveloped area consisting of approximately 50,600 acres of land with differing property owners. Property owners and managers that hold the largest tracts of land include*** ~~Ecological Reserve, 4,000 acres in the Semitropic Ridge area and the 295 acres Sand Ridge Wildflower preserve east of Bakersfield managed by~~ the Center for Natural Land~~s~~ Management ~~in the Central and Eastern Subareas~~***, Chevron, Bureau of Land Management, and CDFW. CDFW owns and manages 3,965 acres in the Lokern Natural Area known as the Lokern Ecological Reserve***;"

- Bullet # 12- "The Semitropic Ecological Reserve~~, 4,800~~ ***consists of approximately 14,900*** acres ***which is owned and managed by CDFW in the Central Subarea. Adjacent to the Semitropic Ecological Reserve are neighboring*** ~~adjacent to~~ ***parcels collectively totaling approximately*** 3,100 acres of land ***in the Semitropic Ridge area owned and*** managed by the Center for Natural Lands Management ~~and the Kern National Wildlife Refuge in the Central Subarea~~;" Please make note, currently there are no recorded conservation easements on these properties.

- Bullet # 14- "A portion of the 97,000 acre Windwolves ~~(Wildlands Conservancy)~~ Preserve ***owned and managed by the Wildlands Conservancy is*** located along the southwest border of the Project Area. ***Also, the northern most area of the preserve which is in the Central Valley supports valley floor species***;" Please make note, currently there are no recorded conservation easements on this preserve.

- **Add-** ***A portion of the Allensworth Ecological Reserve (South Unit), 1,110 acres (in Kern County) owned and managed by CDFW is located along the northern border of the Central Subarea.***

- **Add-** ***The Sand Ridge Wildflower preserve, 295 acres owned and managed by the Center for Natural Lands Management east of Bakersfield in the Eastern Subarea.***

- **Add-** ***Other preserved undesignated lands owned and managed by CDFW throughout the Project Area.***

Section 4.4.2 Environmental Setting- Methods, Category 1 Species Analysis Approach, Page 4.4-32 through 33: The DEIR includes three different modeling approaches that use various environmental parameters to produce mapping and acreage estimates depicting habitat suitability for 9 plant and 28 wildlife species within the Project Area. The Department recognizes that these are data models used for large scale environmental planning. However, Department staff have identified multiple areas where mapping in Figures 4.4-1 through 4.4-37 of Appendix N may have different habitat quality than what the models display. The Department recommends that the DEIR be extremely clear that these maps are not to be used for determining individual project impacts on the 37 special-status species used for the models, and that individual projects need to be ground-truthed by a qualified biologist familiar with the species potentially impacted by project activities.

Table 4.4-26: Special Status Plant Species with Potential to Occur in the Project Area, Page 4.4-47: In the bottom row of the table, Tracy's eriastrum (*Eriastrum tracyi*) is listed as CR for the State although CR is not defined in the status abbreviations list at the end of the table. The Department recommends that this listing abbreviation in the table be **changed** to SR (State Rare) and to **add** SR in the status abbreviations list at the end of the table. In addition, for the column for "Potential to Occur in Project Area", this species location is listed in the wrong subarea. The Department recommends that this box be **changed** to read, "Yes, in Tier 2 of the ~~Western~~ ***Eastern*** Subarea."

Section 4.4.2 Environmental Setting- Plant and Wildlife Species Summary, Special Status Plant Species, Page 4.4-36 through 37: The Department recommends the following **edits** to this section, "Special-status plant species are defined herein as those that are listed as ***candidate,*** threatened and/or endangered by the USFWS***;*** ~~***or***~~ ***candidate, rare, threatened and/or endangered by the*** CDFW; designated as ~~SSC or locally significant by CDFW~~ ***sensitive by BLM***; ~~fully protected under state law;~~ or species that meet the definition of ~~rare or~~ endangered***, rare, or threatened*** under CEQA Sections 15380(b) and (d). The status and known distributions of special-status plant species in the Project Area were evaluated based on a review of available literature, and from federal and state databases, including the CNDDB. Data collected from previous conservation-related studies and projects within the Project Area were

also reviewed. No critical habitat has been designated by the USFWS for any plant species in the Project Area. Data sources included:"

- Bullet # 4- Plant species listed as rare, threatened, or endangered under California Endangered Species Act (CESA) ***and the Native Plant Protection Act (NPPA)*** (~~Wildlife, CCR Title 14, Section 670.5, 1971 as amended; Plants,~~ CCR Title 14, Section 670.2, 1978 as amended).

- ***Add- Plant species considered sensitive by BLM.***

Section 4.4.2 Environmental Setting- Special Status Wildlife, Page 4.4-71: The Department recommends the following **edits** to the second paragraph of this section, bullet number four :

- Wildlife species listed as rare, ***candidate,*** threatened, or endangered under CESA (Wildlife, CCR Title 14, Section 670.5, 1971 as amended~~; Plants, CCR Title 14, Section 670.2, 1978 as amended~~).

Table 4.4-36: Special-Status Wildlife Species with Potential to Occur in the Project Area, Page 4.4-73: In the fifth row down in the table, golden eagle (*Aquila chrysaetos*) is listed as CFP, although SFP (California Department of Fish and Wildlife Designated (State) Fully Protected) is defined in the status abbreviations list at the end of the table. The Department recommends that this listing abbreviation in the table be **changed** to ***SFP*** to reflect the status abbreviations list at the end of the table.

Section 4.4.2 Environmental Setting- Special Status Wildlife, Blunt-Nosed Leopard Lizard (*Gambelia sila*), Page 4.4-86: The Department recommends the following **edits** to the first sentence of the second paragraph of this section: "The current distribution of the blunt-nosed leopard lizard is restricted to scattered sites in the southern San Joaquin Valley, Carrizo Plain, Elkhorn Plain, and southeastern Cuyama Valley, roughly corresponding to the western half of Kern County, the eastern boundary of San Luis Obispo ***County,*** ~~and~~ ***the western portion of*** Kings ~~Counties~~ ***County***, the western boundary of Fresno County, and extreme southwestern Tulare County."

Section 4.4.2 Environmental Setting- Special Status Wildlife, Least Bell's Vireo (*Vireo bellii pusilus*), Page 4.4-95: The Department recommends the following **edits** to the first sentence of the first paragraph of this section: "The least Bell's vireo is a ~~federally~~ ***federal and state*** listed endangered species."

Section 4.4.2 Environmental Setting- Special Status Wildlife, Swainson's Hawk (*Buteo swainsoni*), Page 4.4-102: Paragraph three of this section states, "URS SBM habitat

modeling data are available for this species and has strong predictive power. The primary environmental conditions for determining nesting habitat suitability were primarily elevation, followed by water availability, soil type, annual precipitation, and winter low temperature. The results indicate that high quality suitable habitat does not occur within the portions of the Project Area below about 2,000 feet included in the URS analysis. Table 4.4-52 summarizes modeled Swainson's hawk high quality and poor to moderate quality habitat acreage by tier and subarea. The locations of modeled suitable habitat for this species in the Project Area are shown on Figure 4.4-25 in Appendix N." The Department recommends **including** a definition of 'high quality suitable habitat' for Swainson's hawk. The Department also recommends that the County recognize that there are nesting Swainson's hawk in areas of active agriculture in the Project Area, although the minimal number of suitable nest trees are the main limiting factor for the species low population numbers in the southern end of the Central Valley.

Section 4.4.2 Environmental Setting- Special Status Wildlife, Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*), Page 4.4-114 through 115: Paragraph two of this section states, "The historical geographic range of the Tipton kangaroo rat was over 1.7 million acres of arid-land communities occupying the valley floor of the Tulare Basin. Currently, the Tipton kangaroo rat inhabits small, scattered, isolated fragments of remnant habitat. In the southern San Joaquin Valley, this includes the Kern and Pixley National Wildlife Refuges, and other scattered areas within Kern, Tulare, and Kings Counties (USFWS 2010c)." The reference to the USFWS 2010c document is not actually in the EIRs References Cited section, an **addition** to the References Cited section is warranted. The Department believes that the intended referenced document is the most recent USFWS 5-year review Summary and Evaluation of the Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), dated February 16, 2010. If this is not the document referenced, the Department recommends that this document also be cited.

Section 4.4.3 Regulatory Setting- State, California State Fish and Game Code §1600-1616, Page 4.4-140: This section currently states, "Sections 1600 to 1616 of the CFGC states that it is unlawful to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake" without first notifying CDFW of that activity. If CDFW determines and informs the project proponent that the activity will not substantially adversely affect any existing fish or wildlife resources, the activity may be undertaken without further permitting. If CDFW determines that the proposed activity may substantially and adversely affect an existing fish or wildlife resource, a Lake or Streambed Alteration Agreement must be completed and approved by the CDFW, including reasonable measures necessary to protect the affected resources may be required prior to initiating the proposed activity (CFGC 1602)."

The Department recommends that this section be **updated** to clarify the process of compliance with California State Fish and Game Code §1600-1616. Following notification to the Department, a project may not legally occur until after the Department does one of the following: 1) executes a Lake or Streambed Alteration Agreement; 2) determines that an agreement is not necessary and informs the applicant in writing; or 3) fails to issue an agreement within mandated time lines.

Section 4.4.3 Regulatory Setting- State, California Native Plant Protection Act of 1977; California Fish and Game Code §1900 et seq., Page 4.4-141: The Department recommends the following **additions**, "The Native Plant Protection Act ***(NPPA)*** of 1977 (CFGC 1900 et seq.) authorizes CDFW to designate rare and endangered native plants and provides specific protection measures for state listed species. ***The Fish and Game Commission has adopted regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants (CCR Title 14, Section 786.9, 2014). CDFW may issue permits and plans that authorize rare plant impacts using the same procedures and under the same conditions as take authorizations issued pursuant to Title 14 CCR Section 783 et seq. relating to incidental take permits and Fish and Game Code Section 2800 et seq. relating to natural community conservation plans, as if rare plants were listed as endangered, threatened, or candidate species."***

Section 4.4.3 Regulatory Setting- State, Natural Community Planning Act (Fish and Game Code 2800 et seq.), Page 4.4-143: There is an abbreviation (MCPC) that is not defined in two sentences of this section, and the Department believes that they are meant to actually be NCCP. If this is the case **edits** are warranted in sentences three and four of the paragraph to change MCPC to NCCP. If not, 'MCPC' needs to be defined.

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State **HCP** in the Planning Area, Page 4.4-154: This heading needs to be **edited** as the State does not issue Habitat Conservation Plans (HCPs). The Department believes that either 'ITPs' or 'NCCPs' need to replace 'HCP'. In addition, the Department believes that there is a typo in the first sentence of the second paragraph where a deletion is in order, "The following sections summarize proposed and approved ~~and~~ HCPs for oil and gas activity, including oil and gas exploration, other HCPs within the Project Area, and approved regional plans or permits that address conservation and incidental take for oil and gas activities within the Project Area."

In addition, this section does not include all HCPs and companion State ITPs that have been issued. The Department is not clear if this is necessary for this document. If it is, we can provide this information to the County.

Table 4.4-66: Draft Valley Floor Habitat Conservation Plan Covered Plant Species List, Page 4.4-155: The federal listing for Hoover's eriastrum (*Eriastrum hooveri*) in this table is FT*, although * is not defined in the key at the end of the table. The Department recommends either **updating** the key to define the meaning of the *, or update the table to reflect the current listing of the species which is federally delisted and update the key to reflect the chosen abbreviation for that status.

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Chevron North American Exploration and Production Lokern Habitat Conservation Plan, Page 4.4-158: The seventh and eighth paragraphs of this section, the following **edits** are in order: "The HCP would allow Chevron to generate conservation credits by using conversation easements to permanently preserve and ~~providing~~ ***provide*** funding for the management of Chevron Lokern Lands over the permit term. Chevron would permanently protect 1,500 acres of the Chevron Lokern Lands at the time that the HCP becomes effective. The credits created by preservation within the Chevron Lokern Lands would be used to mitigate for covered activity impacts in Chevron Lokern Lands, Lokern Contiguous Area, and the four oil fields included in the HCP. Chevron also proposes to allow for the use of conservation credits by Chevron or by sale to third parties to mitigate for impacts within ~~an~~ 2,261,715 acre (3,534 square mile) credit area that includes the San Joaquin Valley floor up to 2,000-foot elevation within Kern County ***once the conservation lands are federally and state approved as a mitigation bank pursuant to CFGC Section 1798 et seq.*** The state and federal incidental take permits that would be issued to Chevron by the USFWS and CDFW would not provide coverage for third party or Chevron activities outside of the Chevron Lokern Lands, Lokern Contiguous Area, and the four oil fields included in the HCP, and the use of credits generated by preservation within the Chevron Lokern Lands would be subject to separate approval/permitting processes as necessary.

The activities for which take coverage would be provided under the proposed HCP and state 2081(~~a~~***b***) permits include existing and potential future oil and gas drilling and ***maintenance and*** operational activities ***for existing facilities*** described in Chapter 3, Project Description (Section 3.5, Potential Future Oil and Gas Development Scenario) together with the mitigation measures identified in Section 4.4.4, Impacts and Mitigation Measures."

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, California Resources Corporation Elk Hills Habitat Conservation Plan (EHHCP), Requested ITP, Page 4.4-159: The first two sentences of this paragraph, the following **edits** are in order: "CRC is applying for an ITP from CDFW, Pursuant to Section 2081(b) of the ~~Fish and~~ CFGC. The Section 2081 application, which ~~includes an associated~~ ***would be a companion permit to the federal EH***HCP ~~that supports the proposed conservation and management program for the proposed EHOF~~, was deemed complete by CDFW on March 3, 2014.

In addition, we are recommending that the discussion of the federal Endangered Species Act consultation status (currently on page 4.4-164) with the United States Fish and Wildlife Service (USFWS) be included in the 'Background' information of the EHHCP section.

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, California Resources Corporation Elk Hills Habitat Conservation Plan (EHHCP), Proposed Covered Activities, Page 4.4-164: The last paragraph of this section would be best placed in the 'Background' section as discussed above. Also, the Department is unclear what the meaning of the second sentence is, as it currently it states, "There is no impending expiration date in the take authorization approved by the Service under FESA, or any other federal approval." In the sentence following this one, it discusses that NEPA still needs to be completed on the EHHCP, so we are unclear how there can be an impending expiration date for federal incidental take coverage when take has not been authorized by the USFWS. In addition, we recommend that the document be consistent in how it refers to the USFWS as this section calls them the 'Service', **edit** the second sentence of this section to clarify its meaning, and include more information on the federal Endangered Species Act consultation status.

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Freeport-McMoRan Oil & Gas HCP, Page 4.4-164: The first paragraph of this section, the following **edits** are in order: "The Freeport-McMoRan Oil & Gas (formerly Nuevo-Torch then Plains Exploration and Production Company) HCP was adopted in 1999 and ***a companion state ITP was issued in 2000. The HCP and companion ITP*** addresses ongoing oilfield exploration, ~~and~~ production ***and maintenance*** activities on oilfield properties located in western Kern County. The HCP encompasses 21,900 acres, including an initial 839.9 acres of conservation area lands in the Lokern area that will be set aside incrementally to compensate for habitat

disturbances from oilfield activities. The federal incidental take statement authorized up to 1,700 acres of incidental take on the plan area lands. When Plains Exploration and Production Company acquired the properties from Nuevo-Torch in 2005, an additional 4,905 acres of land ~~and~~ were added to the HCP (an additional 414 acres of conservation area lands). In 2009, 300 acres of the incidental take acreage and 15 acres of the conservation land acreage were transferred to CRC (formerly Occidental) of Elk Hills, Inc., and Freeport-McMoRan (then Plains Exploration and Production Company) retained 1,400 acres of take acreage. ***In 2013 CDFW issued an ITP amendment addressing these changes.*** Covered species include…"

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, CRC (formerly Occidental of Elk Hill, Inc) Non-Unit HCP, Page 4.4-165: **Edits** to this paragraph are in order: "The CRC Non-Unit HCP is a ***USFWS approved*** conservation plan that covers 7,050 acres (Live Oak Associates 2013). The HCP was originally prepared for Nuevo-Torch in February 1999. ***Federal*** ~~Incidental~~ ***incidental*** take authorization and responsibilities under the HCP were transferred to Plains Exploration and Production Company (PXP) on May 9, 2005. PXP subsequently transferred 300 acres of authorized ***federal*** incidental take and 15 acres of conservation lands to CRC on August 3, 2009. PXP retained take authorization and responsibilities on the remaining 1,400 acres of the original 1,700 acres authorized for incidental take, and these interests were subsequently conveyed to Freeport-McMoRan. In December 2009 USFWS approved the inclusion of 3,504 acres of new properties located in the vicinity of McKittrick Valley and the EHOF into the CRC Non-Unit HCP; 1,134 acres of the 3,504 acres were designated for use as mitigation land. No increase in the initially authorized 1,700 acres of take was included in the 2009 approval."

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Kern Water Bank HCP/Natural Community Conservation Plan, Page 4.4-166 through 167: **Edits** to this paragraph are in order: "The Kern Water Bank HCP/Natural Community Conservation Plan (HCP/NCCP) is managed by the Kern Water Bank Authority and covers 19,900 acres. The plan was approved in 1997 and covers water conservation by developing water recharge and recovery facilities, the conservation and restoration of upland, intermittent wetland/rangeland, ~~and~~ other sensitive habitat, and the ***incidental take of*** San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), ~~giant kangaroo rat (*Dipodomys ingens*)~~, ***and blunt-nosed leopard lizard (Gambelia sila)*** ~~San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), and Bakersfield cactus (*Opuntia basilaris var*)~~. The plan also includes a conservation bank that allows for conservation credit sales to third parties under certain conditions and subject to USFWS and CDFW

approval. In 1997, ~~5,592~~ ***3,267*** acres of the plan area were ~~permanently~~ ***set aside to be permanently*** preserved in the HCP area ***in conjunction with conservation credit sales***~~, and 3,267 acres were included in the conservation bank~~. ***Currently, conservation easements have been recorded on 1,321 acres of Kern Water Bank's Conservation Bank***" Since there are so many species covered by the Kern Water Bank HCP and NCCP, the Department recommends discussing species for which the USFWS is authorizing incidental take.

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Pacific Gas and Electric (PG&E) San Joaquin Valley Operations and Maintenance Program HCP, Page 4.4-167: **Edits** to this paragraph are in order: "The PG&E San Joaquin Valley region HCP was approved ***by the USFWS*** ~~in early 2008~~ and ***CDFW issued a companion state ITP in early 2008. The HCP and companion*** covers routine operations and maintenance and minor new construction activities related to PG&E's electrical system ***and natural gas facilities*** in the San Joaquin Valley for 30 years. The HCP covers 23 wildlife and 42 plant species, including the San Joaquin kit fox, California red-Legged frog, vernal pool fairy shrimp, and Western burrowing owl. ***The companion state ITP initially covered 8 wildlife species and 18 plant species, until CDFW issued and amendment to include California tiger salamander (Ambystoma californiense) in 2012.*** PG&E facilities ~~that are~~ covered by the HCP occur throughout the Project Area, generally within existing ROWs owned by the company."

Section 4.4.3 Regulatory Setting- Regional and Local, Habitat Conservation Plans, Natural Community Conservation Plans or other Approved Local, Regional, or State HCP in the Planning Area, Metropolitan Bakersfield HCP, Page 4.4-167: The Department recommends that this section clarify the current status of the Metropolitan Bakersfield HCP (MBHCP) including when it expired and a discussion of the MBHCP extension issued by the USFWS and its expiration date. Also, the eighth sentence of this paragraph, **edits** are in order as it currently states, "The County and City have updated the HCP to support the extension of the plan or a new set of take permits." The Department is unclear what this meaning of this sentence is in relation to the current status of the MBHCP. The Department recommends the following **edits** and **additions** for this sentence, "The County and City have ~~updated the~~ ***requested a time extension for the MB***HCP ***from the USFWS*** to ***provide federal incidental take coverage for an additional five years from the date of initial expiration, while*** ~~support the extension of the plan or~~ a new ***HCP is prepared for the planning area*** ~~set of take permits~~."

The Department also recommends that the ninth sentence have one word **added** for clarification, "A new ***state*** Incidental Take Permit was issued by CDFW ..." This would provide the reader a clear distinction between the federal and state incidental take coverage for Metropolitan Bakersfield.

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-1, Methodology, Page 4.4-173 through 204: The Department recommends the addition of a discussion in the EIR disclosing a description of impacts (direct and indirect) on species listed pursuant to CESA (e.g., state-listed species) and on lake and streambed resources to facilitate the Department's use of the DEIR as a CEQA Responsible Agency in issuance of ITPs and/or LSAAs for oil and gas projects in Kern County. The Department recommends that Section 4.4-1 be **updated** to include a comprehensive discussion on all potential Project impacts to special-status species and lake and streambed resources. A discussion needs to be **added** including, but not limited to, specifics as to what extent the activities and related impacts would result in the taking of state-listed species and disclose how those activities would potentially impact or take (Fish and Game Code Section 86) state-listed species. For lake and streambed resources, please include a discussion of what types of activities and related impacts are being analyzed by this DEIR, which could include for example, water diversion, fill activities, rerouting of streams, and/or removal of vegetation associated with streams.

The Department recommends using the following example italicized language as a guide (but not limited to) to disclose potential Project impacts to state-listed species:

> *Where project activities and their resulting impacts are expected to result in the incidental take of individuals of listed species, activities that would likely result in take include ground and vegetation clearing; grubbing; grading; leveling, excavating; scraping; land contouring; trenching; stockpiling; backfilling; compacting; paving; drilling; construction of roads, underground utilities, wastewater collection systems; materials and equipment transport and laydown; and development activities; vibroseis and shot-hole deployment; new access roads, pipeline and utility corridors; excavation of sumps; installment of sleepers or T-supports to accommodate pipelines; installation of overhead electrical lines; direct contact with moving parts of wells; clean-up of accidental spills or blowouts of oil, produced water, or other hazardous materials commonly used in oil fields; transport of drill rigs, and production materials and other project-related traffic; operations and maintenance activities; site restoration; and other activities described in the Project description section of the EIR.*
>
> *Incidental take of listed species in the form of mortality ("kill") may occur as a result of Project activities such as den or burrow collapse (in the case of fossorial*

species) resulting in crushing or suffocation of underground individuals due to site preparation and excavation; entrapment and burial within trenches and/or open pipelines; crushing by equipment in the Project Area; entanglement in, or crushing by, moving well parts; or by ingestion of, or entrapment in, spilled oil, produced water, or other hazardous materials. Incidental take, including mortality of listed species due to vehicle strikes may also occur in connection with increased project related traffic during construction and operations and maintenance activities. Incidental take of individuals of listed species may occur in the form of pursue, catch, capture, or attempt to do so of listed species via entrapment in holes or trenches, uncovering listed species through the excavation of dens and burrow systems, by corralling listed species into a confined area when exclusion fencing is constructed around work disturbance areas, and when individuals of listed species are relocated out of harm's way as maybe required by a project specific take authorization permit. Potential impacts to listed plant species include destruction of individuals from mowing, grading, or other construction activities; dust creation from project activities could settle on plant material and affect processes such as respiration, photosynthesis, pollination, and seed set; erosion and sedimentation; and increased competition from noxious weeds.

The Department recommends using the following italicized example language as a guide (but not limited to) to disclose potential Project impacts to lake and streambed resources:

The Project activities have the potential to result in adverse effects to fish and wildlife resources through the following project impacts: Sedimentation and erosion resulting from excavating material from the river bed channel, creating new slopes, removing vegetation, and influencing the path and thalweg of flow within the river bed; burying or crushing animals using the sediments of the river bed, including reptiles, small mammals, and ground nesting birds, and also by crushing plants or animal species that are unable to escape the path of moving equipment; sedimentation could result in material being carried by subsequent flows and carried downstream, relocated, and re-deposited in areas used by species; animal mortality from collisions with vehicles or heavy equipment or from excavation of trenches and roads; crushing of burrows or dens during vegetation removal, grubbing, clearing, grading, leveling, and compaction of well sites, entombment of animals during grading, trenching, and road construction; fugitive dust impacts to animals and plants; noise disturbance; nest abandonment; and increased predation. Potential impacts to plant species include destruction of individuals from mowing, grading, or other construction activities; dust creation from project activities could settle on plant material and

affect processes such as respiration, photosynthesis, pollination, and seed set; erosion and sedimentation; and increased competition from noxious weeds. Indirect impacts to downstream areas could include increased erosion and/or sedimentation as a result of vegetation removal, bank alteration, channel de-stabilization, and introduction of fill material. This could affect wildlife habitat functions and values, including forage production and burrowing substrate.

In addition, the Department recommends an edit to the last sentence of the third paragraph of this section: "Oil and gas activities could also indirectly affect special status plants and wildlife by generating dust, emissions, noise, light, and unintentional spills or discharges; introducing invasive species; or increasing the risk of unauthorized vehicular use or other human activity that disturb occupied or suitable ~~species~~ ***special-***status species habitats."

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-1, Mitigation Measures, Page 4.4-204 through 215: The Department has recommended edits to the Biological Resources MMs, see below:

MM 4.4-1: As discussed in the Department comments above for BMPs, it is recommended that the BMPs in Chapter 3 are consistent with the MMs. The Department recommends the following **deletions** and **edits** to MM 4.4-1: "~~With the exception of focused surveys that are seasonally restricted,~~ ***A qualified biologist shall conduct a biological reconnaissance survey in potential special-status species habitat to advise the project proponent of potential project impacts, potential permitting needs, and advise on the need for focused special status species surveys. Early consultation with USFWS and CDFW would confirm the biologist's advice and/or inform project proponents of additional recommendations. Based on the information gathered from the biological reconnaissance survey and informal consultation with USFWS and CDFW, focused/protocol surveys shall be conducted by a qualified or permitted biologist (whichever is applicable) well in advance of ground disturbing activities to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential project impacts to those species. The survey shall be conducted in accordance with the most current standard protocol of USFWS and CDFW*** ~~special status wildlife surveys must be completed by a qualified biologist within a 30-day period prior to commencement of new ground-disturbance construction activities~~. The purpose of the ~~pre-disturbance surveys~~ ***focused/protocol surveys*** is to confirm the presence or absence of any species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the

California Endangered Species Act, ***rare or endangered in the California Native Plant Protection Act,*** or designated as fully-protected in the California Fish and Game Code (Collectively, "Protected Species), and to confirm the presence or absence of any other species considered "sensitive" under California Environmental Quality Act ("Sensitive Species), and to identify and implement feasible avoidance and minimization measures for such species. The surveys..."

The Department also recommends that the County create a criterion for determining qualified biologists. The Department is available to help the County with this task.

MM 4.4-2: The Department recommends the following **addition** to MM 4.4-2: "No incidental take of any species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the California Endangered Species Act, ***rare or endangered in the California Native Plant Protection Act,*** or designated as fully-protected in the California Fish and Game Code (Protected Species) may occur unless the incidental take is authorized by applicable state and federal wildlife agencies in the form of a permit or other written authorization, an approved state or federal conservation plan, or in accordance with an approved regional plan such as the Draft Valley Floor Habitat Conservation Plan and/or Natural Community Conservation Plan."

The Department recommends that clarification on how this MM will be verified during the County's administrative process as verification that a project proposal is following the County's requirements.

Add a new MM: ***Within 30 days before any ground disturbing activities in special-status species habitat, a qualified biologist shall conduct a pre-disturbance survey to record existing conditions of the site, determine if conditions have changed since the reconnaissance or focused/protocol surveys were conducted, and to determine where sensitive species avoidance buffers will be established.***

MM 4.4-3: The Department recommends the following **edits** to MM 4.4-3: ~~Exclusion barriers or~~ ***Protective*** buffers ~~may~~ ***shall*** be used, where effective and feasible in the opinion ***and guidance*** of ~~the~~ ***a*** qualified biologist, to avoid any unauthorized incidental take of Projected Species, and to minimize any incidental take of Sensitive Species, by separating the planned disturbance area from any locations where ~~pre-disturbance~~ ***biological reconnaissance*** surveys, ~~or~~ previously conducted focused/***protocol*** surveys, ***or pre-disturbance surveys*** have detected the presence of Projected Species or Sensitive Species. ***Protective buffers shall be delineated using brightly colored stakes and/or***

flagging or similar materials and remain until construction activities are complete, at which time of completion the buffers shall be removed. ~~All buffers must extend for a minimum of 50 feet from the nearest point of disturbance unless a smaller avoidance buffer has been established by either the United States Fish and Wildlife Service or the California Department of Fish and Wildlife as the minimum~~ ***If special-status plant or animal species are found adjacent to the a project during biological surveys, protective buffers shall be established around active dens and/or burrows of special-status animal species, or populations of special-status plant species*** to avoid unauthorized take of protected species ***as listed in the table below***~~, and the barriers must prevent the potential migration of wildlife into the construction area and unlawful incidental take of any Protected Species during ground disturbance activities~~. The ~~minimum~~ ***protective*** buffer distance shall be increased if required to avoid unauthorized incidental take of any Protected Species as determined by a qualified biologist. ~~Exclusion barriers,~~ ***Protective*** buffer distances~~,~~ and other avoidance measures that may be implemented to avoid impacts to Protected Species or Sensitive Species must be consistent with the ~~United States Fish and Wildlife Service~~ ***USFWS*** and/or the ~~California Department of Fish and Wildlife~~ ***CDFW***, and shall be implemented and overseen by ~~the~~ ***a*** qualified biologist.

Table
Disturbance Buffers for Sensitive Resources

Sensitive Resource	*Buffer Zone from Disturbance (feet)*
Potential San Joaquin kit fox den	*50*
Known San Joaquin kit fox den	*100*
Natal San Joaquin kit fox den	*Contact CDFW, USFWS*
Atypical San Joaquin kit fox den	*50*
Rodent burrows	*50*
Listed bird species active nests	*0.5 mile*
Burrowing owl burrow (breeding and non-breeding seasons)	*Pursuant to CDFW guidelines (see Table 4.4-85)*
San Joaquin coachwhip, silvery legless lizard, coast horned lizard	*30*
American badger: *Non-maternity dens* *Maternity dens*	 *50* *200*
Special-status plants	*50*

Add a new MM to include the requirement of a biological monitor during ground-disturbing activities in project locations that have potential special-status species habitat or is adjacent to potential special-status species habitat.

MM 4.4-6: The Department recommends the following **edits** to MM 4.4-6: Any potential San Joaquin kit fox dens (as defined in ~~United States Fish and Wildlife Service~~ ***USFWS*** 2011) detected during ~~pre-disturbance~~ ***reconnaissance or focused/protocol*** *surveys* shall be reevaluated for species activity no more than ~~14~~ ***30*** days prior to the commencement of ground disturbance. Potential kit fox dens shall be marked and a 50-foot avoidance buffer shall be delineated using ***brightly colored*** stakes and flagging or similar materials to prevent inadvertent damage to the potential den. If a potential den cannot feasibly be avoided, the den may be hand excavated in accordance with the United States Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (~~United States Fish and Wildlife Service~~ ***USFWS*** 2011). If species activity is detected, the location shall be identified as a "known" kit fox den in accordance with the ~~U.S. Fish and Wildlife Service~~ ***USFWS*** species guidelines (~~United States Fish and Wildlife Service~~ ***USFWS*** 2011). A minimum 100-foot buffer from any disturbance area shall be maintained for known dens and a minimum 500-foot buffer from any disturbance area shall be maintained for natal dens. No excavation of a known or natal den shall occur without prior authorization from the ~~United States Fish and Wildlife Service~~ ***USFWS*** and the ~~California Department of Fish and Wildlife~~ ***CDFW***. For activities occurring on land covered under an approved ~~Habitat Conservation Plan~~ ***federal and/or State incidental take authorization***, the requirements set forth in those documents shall be implemented. Other standard measures to protect San Joaquin kit fox, including capping pipes, covering trenches, adding exit ramps to excavated areas, shall be implemented in accordance with MM 4.4-~~19~~***15***.

MM 4.4-10(c): The Department recommends that a discussion be **included** in this section disclosing whom the blunt-nosed leopard lizard avoidance plan would be submitted to and if regulatory agencies would review the plan.

MM 4.4-12(b): The Department recommends the following **edits** to MM 4.4-12(b): No incidental take or relocation of any plant listed under the ***federal Endangered Species Act, the*** California Endangered Species Act***, or the California Native Plant Protection Act*** may occur unless the incidental take is authorized by the ***USFWS and/or the*** California Department of Fish and Wildlife in a permit or other authorization, or in an approved ***Habitat Conservation Plan or*** Natural Communities Conservation Plan. If ~~pre-construction~~ ***focused plant*** surveys detect the presence of any ~~California Endangered Species Act Plant~~ listed plant, the plant populations shall be buffered from disturbance activities by implementing applicable impact avoidance protocols established by the ***USFWS and/or*** California Department of Fish and Wildlife ***unless incidental take***

authority is obtained. Projects covered under incidental take authority shall conduct activities in accordance with the take authorization. The California Department of Fish and Wildlife may be contacted to determine the appropriate buffer required to prevent incidental take of a ~~California Endangered Species Act Plant~~ ***listed plant*** if avoidance protocols have not been established for the species. The qualified biologist shall confirm that all applicable ***listed plant*** buffers have been implemented prior to the commencement of any disturbance activity.

The Department recommends that clarification on how this MM will be verified during the County's administrative process that a project proposal is following the County's requirements.

MM 4.4-13: The Department recommends that this MM be **deleted** as it is a repeat of MM 4.4-12(b).

MM 4.4-15 (a-v): The Department recommends that the following MM be added to this section: ***All pipes 1.5 inches or greater in diameter stored overnight on a project location must have end caps that prevent wildlife from entering the pipe.***

MM 4.4-16: The Department recommends that the County create a clear way to identify and track temporary disturbance (<2 year disturbance). Also, how is the County determining or going to determine what areas are already disturbed? The Department is currently unclear how this will be calculated and has concerns; for example, if a well pad is planned in an open area within an oilfield, the open area may have no previous disturbance and thus should not be considered disturbed. Also, in contrast, if an entire oil field is considered in the calculation, there may be more than 70% disturbance as there would be existing disturbance which may not be counted as additional disturbance. We are recommending that the County include in the EIR clarification on how the existing disturbance calculations will be determined. The Department also recommends that the County include a criteria for selecting compensatory mitigation lands, such as "of equal or greater value" for the species.

c. "Removal of legacy oil and gas equipment, inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), restoration of the surface grade to be consistent with surrounding lands, complete a reseeding effort using native species, ~~and~~ notification of the site owner (if not the Applicant) of

the completion of the removal and grading restoration work***, and record a conservation easement on the land to protect it in perpetuity***."

d. "Enhancement or restoration of existing habitat on lands already subject to a conservation easement or similar agreement, or which become subject to a conservation easement or similar agreement subsequent to the certification of this Environmental Impact Report, provided that such activities are covered in a permit or authorization, conservation plan, Habitat Conservation Plan, or Natural Community Conservation Plan, approved by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife." The Department recommends that the County clarify how the value of the restoration work will be assessed. The Department recommends that the County establish specific parameters and biological value/improvement goals if this option is to be included in the EIR.

Add the header **e.** to the last measure of this section:

"e. Payment of a biological resources..." In addition to this heading edit, the Department recommends that this program (and associated fees) be in place and approved by the appropriate regulatory agencies before project proponents are allowed to use this as a mitigation option.

Also, the Department is concerned that currently as proposed, there is no discussion as to where the compensatory mitigation land would or could be located. The Department highly recommends that this mitigation measure be **updated** to include a plan for land acquisition target areas to provide wildlife movement and habitat connectivity corridors.

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-1, Level of Significance After Mitigation, Page 4.4-215: This section states, "Impacts would be less than significant." The Department recommends that the County discuss why the proposed mitigation measures would offset Project impacts to species identified as a candidate, sensitive, or special-status species to less than significant. A description in this section would explain the reason for the County's determination. Currently, because there is no justification why this determination was made.

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-2, Page 4.4-216: The Department recommends the following **edits** in the fifth sentence of paragraph one of this section, "As discussed in Section 4.4.~~2~~***1***, Environmental Setting, the sensitive natural communities identified within the Project Area include wetlands, water and other riparian habitat that are subject to state or federal permit requirements

prior to physical disturbance, ***including but not limited to Section 1600 of the CFGC and the Clean Water Act 401 and 404***."

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-2, MM 4.4-17, Page 4.4-219: The Department recommends the following **edits** to the fourth sentence of MM 4.4-17: "The site plan for the proposed activity shall identify waters, wetlands, ***resources subject to section 1600 of the CFGC,*** and other riparian habitats that occur in and within 100 feet of the disturbance area."

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-2, Level of Significance After Mitigation, Page 4.4-219: This section also states, "Impacts would be less than significant." The Department recommends that the County also discuss in this section why the proposed mitigation measures (including the mitigation measures in the Biological Resources section 4.4-1) would offset Project impacts to riparian habitat or other sensitive natural community to less than significant, for the same reasons described above (in comments on Page 4.4-215).

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-3, Level of Significance After Mitigation, Page 4.4-221: This section also states, "Impacts would be less than significant." The Department recommends that the County also discuss in this section why the proposed mitigation measures in the Biological Resources section 4.4-1 would offset Project impacts to riparian habitat or other sensitive natural community to less than significant, for the same reasons described above (in comments on Page 4.4-215).

Section 4.4.4 Impacts and Mitigation Measures, Impact 4.4-4, Page 4.4-222: This section states,

> "As discussed in Section 4.4.2, Environmental Setting, and shown in Figure 4.4-11, the generalized patterns of wildlife movement in and through the Project Area have been characterized in certain studies. The length and width of these corridors have not been precisely determined and most correspond with major geographic features that are likely to facilitate species movement, including the Kern River and Poso Creek channels, and along the base of the mountain ranges that border the Project Area to the east, south and west.
>
> Oil and gas exploration and production activities are more porous and maintain wildlife movement to a greater extent than urban development, and, depending on species requirements, agricultural uses that modify surface vegetation, soils and irrigation. A recent study conducted in

> 2008-2010 for the BLM found that species assemblages in saltbush scrub habitat remain relatively intact in oilfield locations with up to 70% disturbance in Kern County (Fiehler, C.A. and B. Cypher, 2011). This result indicates that even moderately developed oilfields as documented in the 2011 survey would retain the capacity for wildlife movement. However, oilfield development with more than 70% disturbance could reduce species movement, and potential impacts to wildlife movement in higher density locations would be significantly impacted by project activities without mitigation."

The Department does not believe that this section is sufficient. We are concerned that without a landscape scale conservation plan addressing oilfield development with more than 70% disturbance wildlife movement in high density locations would be significantly impacted by Project activities, even with the proposed mitigation measures in the Biological Resources section 4.4-1. In addition, 'relatively intact' species assemblages in saltbush scrub habitat (as referenced above by (Fiehler and Cypher, 2011) in oilfield locations with up to 70% disturbance in Kern County, does not mean that there is no impact to species movement by the maintenance, expansion, or establishment of new oilfields. The Department is recommending that this section fully describe and disclose all potential Project impacts to the movement of native resident or migratory wildlife species, established native resident or migratory wildlife corridors, and the use of wildlife nursery sites.

In addition, the DEIR should identify a conservation strategy that identifies areas to target for conservation (e.g., areas on which the habitat mitigation fees would be expended). We recommend including the western Kern County corridors/conservation targets identified in the California Council on Science and Technology (CCST) document entitled *"An Independent Scientific Assessment of Well Stimulation in California"*, July 2015 as a starting point.

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-4, Level of Significance After Mitigation, Page 4.4-222: This section also states, "Impacts would be less than significant with mitigation." The Department recommends that the County also discuss in this section why the proposed mitigation measures in impact section 4.4-1 would offset Project impacts to riparian habitat or other sensitive natural community to less than significant, for the same reasons described above (in comments on Page 4.4-215).

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-5, Level of Significance After Mitigation, Page 4.4-223: This section also states, "Impacts would be less than significant with mitigation." The Department recommends that the County also

discuss in this section why the proposed mitigation measure 4.4-19 would offset Project impacts to biological resources such as a tree preservation policy or ordinance to less than significant, for the same reasons described above (in comments on Page 4.4-215).

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-6, Page 4.4-223: **Move** the "California Aqueduct - San Joaquin Field Division HCP" from HCPs that have been adopted list to HCPs that are proposed list.

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-6, Page 4.4-224: **Edits** to the seventh paragraph of this section are in order: "The Project Area also includes ~~five~~ ***four*** HCPs that do not cover oil and gas production activities: ~~the California Aqueduct - San Joaquin Field Division HCP,~~ the Kern County Waste Facilities HCP, the Pacific Gas and Electric Company San Joaquin Valley Operations and Maintenance Program HCP, the TUMSHCP, and the Metropolitan Bakersfield HCP. The original term of the Metropolitan Bakersfield HCP has expired, and a renewal process is underway. The Project is likewise not inconsistent with these ~~five~~ ***four*** HCPs that do not include oil and gas production as "Covered Activities."" A new paragraph will need to be **included** to disclose that the California Aqueduct - San Joaquin Field Division HCP is proposed and does not cover oil and gas production activities.

Section 4.4.4 Impacts and Mitigation Measures, Project Impacts, Impact 4.4-6, Level of Significance After Mitigation, Page 4.4-229: This section also states, "Impacts would be less than significant with mitigation." The Department recommends that the County also discuss in this section why the proposed mitigation measure in section 4.4-6 would offset Project impacts regarding conflicts with the provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other Approved Local, Regional, or State Habitat Conservation Plan to less than significant, for the same reasons described above (in comments on Page 4.4-215).

Section 4.4.5 Cumulative Setting, Impacts and Mitigation Measures, Impact 4.4-7, Cumulative Impacts to Biological Resources, Page 4.4-230: The Department recommends the following edits in the second sentence of paragraph four of this section, "Future land uses and development could affect biological resources in each of these jurisdictions and would be undertaken as independent actions with associated impacts, avoidance and minimization requirements, and ***compensatory*** mitigation, if required, under applicable federal, state, regional and local agency law."

Hazards and Hazardous Materials Chapter 4, Section 4.8

Section 4.8.3 Regulatory Setting, State, Hazardous Materials and Hazardous Waste, Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990, Page 4.8-49:

The DEIR discusses the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 in this section and mentions that the Act was amended in 2014 by Senate Bill 861 to expand application of its provisions to all waters of the state, and not solely coastal and marine waters. Additionally, throughout the entire document are many references to Spill Prevention Countermeasure and Contingency Plans; Spill Prevention, Control and Countermeasure Plans; Spill Contingency Plans; and Division of Oil Gas and Geothermal Resources Assembly Bill 1960 spill plans. Senate Bill 861 which created the Statewide Oil Spill Prevention and Response Program authorized the Administrator of the Department of Fish and Wildlife's Office of Spill Prevention and Response (OSPR) to develop emergency regulations to begin program implementation. As of September 4, 2015, the emergency regulations addressing Inland Production Facility Contingency Plans, Certificates of Financial Responsibility, and Drills and Exercises have been approved by the Office of Administrative Law. These emergency regulations now require certain inland production facilities to submit an Oil Spill Contingency Plan to OSPR and to demonstrate the financial ability to pay for costs and damages caused by a spill, and to begin a drills and exercises program. The Department recommends that the EIR **reference** and **add** these new requirements. The OSPR emergency regulations and associated guidance documents are available at the following website:
https://www.wildlife.ca.gov/OSPR/Preparedness/Inland-Facilities-Contingency-Plan

If you have any questions on these comments, please contact Reagen O'Leary, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014, extension 244, or by electronic mail at Reagen.OLeary@wildlife.ca.gov.

Sincerely,

Julie Vance
Acting Regional Manager

cc: See Page Twenty-nine

cc: Regional Water Quality Control Board
Central Valley Region
1685 E Street
Fresno, California 93706

United States Army Corps of Engineers
Sacramento District
California South Branch
1325 J Street
Sacramento, California 95814-2922

ec: United States Fish and Wildlife Service
Thomas Leeman (thomas_leeman@fws.gov)
Justin Sloan (justin_sloan@fws.gov)
Timothy Ludwick (timothy_ludwick@fws.gov)

Saul Gomez (saul.gomez@resources.ca.gov)
California Natural Resources Agency

Dr. Steven Bohlen (Steven.Bohlen@conservation.ca.gov)
Dan Wermiel (dan.wermiel@conservation.ca.gov)
Division of Oil, Gas and Geothermal Resources

California Department of Fish and Wildlife
Kevin Takei
Diana Grosso
Melissa Boggs
Mia Roberts
Julie Vance
Craig Bailey
Linda Connolly
Krista Tomlinson
Dave Hacker
John Battistoni
Charles Walbridge

0006-1

Thank you for your comment. The comment explains the County request to change the State Clearinghouse number to match the corrent number: SCH #2013081079 for the project.

0006-2

Thank you for your comment. This comment encloses comments from other State Agencies: California Department of Fish and Wildlife and California Highway Patrol. These comments have been responsed to individually as comments #4 and #8 in this Response to Comments document, respectively.

7 California Department of Transportation

0007

Chris Mynk - DEIR Revisions to Kern County Ordinance - 2015 C focused on Oil and Gas Local Permitting

From: "Kimmel, Alec R@DOT" <alec.kimmel@dot.ca.gov>
To: "MynkC@co.kern.ca.us" <MynkC@co.kern.ca.us>
Date: 8/21/15 3:18 PM
Subject: DEIR Revisions to Kern County Ordinance - 2015 C focused on Oil and Gas Local Permitting
CC: "Marquez, Paul Albert@DOT" <paul-albert.marquez@dot.ca.gov>

Chris,

Caltrans has no comments on the above project. 0007-1

Please be advised Caltrans appreciates the opportunity to review any proposals for Oil and Gas operations that has the potential to impact State facilities. 0007-2

If you have any questions, please contact me.

Alec Kimmel
Associate Transportation Planner
Office of Planning & Local Assistance - South Section
Department of Transportation - District 6
1352 W. Olive Avenue
Fresno, CA 93778-2616
Office: (559) 488-4325
Fax: (559) 488-4088
Email: alec_kimmel@dot.ca.gov

0007-1

Commenter's conclusion that Caltrans has no comments on the Project is noted.

0007-2

Thank you for your comment.

8 California Department of Highway Patrol

State of California—Transportation Agency EDMUND G. BROWN Jr., Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
4040 Buck Owens Boulevard
Bakersfield, CA 93308
(661) 864-4444
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

CLEAR
9-11-15
E

July 30, 2015

File No.: 420.12586.12904

RECEIVED
AUG 06 2015
STATE CLEARING HOUSE

State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

scn#2013081079

To whom it may concern:

The Bakersfield Area of the California Highway Patrol received a "Notice of Completion" of the environmental document for the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance, State Clearinghouse ~~#2013091062.~~ The proposal concerns zoning and permitting procedures for oil and gas drilling throughout Kern County. 0008-1

After review, we have determined there will be no impact on operations in the Bakersfield Area and there will be no long term adverse impact on departmental operations.

Sincerely,

Lt. Ex

P. MEDEIROS, Captain
Commander
Bakersfield Area

cc: Central Division
Special Projects Section

State of California Transportation Agency **0008**

Memorandum

Date: July 21, 2015

To: Bakersfield Area (420)

From: **DEPARTMENT OF CALIFORNIA HIGHWAY PATROL**
Special Projects Section

File No.: 063.A04575.A14630.Noc.Doc

Subject: ENVIRONMENTAL DOCUMENT REVIEW AND RESPONSE
SCH# 2013091062

0008-2

Special Projects Section (SPS) recently received a "Notice of Completion" environmental document from the State Clearinghouse outlining the information contained in the attached profile.

After a preliminary review, we believe this project will not have a significant impact on statewide departmental operations. However, because of your geographical proximity to the site, you are in a better position to provide a more accurate assessment of any traffic-related matters that may affect your local Area operations. Information and procedures outlined in Highway Patrol Manual 41.1, Transportation Planning Manual, Chapter 6, Environmental Impact Documents, should serve as a guideline when reviewing transportation-related documents.

If you determine departmental input is advisable, please provide your written comments referencing the above SCH number to the State Clearinghouse, 1400 Tenth Street, Room 121, Sacramento, CA 95814. Your comments must be received no later than August 20, 2015. Please forward a copy of your written comments to SPS. If you determine there is "no impact," please notify SPS by electronic mail (e-mail) to the analyst listed below, or by memorandum.

If you have any questions, please call Associate Governmental Program Analyst Leah Mora at (916) 843-3365, or e-mail at lemora@chp.ca.gov.

for

P. A. SLINEY, SSM III
Commander

Attachment

cc: Central Division
Assistant Commissioner, Field

2015 SEP 17 PM 4:11

Safety, Service, and Security
CHP 51 (Rev. 03-11) OPI 076

An Internationally Accredited Agency

0008-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0008-2

This comment does not state a specific concern related to the adequacy of the EIR and therefore does not require a detailed response. The County has not issued a “Notice of Completion” of this EIR, but the County did issue a Notice of Availability when the DEIR was circulated for public review on July 8, 2015. The Department’s conclusion that the Project will not have a significant impact on statewide departmental operations is noted with appreciation, as is the Department’s acknowledgement that the County is in the best position to gauge the extent to which the Project may impact local traffic patterns. The EIR’s methodology for evaluating Project traffic impacts is described in DEIR section 4.16.4. The Department’s offer of assistance is noted with appreciation.

7.2.3 Local Agencies

9 Kern County Water Agency

Directors:

Ted R. Page
President
Division 1

Bruce Hafenfeld
Division 2

Martin Milobar
Division 3

Michael Radon
Division 4

Charles (Bill) W. Wulff, Jr.
Division 5

Royce Fast
Division 6

Gene A. Lundquist
Vice President
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

150.3 Environmental

August 25, 2015

Ms. Lorelei Oviatt
Kern County Planning and Community Development Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Re: Draft Environmental Impact Report for the Revisions to the Kern County Zoning Ordinance – 2015 (C)

Dear Ms. Oviatt:

The Kern County Water Agency (Agency) would like to thank you for the opportunity to comment on the draft Environmental Impact Report (DEIR) for the Revisions to the Kern County Zoning Ordinance – 2015 (C) (Project) focused on oil and gas local permitting. 0009-1

The Agency was created by the California State Legislature in 1961 to contract with the California Department of Water Resources for State Water Project (SWP) water. The Agency has contracts with water districts throughout Kern County to deliver SWP water. The Agency also manages and/or is a participant in multiple groundwater banking projects, including the Kern Water Bank (KWB), Pioneer Property and Berrenda Mesa banking projects. Therefore, the Agency is uniquely qualified to provide comments on the Project. 0009-2

Comment 1: The Agency does not maintain water quality data for the Central Valley Project (CVP). 0009-3

The DEIR indicates the Agency maintains water quality data for the CVP (p. 4.9-31). While the Agency regularly tests the water quality of the Friant-Kern Canal for operational purposes, the data is not retained beyond its immediate use. Therefore, this reference should be removed from the DEIR.

Comment 2: The DEIR incorrectly refers to the Agency as the "Kern County Water Authority" in several instances. 0009-4

Several times throughout the DEIR, the Agency is incorrectly referred to as the "Kern County Water Authority." Therefore, all instances should be corrected to read the "Kern County Water Agency."

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

If you have any questions, please contact Lauren Bauer of my staff at (661) 634-1411.

Sincerely,

James M. Beck
General Manager

0009-1

Commenter's statutory authority, and its role in numerous water management projects, are noted as is the commenter's unique expertise to comment on the Project.

0009-2

Commenter's statutory authority, and its role in numerous water management projects, are noted as is the commenter's unique expertise to comment on the Project.

0009-3

Commenter's information that the Kern County Water Agency does not maintain water quality data for the Central Valley Project is noted. Water quality data that were collected from the KCWA was used in the EIR, but it is understood that KCWA does not maintain these data.

0009-4

Commenter is correct that the Draft EIR incorrectly called KCWA an "authority" rather than an "agency." The correct "agency" term is included in this Final EIR.

10 North Kern Water Storage District

P.O. Box 81435
Bakersfield, CA 93380-1435
Administration
Telephone: 661-393-2696
Facsimile: 661-393-6884

33380 Cawelo Avenue
Bakersfield, CA 93308-9575
Water Orders and Operations
Telephone: 661-393-3361
www.northkernwsd.com

NORTH KERN WATER STORAGE DISTRICT

July 27, 2015

Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
County of Kern
Planning and Community Development Dept.
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

Subject: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting - Request for Extension of Time Period for Public Review and Comment

Dear Ms. Oviatt and Mr. Mynk,

The North Kern Water Storage District (North Kern or District) appreciates the opportunity to review and comment on the subject Draft EIR. The EIR is of keen interest to the District since operation of the District's project to supply water to 60,000 acres of highly productive farmland routinely intersects with local oil operations. 0010-1

Unfortunately, given the District's current singular focus on meeting landowner's water supply needs through the historic drought on the Kern River (the District relies on the Kern River for more than 90% of its surface water supplies), the District does not have resources available to review the voluminous documents comprising the Draft EIR (the Draft EIR itself (approximately 1,800 pages) and the Technical Appendices (approximately 5,800 pages)) within the allotted 45 day review period. Consequently, the District hereby requests that the County extend the current 45 day comment period for the Draft EIR (which is the minimum time period for public review) to at least 60 days and preferably 90 days. This additional review time is essential to allow the District to provide meaningful comments on the Draft EIR and will also assist the County in meeting its obligations for public disclosure and review under CEQA. 0010-2

Very truly yours,

Richard Diamond
General Manager

cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman

1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

0010-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0010-2

These comments are noted, as is the request to extend the 45-day review period for the Draft EIR to at least 60 days. As described in Section 7.1-2, the comment period was extended in response to these and similar requests.

11 North Kern Water Storage District

P.O. Box 81435
Bakersfield, CA 93380-1435
Administration
Telephone: 661-393-2696
Facsimile: 661-393-6884

33380 Cawelo Avenue
Bakersfield, CA 93308-9575
Water Orders and Operations
Telephone: 661-393-3361
www.northkernwsd.com

NORTH KERN WATER STORAGE DISTRICT

September 11, 2015

Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
County of Kern
Planning and Community Development Dept.
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

Subject: Comments on Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Dear Ms. Oviatt and Mr. Mynk,

The North Kern Water Storage District (North Kern or District) appreciates the opportunity to review and comment on the subject Draft EIR. The EIR is of keen interest to the District since operation of the District's project to supply water to 60,000 acres of highly productive farmland routinely intersects with local oil operations. The District's comments focus on the maintenance/ protection of existing water supplies. 0011-1

The District operates a "conjunctive use" project located generally west of Highway 99 and east of the cities of Shafter and Wasco (in what is termed the "Central Area" in the DEIR). The District's project maximizes the use of available surface water supplies (primarily from the Kern River) for direct irrigation and groundwater recharge in wetter years, with previously recharged supplies pumped from the groundwater basin (by both the District and District landowners) to meet irrigation demands in the District when surface supplies are insufficient in drier years (the District also "banks" water for third parties on a limited basis). 0011-2

Oil operations in the District are focused in the western and northwestern portions of the District (North Shafter and Rose fields). Particularly in these areas, but in District areas more remote from direct oil operations as well, the proposed permitting process must ensure the protection of District and District landowner facilities necessary to operate the conjunctive use project and, critically, the quality of surface water and groundwater conveyed in these facilities. North Kern also believes it is critical that the permitting process fully respect and accommodate overlying land uses of District landowners so that oil development and production operations minimize disruption to overlying uses. 0011-3

Thank you for the opportunity to provide comments on the DEIR. If you have any questions do not hesitate to contact me at the District. 0011-4

Very truly yours,

Richard Diamond
General Manager

0011-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0011-2

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0011-3

DEIR Section 4.9, Hydrology and Water Quality analyze potential project impacts to hydrology and water quality for both surface and groundwater resources. As explained in that DEIR section, all Project impacts will be mitigated to less than significant, with the exception cumulative impacts related to groundwater elevations and aquifer volumes (as opposed to cumulative water quality impacts). As explained in the DEIR, mitigation measures will reduce this impact to the extent feasible, though not to less than significant. Please see Global Response 4, Surface Owners and Agriculture. Please also see revisions reflected in section 7.1.4 of this document to certain mitigation measures described in the DEIR.

0011-4

Thank you for your comments and participation in this public review of this environmental document. Such comments are noted and will be considered by County decision makers.

12 Kern County Superintendent of Schools

Kern County
Superintendent of Schools

Office of Christine Lizardi Frazier ...advocates for children

July 30, 2015

Kern County Planning Department
1115 Truxtun Avenue
Bakersfield, CA 93301

To Whom It May Concern:

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a major employer in Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county. 0012-1

The energy industry is vital to Kern County in terms of jobs, economic support and charitable contributions. Our office has benefitted from multiple partnerships with the energy industry, including but not limited to, Ready to Start, Science 4 Kern, Kern County College Night and so much more. The industry's support of education has been very important in ensuring that students have access to local jobs that keep these bright minds in Kern County where they can help our communities grow and thrive. 0012-2

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. 0012-3

Sincerely,

Christine Lizardi Frazier
Superintendent

CC: Kern Citizens for Energy

1300 17th Street – CITY CENTRE | Bakersfield, CA 93301-4533
(661) 636-4000 | FAX (661) 636-4130 | TDD (661) 636-4800 | www.kern.org

Printed on recycled paper

0012-1

Commenter's letter in support of the Project is noted for further consideration.

0012-2

Commenter's letter in support of the Project is noted for further consideration.

0012-3

Commenter's letter in support of the Project is noted for further consideration.

13 City of Bakersfield

Mayor Harvey L. Hall
City of Bakersfield

August 6, 2015

Kern County Planning & Community Development Department
Attn: Christopher Mynk, AICP
2700 M Street, Suite 100
Bakersfield, CA 93301

Re: City Support - Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Dear Mr. Mynk,

This letter is in response to the Notice of Availability (NOA) issued by Kern County on July 8, 2015 for public review of the Draft Environmental Impact Report for "Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting." As indicated in that document, public comments are due to the County by September 11, 2015. 0013-1

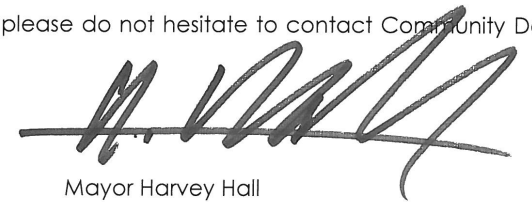
On August 18, 2014, the Bakersfield City Council's Legislative and Litigation Committee received an update from representatives of the Western States Petroleum Association (WSPA) and Kern Citizens for Energy regarding the status of operations and challenges facing the industry both statewide and locally. Kern Citizens for Energy requested that the City take a formal position in support of the industry and of Kern County's project-level environmental review of oil and gas production within the unincorporated areas of the County to allow for the future growth of the industry in a safe and responsible manner. On September 22, 2014, the committee unanimously recommended that a resolution in support of this project be brought forward to the Council. 0013-2

On October 22, 2015, the Bakersfield City Council adopted the attached Resolution affirming support for the Local Oil and Gas Industry. As noted in the resolution, the City Council of the City of Bakersfield understands the importance of this economic engine and supports governmental policies that promote and stimulate the safe and responsible growth of the oil and gas industry in our City, County, State and Country. 0013-3

Therefore, this letter and Resolution 179-14 confirm that the City of Bakersfield: (1) Acknowledges and appreciates the significant economic impacts a thriving oil and gas industry has on the economy of Bakersfield; (2) Supports the timely conclusion of Kern County' s project-level environmental review of oil and gas production within the unincorporated areas of Kern County to allow for the future growth of the oil and gas industry in Kern County in a safe and responsible manner; and (3) Supports the efforts of "Kern Citizens for Energy." 0013-4

If you have any further questions, please do not hesitate to contact Community Development Staff at 661-326-3700.

Very truly yours,



Mayor Harvey Hall

CC: Alan Tandy, City Manager
Douglas McIsaac, Community Development Director
Jacquelyn R. Kitchen, Planning Director

Attachment: Resolution 179-14

RESOLUTION NO. 179-14

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BAKERSFIELD AFFIRMING SUPPORT FOR THE LOCAL OIL AND GAS INDUSTRY.

WHEREAS, the oil and gas industry is a key component of the economy of the City of Bakersfield, the County of Kern and the State of California; and

WHEREAS, activities related to oil and gas production in Kern County provide for a significant number of local jobs, property and sales tax revenues, and serve as an economic driver for our local economy; and

WHEREAS, the City Council of the City of Bakersfield understands the importance of this economic engine and supports governmental policies that promote and stimulate the safe and responsible growth of the oil and gas industry in our City, County, State and Country; and

WHEREAS, the County of Kern, with support from local industries, including the oil and gas industry, is currently conducting a project-level environmental review of oil and gas production within the unincorporated areas of Kern County; and

WHEREAS, the purpose for this environmental review is to provide for a clear, safe and understandable plan for oil and gas production activities to operate within and to minimize any conflicts between the activities of mineral rights holders and those of surface rights holders; and

WHEREAS, the City is aware that oil and gas production within the unincorporated areas of Kern County and their associated environmental review does not impinge upon or supersede the City's authority over such activities within its jurisdictional boundaries; and

WHEREAS, "Kern Citizens for Energy" is a coalition of small business owners, nonprofits, chambers of commerce, taxpayer advocates, and others that support a robust oil and gas industry in Kern County; and

WHEREAS, "Kern Citizens for Energy" is committed to supporting the thousands of men and women who work in the local oil and gas sector within Kern County and advocating continued oil and gas production in Kern County; and

CITY OF BAKERSFIELD ORIGINAL

WHEREAS, in accordance with the statements above, it is the intent of the Bakersfield City Council to formally support Kern County's ongoing environmental review of oil and gas production within the unincorporated areas of Kern County and the efforts of "Kern Citizens for Energy."

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Bakersfield as follows:

1. The above recitals are true and correct.

2. The City of Bakersfield hereby:

   - Acknowledges and appreciates the significant economic impacts a thriving oil and gas industry has on the economy of Bakersfield;

   - Supports the timely conclusion of Kern County's project-level environmental review of oil and gas production within the unincorporated areas of Kern County to allow for the future growth of the oil and gas industry in Kern County in a safe and responsible manner; and

   - Supports the efforts of "Kern Citizens for Energy."

----------o0o----------

CITY OF BAKERSFIELD
ORIGINAL

I HEREBY CERTIFY that the foregoing Resolution was passed and adopted by the Council of the City of Bakersfield at a regular meeting thereof held on OCT 22 2014, by the following vote:

YES: COUNCIL MEMBER RIVERA, MAXWELL, WEIR, SMITH, HANSON, SULLIVAN,
NOES: COUNCIL MEMBER None
ABSTAIN: COUNCIL MEMBER Johnson
ABSENT: COUNCIL MEMBER None

Roberta Gafford

ROBERTA GAFFORD, CMC
CITY CLERK and Ex Officio Clerk of
the Council of the City of Bakersfield

APPROVED OCT 22 2014

By _____ for
HARVEY L. HALL
Mayor

APPROVED AS TO FORM:
VIRGINIA GENNARO
City Attorney

By _____
ANDREW HEGLUND
Deputy City Attorney

AH:dll
S:\COUNCIL\Resos\14-15\Oil&Gasreso.Docx

CITY OF BAKERSFIELD ORIGINAL

0013-1

This letter transmits a copy of a Resolution enacted by the City Council in support of the Project, timely completion of the project-level environmental review process, and supports the efforts of the Kern County Citizens for Energy. These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0013-2

This letter transmits a copy of a Resolution enacted by the City Council in support of the Project, timely completion of the project-level environmental review process, and supports the efforts of the Kern County Citizens for Energy. These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0013-3

This letter transmits a copy of a Resolution enacted by the City Council in support of the Project, timely completion of the project-level environmental review process, and supports the efforts of the Kern County Citizens for Energy. These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0013-4

This letter transmits a copy of a Resolution enacted by the City Council in support of the Project, timely completion of the project-level environmental review process, and supports the efforts of the Kern County Citizens for Energy. These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0013-5

This letter transmits a copy of a Resolution enacted by the City Council in support of the Project, timely completion of the project-level environmental review process, and supports the efforts of the Kern County Citizens for Energy. These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

14 Kern County Public Works Department

Office Memorandum

KERN COUNTY

0014

To: Planning Department
Attn: Chris Mynk

July 16, 2015

From: Public Works Dept.
Floodplain Management Section
Aaron Leicht

Subject: Draft EIR – Revisions to the K.C. Zoning Ordinance; Oil and Gas Local Permitting

This Section has reviewed the above referenced document and recommends that Mitigation Measure 4.9-6 be amended to read; 0014-1

> For any oil and gas activity within a Special Flood Hazard Area, the applicant shall ensure that all constructed facilities are elevated or floodproofed in compliance with the requirements and standards found in the Kern County Floodplain Management Ordinance and Chapters 19.50 and 19.70 of the Kern County Zoning Ordinance. 0014-2

For clarity, it is recommended that the term Special Flood Hazard Area be added to Chapter 11.2 of the DEIR using the definition found in the Kern County Floodplain Management Ordinance Section 17.48.060. 0014-3

Additionally, the recent creation of the Kern County Public Works Department now makes references to the Engineering, Surveying and Permit Services Department obsolete. It is recommended that the DEIR be reviewed and references to ESPS (except for references made in a historic context) be updated to K.C. Public Works Department. 0014-4

0014-1

The requested modification to MM 4.9-6 has been added to the Final EIR.

0014-2

The requested modification to MM 4.9-6 has been added to the Final EIR.

0014-3

The definition of the Special Flood Hazard Area is added to the Final EIR as requested by commenter.

0014-4

The request that Draft EIR references to the Kern County Engineering, Surveying and Permiting Services Department be updated to refer to the Kern County Public Works Departmernt. This change is accepted and added to this Final EIR.

15 Kern County Public Works Department

COUNTY OF KERN
PUBLIC WORKS DEPARTMENT

Office Memorandum

To: Lorelei Oviatt, Director
Attn: Christopher Mynk, AICP, Supervising Planner

September 11, 2015

From: Warren D. Maxwell, Development Review Engineer
Building & Development Division

Subject: 7-5.3 Draft Environmental Impact Report for the Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting.

This Department has reviewed the Traffic Impact Study (TIS) and the Draft Environmental Impact Report (DEIR) for the subject project and has the following comments:

Traffic Impact Study:

1. This Department concurs with its findings as outlined in the following table: 0015-1

Category	Total Cost	O&G % Share	O&G Cost
Intersection Improvements	$11,200,000.00	29%	$3,200,000.00
Roadway Widening	$124,700,000.00	10%	$12,900,000.00
Pavement Maintenance[1]	$1,128,000,000.00	6%	$63,600,000.00
Safety & Geometrics	-	-	$2,000,000.00
Total	$1,263,900,000.00		$81,700,000.00

1. It is anticipated that the County will establish a Road Surface Impact Mitigation Fee Program.

2. Page 45, Table 3: Signalized Intersection Level of Service, AM & PM Peak Hour; Intersection #355 Real Rd & SR 58 does not show a 2015 AM Peak Hour LOS, please clarify. 0015-2

3. Page 93, Conclusion; Third paragraph; it is unclear if there were 101 studied intersections as totaled from Tables 2 and 3 or 105, please clarify. 0015-3

4. Page 93, Conclusion; Third paragraph; it is unclear if the 34 intersections currently operating below the adopted LOS will be reduced to 15 or that there will be 15 additional intersections that will operate below the adopted LOS by 2035, please clarify. 0015-4

5. Submit a stamped and signed TIS from Ruettgers & Schuler. 0015-5

Draft Environmental Impact Report:

1. Page 4.16-4; Existing Traffic Conditions; See TIS Comment #3 above. 0015-6

2. Page 4.16-5; Existing Traffic Conditions; please verify the amount of intersections calculated to operate at unacceptable LOS during AM and/or PM Peak hours, 19 appears to be incorrect. 0015-7

3. Page 4.16-9; Existing Traffic Conditions; please verify the amount of roadway segments evaluated since the quantities of 463 and 30 segments that operate at unacceptable LOS under existing conditions do not match those stated earlier in the DEIR. 0015-8

4. Page 4.16-26; Existing Pavement Conditions; please verify the centerline miles of county roads and state routes are correct, as they do not match those shown in the TIS. 0015-9

5. Page 4.16-42; Revise Engineering, Surveying, and Permit Services Department to reflect Public Works Department, Building and Development Division. 0015-10

6. Page 4. 16-46; Project Impacts; Year 2015 intersection Operations; please verify the number of intersections evaluated is 19. 0015-11

7. Page 4.16-46; Table 4.16-12: Intersection Impacts and Mitigation 2015. Intersection #112 is not shown in the TIS but it is listed in the DEIR. Please explain. 0015-12

8. Page 4.16-47; Table 4.16-12: Intersection Impacts and Mitigation 2015. Intersection #243 project percent fair share is missing. Please revise. 0015-13

9. Page 4.16-52; Table 4.16-16: Roadway Maintenance and Rehabilitation Summary, Years 2015-2035. The quantities in the DEIR do not match Table 10 in the TIS. Please clarify. 0015-14

10. Page 4.16-52 and 4.16-53; Pavement Conditions; See DEIR Comment #4 above. 0015-15

11. Page 4.16-77; Table 4.16-17: Pavement Impacts and Mitigation; Please provide the footnote for the Key. Please revise. 0015-16

12. Mitigation measures page 4.16-77: MM 4.16-1; Please revise the reference to the Roads Department to reflect Kern County Public Works Department. Also, MM 4.16-2; Please remove the "Roads Division" reference from Kern County Public Works Department and replace the subsequent Roads Department reference with Kern County Public Works Department. 0015-17

13. Page 4.16-80; Impact 4.16-4; Last paragraph states "…with the implementation of MM 4.16-1," should it also contain MM 4.16-2? Please clarify. 0015-18

14. Page 4.16-82; Project Impacts; Year 2035 Intersection Operations; please verify number of intersections that will operate below acceptable LOS as the stated value appears to be incorrect. 0015-19

15. Page 4.16-83; Table 4.16-18; Intersection #112 does not correlate with Table 11 of the TIS. Please verify. 0015-20

Thank you for the opportunity to comment on this project, if you have any questions or comments please contact Paul Candelaria at 862-8869.

0015-1

Thank you for your comments and participation in this public review of this environmental document. Such comments are noted and will be considered by County decision makers. Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-2

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-3

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-4

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-5

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-6

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-7

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-8

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-9

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-10

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-11

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-12

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-13

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-14

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-15

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-16

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-17

Please see Global Response TR 1, Traffic Analysis and Mitigation Program. Please also see Section 1.7.4 of this document for a discussion of revisions mitigation measures identified in the DEIR.

0015-18

Please see Global Response TR 1, Traffic Analysis and Mitigation Program. Please also see Section 1.7.4 of this document for a discussion of revisions mitigation measures identified in the DEIR.

0015-19

Please see Global Response TR 1, Traffic Analysis and Mitigation Program.

0015-20

Please also see Section 1.7.4 of this document for a discussion of revisions mitigation measures identified in the DEIR.

16 Kern Groundwater Authority

Kern Groundwater Authority
c/o P.O. Box 20820
Bakersfield, CA 93390-0820
www.kerngwa.com

August 28, 2015

Chris Mynk, AICP
Kern County Planning and Development Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301

RE: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Dear Mr. Mynk:

The Kern Groundwater Authority (Authority) appreciates the opportunity to review the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting (DEIR). Appendix T of the DEIR includes a water supply assessment report for the Project Area. Appendix T, Table 16, summarizes the groundwater pumping data used to develop a mean total of 1,319,000 acre-feet (af) of annual groundwater supply within the Project Area, and this quantity is used in subsequent tables as a constant supply in five year increments through 2035. 0016-1

Comment: Include a footnote on Appendix T tables that the groundwater supply numbers in the report are not an estimation of safe basin yield, which will be determined in the future under the Sustainable Groundwater Management Act. 0016-2

The Appendix T tables referencing a groundwater supply of 1,319,000 af, or some portion thereof, should include a footnote stating the pumping data used to develop the mean were collected prior to the enactment of the Sustainable Groundwater Management Act and the annual amount of future groundwater pumping will depend on the safe basin yield as determined for the Kern Groundwater Subbasin. 0016-3

Sincerely,

Joe MacIlvaine
President

0016-1

Commenter's summary of the Draft EIR, Water Supply Assessment (Appendix T) is noted. Appendix T has been revised to included updated information in response to comments (e.g., corrections of produced water quantities that are used for irrigation), as explained in GR-Water-05.

0016-2

Commenter's request that that groundwater supply numbers in the Water Supply Assessment do not constitute a safe basin yield, and that the safe basin yield will be determined in the future under the Sustainable Groundwater Management Act, is accurate and included in the Final EIR.

0016-3

Commenter accurately notes that the historical data presented in Appendix T were collected before enactment of the Sustainable Groundwater Management Act (SGMA). Some of the data presented in the revised Water Supply Assessment (Appendix T-1) were collected after enactment of SGMA, but none of the supplied data are intended to be understood as presenting an assessment of the sustainable basin yield under SGMA.

7.2.4 Interested Parties

17 Janet Stockton

Janet Stockton
18050 Johnson Rd.
Bakersfield, CA. 93314

July 13, 2015

Kern County Planning and Community Development Department
Attention: Christopher B. Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Re Oil & Gas DEIR

Dear Mr. Mynk,

I was compelled to write this without a complete reading of the document because I was shocked by my initial scan. My concerns relate to the oil activities as it relates to neighboring residences. I have lived surrounded by an oilfield for 23 years and can say from first hand experience they are ugly, noxious, smelly, noisy and at times unsafe and operate with impunity in Kern County. I have seen crude oil spills, gas venting, waste water pipe breaks, screaming jack pumps, pumps heads falling off, gas flares venting with flames over 20' tall, flares falling and igniting vegetation. All safety and operational reporting appears to be self reporting without oversight. There is no county dept for citizens to call upon in an emergency. The fire dept did nothing when the flare fell. No agency would help with the ear splitting compressor and pump noises. DOGGR claimed they could only help with tumbleweeds. When men in hazmat suits worked for three days cleaning up a spill, the oil company would only say that it was non reportable and nothing else. There is no emergency contact number for residents to call in an emergency. All oil and gas production data that is publicly available is self reported and in many cases nonsensical. 0017-1

These are my personal observations from actual occurrences. I do believe that oil production can occur in a responsible fashion in harmony with residences. It is possible but most often does not happen because the county will not defend residences and acknowledge and address their concerns. 0017-2

The aesthetics portion of the DEIR is woefully inadequate. As an example, under mitigation the report lists limiting pump heights to 80'. It is currently 35'. How is more than doubling the height of a pump allowed 190' from a house a mitigation? No structure as noisy, unsightly, smelly and dangerous should be allowed within 1000' from a residential property line. If it is 80' high, double that to 2000'. With horizontal drilling there is no reason to allow these any closer to homes! 0017-3

Fencing should be acoustical concrete panels. All stations used by vacuum trucks should have an acoustical enclosure. The same should apply to compressors and internal combustion trash pumps. Mufflers are inadequate to mitigate the low range noise. They cause your house to vibrate! There are many new acoustical products for industrial use and they should be required for the sake of county residences. 0017-4

The aesthetics are important and profoundly affect our quality of life. Require that the oil industry operate as good neighbors and not just as a soundbite and a PR push but in actuality!! 0017-5

We do not have to be the arm pit of CA unless we allow it. The oil industry is not going away if our public officials actually stand up for the citizens. 0017-6

Sincerely,

Janet Stockton

KERN COUNTY PLANNING
RECEIVED
2015 JUL 17 PM 4:14

0017-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of concern regarding commenter's experience with existing oil and gas activities in the vicinity her home are noted and will be considered by County decision makers.

0017-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of concern regarding commenter's observations of existing oil and gas activities in the vicinity her home are noted and will be considered by County decision makers.

0017-3

Please see Responses 200 through 211 to comment Letter 43, which discuss mitigation measures that address commenter's concerns. The comments proposed 2000 foot setback has been considered but rejected. However, Revised Amended Ordinance, section 19.98.060, has been modified to increase the required well setback from residences. Per such revision, no oil or gas well shall be drilled within 210 feet of any sensitive receptor, including residences, rather than 190 feet. Revised mitigation measures have been included in EIR section 7.1.4.

0017-4

Please see Responses 212 through 220 to comment Letter 43, which discuss mitigation measures that address commenter's concern. The comments proposed noise mitigation measures have been considered but rejected as they are not necessary to reduce Project noise impacts to less than significant, as discussed in DEIR section 4.12. Revised mitigation measures addressing noise impacts have been included in EIR section 7.1.4.

0017-5

This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

0017-6

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Your concerns about the Project will be considered.

18 J.M. Rademacher

TO: CHRISTOPHER MYNK..A.C.I.P.
KERN CO. PLANNING & COMMUNITY DEVELOPMENT DEPT.
FR: J.M. RADEMACHER... C.O.B. NATIVE..PROFESSIONAL CREDENTIALS. ETC.
RE: OIL/GAS PERMITTING.. E.I.R.

PREMISE: EVERY PROJECT REQUIRES ENERGY: MANPOWER, PLUS COMBUSTION OF FOSSIL FUELS; (SOLID, LIQ., GAS)..

0018-1

1. AIR QUALITY IN KERN CO. DEGRADES.!..
2. BURNING OF F.F.S NEGATIVELY IMPACTS AIR QUALITY...

0018-2

0018-3

A. POSTULATE THAT 1.0% F.F. BURNED IS(ARE) POLLUTANTS; 99% IS CO_2 + H_2O VAPOR...
B. CHEM. COMBUSTION EQUATION DEFINES THAT TO BURN 1.0 LB. OF F.F. REQUIRES 3½ LBS. OF OXYGEN MUST BE EXTRACTED FROM AIR STREAM...
C. THUS: EA. 100.0 LBS. (15 LIQ GALS) OF F.F. BURNED: INJECTS 1.0 LB OF POLLUT; INTO, AND REMOVES 350 LBS. OF O_2 FROM OUR AIR STREAM...

0018-4

0018-5

0018-6

SUGGEST/CONSIDER...

[EACH PROJECT E.I.R. REVIEW SHALL INCLUDE: THE POUNDS OF F.F. TO BE BURNED..TO COMPLETE THE PROJECT!]

0018-7

ADDENDA:

1. THIS REQUIREMENT SHOULD NOT BE ONEROUS..SINCE IT IS PART OF THE MONETARY-FOR PROJECT...

0018-8

2. ALLOW RESIDENTS/OFFICIALS OF KERN CO. TO CONSIDER/WEIGH/MITIGATE, THE IMPACT UPON OUR AIR QUALITY...

0018-9

VERY TRULY. (OVER & OUT.)

J. M. RADEMACHER 07 10 15
J.M. Rademacher
132 WESTERN DR. 93309
(324-5403)

0018-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

0018-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

0018-3

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see DEIR chapter 4.3, Air Quality, for an analysis of the Project's potential air quality impacts. Please see DEIR chapter 4.7, Greenhouse Gas Emissions and Global Climate Change, for an analysis of the Project's potential to emit greenhouse gas emissions and contribute to climate change.

0018-4

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

0018-5

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

0018-6

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see DEIR chapter 4.3, Air Quality, for an analysis of the Project's potential air quality impacts. Please see DEIR chapter 4.7, Greenhouse Gas Emissions and Global Climate Change, for an analysis of the Project's potential to emit greenhouse gas emissions and contribute to climate change.

0018-7

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see DEIR chapter 4.3, Air Quality, for an analysis of the Project's potential air quality impacts. Please see DEIR chapter 4.7, Greenhouse Gas Emissions and Global Climate Change, for an analysis of the Project's potential to emit greenhouse gas emissions and contribute to climate change.

0018-8

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see DEIR chapter 4.3, Air Quality, for an analysis of the Project's potential air quality impacts. Please see DEIR chapter 4.7, Greenhouse Gas Emissions and Global Climate Change, for an analysis of the Project's potential to emit greenhouse gas emissions and contribute to climate change.

0018-9

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. The public is welcome to weigh in on the adequacy of the EIR during the DEIR public comment period and at all public hearings to consider the EIR and the Project, which will be properly noticed in accordance with law.

19 Gilbert Garcia

0019

From: "Gilbert Garcia" <gilodad@hotmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/16/15 5:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

0019-1

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Gilbert Garcia

Sincerely,

Gilbert Garcia
6004 Georgia Pine Way
Bakersfield, CA 93313

0019-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment letter submitted indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

20 Robert Alberstadt

0020

From: "Robert Alberstadt" <rcalberstadt@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:59 AM
Subject: Kern County EIR

Dear AICP Supervising Planner Mynk,

Thank you for the opportunity to write in support of our County's oil and gas industry. This industry is critical our state and local economy. It provides thousands of well-paying jobs and a large tax revenue. I understand the desire for an enhanced permitting process and rules, but those changes should not be so burdensome as to restrict the production of oil and gas production in Kern county.

0020-1

Sincerely,

Robert Alberstadt
2215 A St
Bakersfield, CA 93301

0020-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment letter submitted indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

21 Walter Dunbar

0021

From: "Walt Dunbar" <waltdunbar@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 11:39 AM
Subject: 67 Years in the oil business & the Draft Environmental Report

Dear AICP Supervising Planner Mynk,

In my tenure in the oil business I have not seen permanent damage to the ecology--I have not seen any frac damage to acquifers. I have seen strong support to out community in both contributions and economics via taxes. What I am seeing now is tremendous opposition to our operations by bureaucratic red tape and trumpted-up environmental issues. I strongly urge approval and implementation of the proposed environmental report.

0021-1

Walter L. M. Dunbar
Professional Engineering Consultant

Sincerely,

Walt Dunbar
4800 Stockdale Hwy
Bakersfield, CA 93309

0021-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

22 Kenneth Bork

0022

From: "Kenneth Bork" <kygbork@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 9:09 PM
Subject: CITIZEN'S HUMBLE OPINION on the Draft EIR for the Kern County Zoning Ordinance – 2015

Dear AICP Supervising Planner Mynk,

I am writing in support of our Kern's oil and gas industry that has been faithfully following all environmental laws and regulations from multiple Federal, State, and County regulatory agencies over several decades. 0022-1

WE NOW LIVE IN AN AGE OF FRIVOLOUS CEQA lawsuits, Sanctuary Cities, and Executive Orders that intentionally encourages militant, uncompromising, vocal, and politically-supported extremist groups to not follow Federal, State and County laws, while at the same time, THEY TRY TO SHUTDOWN a law abiding industry such as oil and gas production? THE ACTIVIST'S HYPOCRACY WREAKS OF LOS ANGELES FECAL MATTER SLUDGE. 0022-2

You will know when these Los Angeles, San Francisco, and Washington DC activists come to the podium. They will make outlandish claims of environmental damage, or future catastrophes, based on biased sources such as pseudo-scientists' "studies" (e.g. Josh Fox of Gas Land infamy), quote activist-journalists from liberal newspapers (e.g. The Los Angeles Times), or refer to problems in another state (e.g. Pennsylvania) that has different geology and groundwater than California as they try and mislead you into thinking that 115 years of Kern County oil production has, or suddenly will, poison our water, air, soil, animals, climate, and target certain communities for death. DO NOT BELIEVE THEIR LIES. 0022-3

SEEK THE TRUTH!! I STRONGLY URGE TO APPROVE AND IMPLEMENT THE REPORT. 0022-4

Sincerely,

Kenneth Bork (CITIZEN OF KERN)
10403 Camino Media
Bakersfield, CA 93311

0022-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment letter submitted indicates support of the oil and gas industry. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0022-2

See response 1, above.

0022-3

See response 1, above.

0022-4

See response 1, above.

23 Nathaniel Jones

0023

From: "Nathaniel Jones" <nathan_geology@utexas.edu>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 3:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county. 0023-1

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. 0023-2

I live here and raise my family here in the County and I ask you to please discount the voices of those who seek to destroy the oil and gas industry without considering the benefits and foundational role hydrocarbons play in our civilization and economy. Oil and gas are more than just energy. Hydrocarbons are a key part of materials in cars, homes, clothing, medicine, agriculture, and, well, everything. Heck, many of the materials that go into manufacturing so called "green energy" are derived from hydrocarbons and are mined using energy intensive means (requiring hydrocarbons...). Our civilization runs on the energy and the advanced materials from the chemical feedstocks provided by oil. To reject oil and gas production is to reject our civilization and condemn our children to a future of poverty and technological regression. I want to leave my children a better, more prosperous, and cleaner world. That requires energy and that means we need oil and gas. 0023-3

Regards,

Nathaniel Jones

Sincerely,

Nathaniel Jones
15828 Carparzo Dr
Bakersfield, CA 93314

0023-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0023-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0023-3

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

24 Tamara Baker, Kern Economic Development Corp.

0024

From: Shawn Beyeler
To: Mynk, Chris
Date: 7/24/15 11:47 AM
Subject: Fwd: Oil and Gas Draft Environmental Impact Report for Kern County
Attachments: The Bakersfield Californian.pdf

FYI

>>> Tamara Baker <tamara@kedc.com> 07/24/2015 11:38 AM >>>

Dear Kern EDC Investors and Partners,

Next week marks the beginning of public workshops designed to gather input on the recently-released Oil and Gas Draft Environmental Impact Report for Kern County. 0024-1

The attached letter from Kern EDC's President/CEO Richard Chapman appeared in today's edition of The Bakersfield Californian explains why this effort is important to Kern County's future economy. 0024-2

Thank you,

Tamara Baker | Investor Relations Specialist
Kern Economic Development Corporation
Direct: (661) 862-5054
Office: (661) 862-5150
2700 M Street, Suite 200
Bakersfield, CA 93301
www.kedc.com

An oil permitting structure for healthy community and strong economy



The oil and gas industry has been a powerful force in Kern County's economy for more than 100 years. Today, the local industry has reached a watershed moment as it struggles to safely, effectively, and yes, profitably, continue its efforts in Kern County while meeting the stringent requirements of the California Environmental Quality Act, known as CEQA.

Two years ago, our oil and gas industry collectively requested that the Kern County Planning and Community Development Department consider amending the oil and gas production portion of the local zoning ordinance which would, on one hand, require intensified environmental measures by industry, but on the other hand would streamline the permitting process. That began a two-year collaborative process between Kern County planning staff, consultants and oil and gas companies.

The result is the recently released Draft Environmental Impact Report (DEIR) which details potential impacts of the proposed zoning

change, and mitigation measures that would reduce and/or avoid significant impacts.

Each of us in Kern County should care about the results of this effort. The oil and gas industry accounts for 25 percent to 35 percent of our county's GDP (approximately $40 billion in value), and it creates up to 50,000 jobs (representing $4 billion per year in family income). Without those wages paid to local residents, our county would lose $4 billion in income, plus $1.2 billion in state and local tax revenues that pay for our roads, health care, public safety and schools (representing one-third of all the public services in Kern County).

More than $12 million (contributed by the oil and gas industry), plus two years of effort, have been spent on this project. The county and industry alike should be applauded for their commitment to a collaborative and transparent process. The document is now available for public review and comment.

The final result has the potential to create a positive and lasting impact on our economy while continuing to protect our environment. Local residents should take the time to become informed and to let their voices be heard. Groups from outside the area (some with stated agendas to end petroleum production as we know it) will most definitely be vocal about the project.

A variety of forums are available for public comment, after which a final EIR will be prepared. The process will also include public hearings before the Kern County Planning Commission and, ultimately, before Kern supervisors.

The Draft EIR is available for review at Planning and Community Development at 2700 M Street, and electronically at pcd.kerndsa.com.

Richard Chapman is President/CEO of Kern Economic Development Corporation and a member of the Leadership Committee for Kern

Citizens for Energy.

0024-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0024-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Comment includes copy of a newsletter article that does not raise comments regarding the adequacy of the EIR. This comment is noted and will be considered by County decision makers.

25 Holly A. King

0025

Chris Mynk - Public Records Act Request

From: "Holly King" <holly@triplecrown.bz>
To: "Chris Mynk" <mynkc@co.kern.ca.us>
Date: 7/28/15 4:33 PM
Subject: Public Records Act Request
CC: "'Lorelei H. Oviatt'" <LORELEIO@co.kern.ca.us>

Chris:

0025-1

Pursuant to the California Public Records Act, I am requesting the following public records to allow us to effectively review the Draft Environmental Impact Report ("DEIR") for Revisions to the Kern County Zoning Ordinance 2-15-(C) focused on Oil and Gas Local Permitting:

- The air quality section of the DEIR cites a technical report prepared by Vector Environmental, Inc. (Vector 2015a). DEIR, p. 4.3-71. This report is apparently the basis of numerous emission tables in the air quality section, Tables 4.3-12 to 4.3-32. These tables appear with no supporting calculations. Air Quality Appendix I presents a summary of emissions by source. None of these tables or supporting text contain the calculations and assumptions used to estimate these emissions. Further, all of the emission tables are in a pdf format that do not show underlying calculations. Please provide the Vector 2015a report and all Excel spreadsheets used to generate the emission estimates in DEIR Tables 4.3-12 to 4.3-32 and in Appendix I in their native electronic format and unprotected (i.e., showing formulas).

- For the Health Risk Assessment in Appendix M, the key inputs to the analysis are contained in Appendix B to Appendix M, "Equipment and Emissions for Well Depths." The Health Risk Assessment outputs are contained in Appendix C, Modeling Files, and Appendix D, HARP Output, which are appendices to Appendix M. Please provide Appendices B, C, and D to Appendix M.

- The DEIR Project Description includes a potential future oil and gas development scenario that assumes 2,697 new producing well per year for 20 years and a total of 67,425 new wells over the next 25 years. DEIR p. 3-30. It also breaks down these projections in Tables 3-5 through 3-8. DEIR p. 3-32 to 3-34. Please provide all records used to calculate these development scenario numbers, records showing the calculations themselves and the source of inputs and assumptions used in the calculations. This request includes the source identified in footnote 1 of the Tables, "CATC (with County team modifications)." DEIR p. 3-32 to 3-34.

Given the short public review period for the DEIR, please respond to this request as soon as possible. The Public Records Act requires a prompt response, which in these circumstances should be sooner than the maximum allowable 10 days. If any of the requested records are currently in electronic format, I request electronic transmission of these records. Electronic records may be placed on an FTP site, e-mailed or mailed on a CD.

Thank you for your attention to this request. Please contact me if you have any questions.

Thanks,
Holly

Holly A. King
13501 Arbolado Court
Bakersfield, CA 93314
559-269-3310

0025

Chris Mynk - Public REcords Act Request

From: "Holly King" <holly@triplecrown.bz>
To: "Chris Mynk" <mynkc@co.kern.ca.us>
Date: 8/4/15 12:18 PM
Subject: Public REcords Act Request
CC: "'Lorelei H. Oviatt'" <LORELEIO@co.kern.ca.us>

Chris:

Pursuant to the California Public Records Act, I am requesting the following public record to allow us to effectively review the Draft Environmental Impact Report ("DEIR") for Revisions to the Kern County Zoning Ordinance 2-15-(C) focused on Oil and Gas Local Permitting:

- WZI Inc., 2014, *Water Impact Factors, Kern County Oil and Gas EIR*, prepared for Western States Petroleum Association [WSPA]. This report is referred to on page 51 of the Water Supply Assessment Report (DEIR Appendix T).

0025-2

Given the short public review period for the DEIR, please respond to this request as soon as possible. The Public Records Act requires a prompt response, which in these circumstances should be sooner than the maximum allowable 10 days. If the requested record is currently in electronic format, I request electronic transmission of this record. Electronic records may be placed on an FTP site, e-mailed or mailed on a CD.

Thank you for your attention to this request. Please contact me if you have any questions.

Thanks,
Holly

Holly A. King
13501 Arbolado Court
Bakersfield, CA 93314
559-269-3310

Chris Mynk - Public Records Request

From: "Holly King" <holly@triplecrown.bz>
To: "Chris Mynk" <mynkc@co.kern.ca.us>
Date: 8/26/15 9:50 AM
Subject: Public Records Request
CC: "'Lorelei H. Oviatt'" <loreleio@co.kern.ca.us>

Chris:

Pursuant to the California Public Records Act, I am requesting the following public record to allow us to effectively review the Draft Environmental Impact Report ("DEIR") for Revisions to the Kern County Zoning Ordinance 2-15-(C) focused on Oil and Gas Local Permitting:

- Any resolutions adopting or amending Chapter 19.98 (oil and gas production) of the Zoning Ordinance of Kern County or any record showing when Chapter 19.98 was originally adopted and subsequently amended.

Given the short public review period for the DEIR, please respond to this request as soon as possible. The Public Records Act requires a prompt response, which in these circumstances should be sooner than the maximum allowable 10 days. If the requested record is currently in electronic format, I request electronic transmission of this record. Electronic records may be placed on an FTP site, e-mailed or mailed on a CD.

Thank you for your attention to this request. Please contact me if you have any questions.

Thanks,
Holly

Holly A. King
13501 Arbolado Court
Bakersfield, CA 93314
559-269-3310

0025-3

0025

Chris Mynk - Public Records Request

From: "Holly King" <holly@triplecrown.bz>
To: "Chris Mynk" <mynkc@co.kern.ca.us>
Date: 9/4/15 3:13 PM
Subject: Public Records Request
CC: "'Lorelei H. Oviatt'" <loreleio@co.kern.ca.us>

Dear Mr. Mynk,

0025-4

Pursuant to the California Public Records Act, I am requesting the following public record to allow us to effectively review the Draft Environmental Impact Report ("DEIR") for Revisions to the Kern County Zoning Ordinance 2-15-(C) focused on Oil and Gas Local Permitting:

- DEIR Appendix H (Farmland Conversion Study) page 18, refers to Appendix 1 "for more detailed information about Williamson Act history and administration in Kern County." However, Appendix 1 is not included in the Farmland Conservation Study posted on line. Please provide a copy of this Appendix 1.

Given the short public review period for the DEIR, please respond to this request as soon as possible. The Public Records Act requires a prompt response, which in these circumstances should be sooner than the maximum allowable 10 days. If the requested record is currently in electronic format, I request electronic transmission of this record. Electronic records may be place on an FTP site, e-mailed or mailed on a CD.
Thank you for your attention to this request. Please contact me if you have any questions.

Thanks,
Holly

Holly A. King
13501 Arbolado Court
Bakersfield, CA 93314
559-269-3310

0025-1

Please see the Final EIR, Chapter 7, for responses to comment 0025.

0025-2

Please see the Final EIR, Chapter 7, for responses to comment 0025.

0025-3

Please see the Final EIR, Chapter 7, for responses to comment 0025.

0025-4

Please see the Final EIR, Chapter 7, for responses to comment 0025.

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

August 3, 2015

File: Oil and Gas
Zoning Amendment

Holly A. King
13501 Arbolado ct.
Bakersfield, CA 93314

RE: Public Records Act Request Regarding Kern County Revisions to the Zoning Ordinance 2015 C

Dear Ms. King:

On behalf of Kern County, the Kern County Planning and Community Development Department is in receipt of your July 28, 2015 Public Records Act Request for the proposed Oil and Gas EIR. In response to your request, Staff notes that all materials, subject to California Public Records Request Act, related to the aforementioned project are available for review. These files can be picked up in electronic format by contacting Christopher Mynk directly at (661) 862-8607 or by email MynkC@co.kern.ca.us to schedule an appointment. The appointment will be scheduled during normal business hours (Monday through Friday, from 8:00 am to 5:00 pm) at the Kern County Planning and Community Development Department located at 2700 M Street, Suite 100, Bakersfield, California 93301.

This completes the Kern County Planning and Community Development Department's response to your Public Records Act Request. Please contact me directly if you have any questions or concerns as they relate to this letter.

Sincerely,

Christopher B. Mynk, AICP, Supervising Planner
Planning & Community Development Dept.

Cc: County Counsel, Attn: Phil Hall

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

August 10, 2015

File: Oil and Gas
Zoning Amendment

Holly A. King
13501 Arbolado ct.
Bakersfield, CA 93314

RE: Public Records Act Request Regarding Kern County Revisions to the Zoning Ordinance 2015 C

Dear Ms. King:

On behalf of Kern County, the Kern County Planning and Community Development Department is in receipt of your August 3, 2015 Public Records Act Request for the proposed Oil and Gas EIR. In response to your request, Staff notes that all materials, subject to California Public Records Request Act, related to the aforementioned project are available for review. These files have been provided in electronic format and are available in hard copy by contacting Christopher Mynk directly at (661) 862-8607 or by email MynkC@co.kern.ca.us to schedule an appointment. The appointment will be scheduled during normal business hours (Monday through Friday, from 8:00 am to 5:00 pm) at the Kern County Planning and Community Development Department located at 2700 M Street, Suite 100, Bakersfield, California 93301.

This completes the Kern County Planning and Community Development Department's response to your Public Records Act Request. Please contact me directly if you have any questions or concerns as they relate to this letter.

Sincerely,

Christopher B. Mynk, AICP, Supervising Planner
Planning & Community Development Dept.

Cc: County Counsel, Attn: Phil Hall

Kern County Oil and Gas EIR
Chapter 2:
Water Impact Factors:

Their Derivation and Use

DRAFT

Prepared for:

Western States Petroleum Association

By:

WZI Inc.

2 Exploration and Production related Water Use and Disposal in Kern County 3
2.1 Water Use and Disposition Activities Conducted by the Oil and Gas Companies during Operation of the Oil and Gas Fields 4
2.1.1 Selection of Analysis Year 4
2.1.2 Water Balance: Inputs/Use 5
2.1.3 Water Balance: Injection and Volume Allocation to Sources 6
2.1.4 Water Balance: End Use/Disposal 10
2.2 Well Servicing Specific Activity Factors. 14
2.2.1 Mud Service/Oil Field Drilling 15
2.2.2 Cementing 17
2.2.3 Potential SB-4 Activities 19
2.2.4 Acidizing Wells/Well Maintenance 22
2.2.5 Coiled Tubing Operations and other similar well servicing operations 24
2.2.6 Well Pulling Activities 26
2.2.7 Plugging and Abandonment 28
2.3 Water used for Dust Control 30
2.4 Water Used for New Well Related Surface Facility Construction 30
2.5 Underground Injection Control Program (UIC) 30
2.5.1 Aquifer Exemptions under the UIC program 31
2.5.2 UIC Well Activities and Potential SB-4 Activites 32
2.5.3 Subsidence 33
2.5.4 Induced Seismicity from UIC Activity and Potential SB-4 Activities 34
2.5.5 Potential Groundwater Contamination from UIC Activities 35
2.6 References 37

2 Exploration and Production related Water Use and Disposal in Kern County

Water is used by the oil and gas exploration and production industry for many different activities such as: site preparation, drilling, completion, enhancement of oil recovery, remediation and abandonment/restoration. Water from oil and gas exploration and production activities is also disposed of and reused as irrigation water in Kern County. This chapter discusses the sources of the water, the water uses and the final disposition of the water and provides Factors for utilization in the Kern County Oil and Gas EIR. The technical analyses employed in the derivation of the Factors are commonly used to analyze industrial water processes.

For the purposes of the discussion the following definitions will be utilized:

- **Waters of the State**-Means "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e));
- **Groundwater**-Any water underneath the surface of the ground;
- **Underground Source of Drinking Water (USDW)**- Any groundwater less than 10,000 parts per million total dissolved solids and has not been exempted[1] by USEPA;
- **Produced Water**-Any groundwater produced in association with the production of oil and gas;
- **Treated Produced Water for Oil Field Use**-Produced water that is treated to a quality that is suitable for uses in the production of oil and gas;
- **Treated Produced Water for Agricultural Use**-Produced water that is treated to a quality that is suitable for farming uses;
- **Municipal and Industrial Water(M&I)**-Water that is sold or allocated through purveyors, agricultural users or extracted groundwater for use in oil and gas services but may be usable for other non-oil and gas uses;
- **Class II Injectate**-Wastewaters and certain allowed fluids associated with oil and gas production that are injected into non-USDW formations under the Underground Injection Control (UIC) that USEPA has delegated to the DOGGR;
- **Potential SB-4 Activity-** Those activities which include activities that may be in the future or are now governed by SB-4 as defined by regulatory proposals on June 15, 2014 and include fracturing, acidizing with acid concentrations greater than 7%, acid fracturing, and Matrix stimulation acidizing. Acid jobs for maintenance purposes, removal of precipates, mud etc. are not included as a Potential SB-4 Activity.
- **Sumps**- Permanent operational impoundments that percolate waste water into the ground generally associated with tank batteries.
- **Drilling Reserve Pits**- Temporary impoundments that store drilling mud during the drilling and reworks.
- **Flowback Water**- Flowback water is the fluid returned to the surface after the well activity has been completed but before the well is placed in, or returned to, service.

[1] Exempted aquifers are aquifers that are less than 10,000 ppm total dissolved solids that have been exempted as underground sources of drinking water for the purpose of Class II injection activities.

The source of water may be either water that is purchased from a purveyor or produced and separated from the oil and gas as it is produced. Water that is connate (returning with any produced oil) is considered produced water. The largest use of water is injection for stimulation and recovery, particularly steam injection. Produced water is largely reused for various oil and gas activities and after softening is often reinjected as steam where steam injection takes place. Produced water otherwise not used in oil and gas application is either: reinjected in Class II wells (injection wells associated with exploration and production disposal activities), treated and used as irrigation water, or evaporated and percolated in ponds.

2.1 Water Use and Disposition Activities Conducted by the Oil and Gas Companies during Operation of the Oil and Gas Fields

The operational water use and disposition Factors during the production of oil and gas in Kern County was analyzed utilizing a "Material Balance" approach. A Material Balance is an application of conservation of mass to the analysis of physical systems. By accounting for material entering and leaving a system, the mass flows (in this case water) can be identified which might have been unknown, or difficult to measure without this technique. This technique revolves around the fact that water cannot disappear or be created spontaneously. The Material Balance requires that the volume of water produced and purchased must equal the volume of water injected for any purpose or it must be disposed to land or reused as agricultural irrigation.

Water balance or use is independent of Tier or jurisdiction. Accordingly, all of the active oil and gas producing fields within the Study Area are included regardless of Tier or land use jurisdiction[2]. Additionally, to simplify the Factor derivation for the reader, the derivation is shown from data source to resultant Factor in the water unit of barrels (bbls), the commonly utilized oil and gas production unit, and then converted to acre-feet, for comparison with agricultural water use.

2.1.1 Selection of Analysis Year

For the purpose of this analysis, the year 2012 was selected as representative based on a review of the DOGGR data from 1993 to 2012. In order to select a representative year, the DOGGR reported injection data for the DOGGR District 4[3] and Kern County fields were segregated by well type, (i.e. steam flood, cyclic steam, water disposal, water flood) plotted and analyzed. Trends were established for each activity as shown on Figure 2.1-1.

[2] The definitions and boundaries for Tier and Land Use Jurisdiction are delineated in "Introduction".
[3] The Kern County Study Area comprises approximately 92% of the oil and gas activities in District 4.

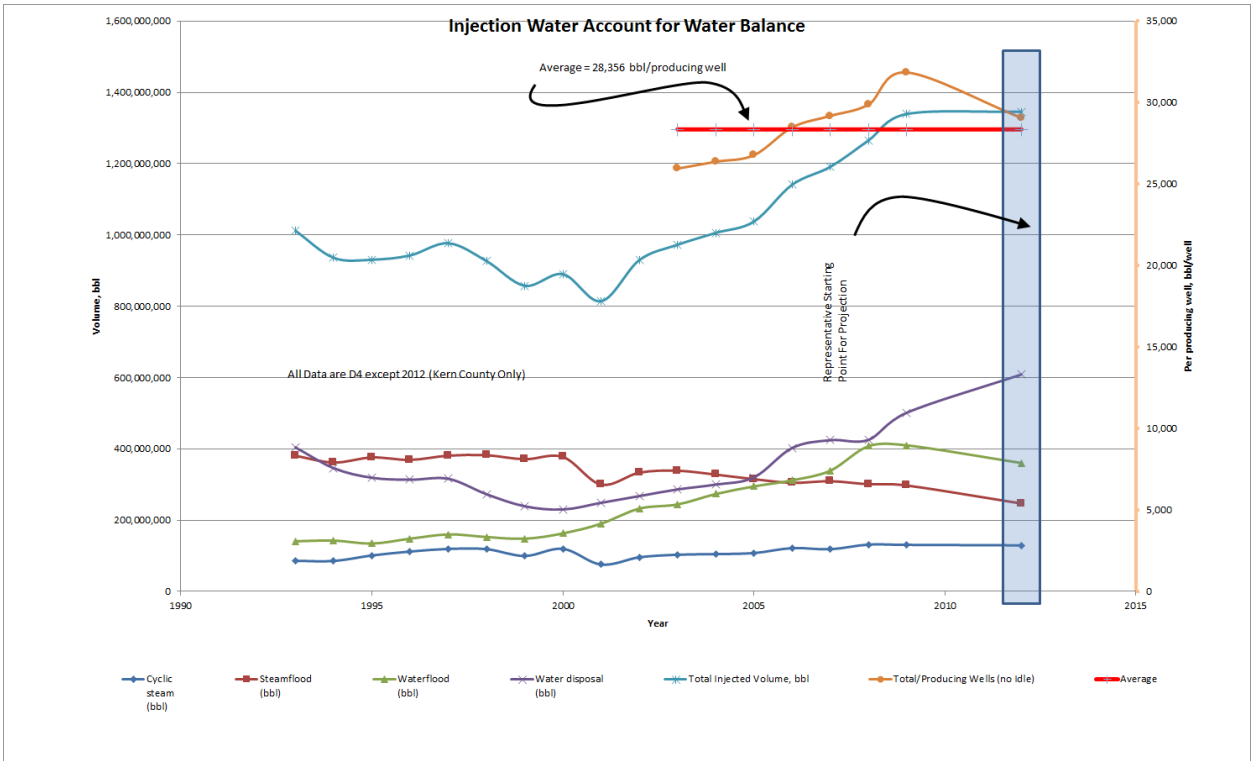


Figure 2.1-1
(WZI, CH 2 Injection Inventory Projection.xlsx)

The trend analysis demonstrates that over the time period 1993-2012 that the water disposal and water flooding has continued to increase, and that the other injection activities, have stayed constant or decreased. Therefore the most recent year of DOGGR certified data, 2012, is most reflective of current operations from which a factor can be derived.

2.1.2 Water Balance: Inputs/Use

Water use and disposal in the oil and gas operations in Kern County are tied together by process including those associated with service company type activities such as drilling, reworks, pulling unit activities.[4] Water that is produced along with oil and gas may be disposed of or used in some other use based on the need and regulatory constraints.

Certain waters used in oil and gas activity may be sourced as M&I water, or alternatively water from the oil and gas operations themselves may be reused. However, once water is affected by contact with production processes, the water is considered to be produced for purposes of this material balance-based analysis.

The accounting for water use on a net water balance basis is determined by the non-produced water use activities. The ultimate fate of used water (from both M&I and oil and gas produced water) is dependent on the manner in which the injected water is used in a given project or study area. Water used for steam injection requires higher quality of water than water injected as liquid. Water injected as steam must be treated to meet steam boiler criteria, whereas, water injected as liquid may have much higher Total Dissolved Solids, (a lower quality water) but must be compatible with the formation to avoid precipitation

[4] (NAICS/SIC, n.d.), see Introduction, for a more complete discussion of activities by SIC Code.

and well plugging (thus requiring earlier or more frequent maintenance). Water rejected as a by-product of the water treatment equipment required to create the boiler quality water (managed as produced water due to its quality), is included in the Water Disposal (WD) reported values.

The produced water from oil and gas is a major input value into the Material Balance calculation. **Table 2.1-1** shows the oil and gas related fluid and gas production by Sub-Region. The Produced Water will be utilized in the calculation.

Table 2.1-1

Table 2.1-1: 2012 Oil, Gas, and Water Production From Sub-Regions[5]

	Oil-bbl	Gas-scf	Produced Water-bbl
Western Sub-Region	99,826,696	139,817,610,000	1,024,110,341
Eastern Sub-Region	39,293,849	791,350,000	799,819,336
Central Sub-Region	2,372,806	1,893,283,000	22,285,099
Kern County Total	141,493,351	142,502,243,000	1,846,214,776

(DOGGR, Annual Report PR13, 2013 for year ending 2012) (WZI, CH 2 2012 Land Use Field Production by Sub Region.xlsx, 2014)

2.1.3 Water Balance: Injection and Volume Allocation to Sources

The second major input into the Material Balance equation is the volume of water injected by the oil and gas operations. The reported data shows that 1,345,773,438 bbls. of water were injected as Class II Injectate in all three Kern County Sub-Regions in 2012.

[5] Data from DOGGR reported data, (DOGGR, Annual Report PR13, 2013 for year ending 2012)

Table 2.1-2

Table 2.1-2 : DOGGR reported Injection Activity by Sub Region[6],[7]							
		2011			2012		
		Western	Central	Eastern	Western	Central	Eastern
(AI) Air Injection	SCF	Not reported			893,000		
(GD) Gas Disposal	SCF	Not reported		Not reported	14,784,000		207,670,000
(LG) Gas Injection	SCF						
Grand Total					15,677,000		207,670,000
(PM) Pressure Maintenance[8]	bbl				410,014		
(SC) Cyclic Steam	bbl	105,267,284		7,253,488	118,727,867		10,733,193
(SF) Steam Flood	bbl	169,532,919		80,316,585	163,593,122		83,280,789
(WD) Water Disposal	bbl	264,188,775	15,889,816	284,890,517	289,144,830	15,293,161	304,499,800
(WF) Water Flood	bbl	341,148,480	2,129,162	3,138,693	353,460,967	2,753,166	3,876,529
Grand Total Water		880,137,458	18,018,978	375,599,283	925,336,800	18,046,327	402,390,311

(DOGGR, WZI Request) (WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection)

The Class II Injection activities are delineated by type of injection in order to account for water source activities in the material balance calculations. As previously mentioned, water use, reuse, and disposal are tied in the overall water balance. Due to reporting changes between the years 2011 and 2012, gas injection and pressure maintenance water are reported in 2012 and not in 2011. The 2011 reported injection volumes are shown in Table 2.1-2, above, for comparison. The table shows that the injection volumes for 2012 are higher than 2011and are therefore more conservative for use in factor derivation.

To properly allocate M&I water and treated produced water to derive the Factors required grouping the Steam uses: Cyclic (SC) and Steam Flood (SF) together as a group using a combination of treated produced water and M&I water in the injection process, and grouping the liquid water uses: Pressure Maintenance (PM), Water Disposal (WD) and Water Flood (WF) for allocation as only treated produced water use.[9] In the Eastern Sub-Region 100% of the water used in the water flood and steam EOR processes is treated produced water.[10] In the Western Sub-Region 80% of the water used in the steam EOR processes is treated produced water that is sufficiently softened to allow use in 70% to 80% quality steam.[11] In the Western Sub-Region the Pressure Maintenance and Water Flood water is sourced from treated produced water. The remaining Western Sub-Region water used for services such as cooling tower makeup, contract services, etc. and is sourced from M&I through the use of contracts local wells owned by the operators (M&I). Unlike the Western and Eastern Sub-Regions all of the water that is

[6] DOGGR District 4 supplied data from data base. (DOGGR, Department of Oil and Gas and Geothermal Resources Data sets and Personnel)
[7] **Note**: The Central Sub Region has certain data that are not consistent. Specifically: Rosedale Ranch appears to have a bad meter (ultimately repaired in 2012);Shafter North and Rose send their water to the Western Sub-Region for disposal; (Industry) and several fields (such as but not limited to Bellevue, Greely and Canfield Ranch) are sending water to Fruitvale which is in the Eastern Sub Region (this is an activity that is allowed and consistent with regulations).The incorporation of adjustments: Rosedale Ranch injection is placed into balance with produced water metering (no net physical change), [1,371,447] (WZI, CH 2 Central Region Water Issues); North Shafter and Rose are trucked to the Western Sub-Region for disposal to land or other; [1,676,217] (Industry); and Injection water from Fruitvale (Eastern Sub Region) is accounted for by assigning mass of produced water to the Central Sub-Region [1,878,671] (WZI, CH 2 Central Region Water Issues, p. Central and Eastern Sort).

[8] (WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection, p. WZI Request) Liquids injection reported to DOGGR sorted for Sub-Region.
[9] This grouping is based on industry survey and personal experience of WZI Inc.
[10] (Industry)
[11] Ibid

injected in the Central Sub-Region is liquid water (not steam) and is either used for water flooding or is disposed.

Table 2.1-3 below shows the allocation of both M&I water used in steaming and allocations of treated produced water by Sub-Regions.

Table 2.1-3

Table 2.1-3: DOGGR reported Injection Activity by Sub-Region[12]					
		2012			Study Area-wide
Sub-Region		Western	Central	Eastern	Total
Water Used for Steam					
SC Cyclic Steam [13]	bbl	118,727,867	0	10,733,193	0
SF Steam Flood [14]	bbl	163,593,122	0	83,280,789	0
Total Steam		282,320,989	0	94,013,982	376,334,971
Purchased M&I Water [15]		56,464,198	0	0	56,464,198
Treated Produced Water[16]		225,856,791		94,013,982	319,870,773
Water Used for Water Injection			0	0	0
PM Pressure Maintenance [17]	bbl	410,014	0	0	410,014
WD Water Disposal [18]	bbl	289,144,830	15,293,161	304,499,800	608,937,791
WF Waterflood [19]	bbl	353,460,967	2,753,166	3,876,529	360,090,662
Purchased M&I Water[20]		0	0	0	0
Treated Produced Water [21]		643,015,811	18,046,327	308,376,329	969,438,467
Grand Total	bbl	925,336,800	18,046,327	402,390,311	1,345,773,438
Purchased M&I Water [22]	bbl	56,464,198	0	0	56,464,198
Treated Produced Water[23]		868,872,602	18,046,327	402,390,311	1,289,309,240
Produce-able Wells in Region [24]		36,058	497	17,388	53,943
Steam Injection from Purchased M&I Water	bbl/active producing well	1,566	0	0	1,047
Steam Injection from Treated Produced M&I Water		6,264	0	5,407	5,930
Pressure Maintenance Water from Purchased M&I Water		0	0	0	0
Pressure Maintenance Water from Treated Produced Water		11	0	0	8
Water Disposal of Purchased M&I Water		0	0	0	0
Water Disposal of Treated Produced Water		8,019	30,771	17,512	11,289
Waterflood using **Purchased** M&I Water		0	0	0	0
Waterflood using **Treated** Produced Water		9,803	5,540	223	6,675

[12] DOGGR Reported Data by Field were assigned to Kern County designated Sub-Regions
[13] (DOGGR, WZI Request) Data were sorted for "SC" Steam Cyclic and by Sub-Region
[14] Ibid, Data were sorted for "SF" Steam Flood and by Sub-Region
[15] (Industry, p. J. Lilien (Chevron)) Purchased M&I was identified as being net of the SC and SF requirement after adjustment for Treated Produced Water. WZI used 20% of the total Water Used for Steam as allocation to Purchased M&I Water
[16] (Industry)Treated Produced Water was identified by Industry Practices
[17] (DOGGR, WZI Request) Data were sorted for "PM" Pressure Maintenance and by Sub-Region
[18] Ibid, Data were sorted for "WD" Water Disposal and by Sub-Region
[19] Ibid, Data were sorted for "WF" Water Flood and by Sub-Region
[20] (Industry)
[21] Ibid
[22] Ibid
[23] Ibid
[24] (WZI, CH 1 2012 KC Wells Active O&G.xlsx)

Table 2.1-4, Injection Related Factors shows the amount of injection for each produce-able well drilled.

Table 2.1-4

Table 2.1-4: Injection Related Factors					
Sub-Region		Western	Central	Eastern	Study Area-wide
Factor: **(Inj 1)** Steam Injection from **Purchased** M&I Water	ac-ft /produce-able well	0.2018	0.0000	0.0000	0.1349
Factor: **(Inj 2)** Steam Injection from **Treated** Produced M&I Water		0.8074	0.0000	0.6969	0.7643
Factor: **(Inj 3)** Pressure Maintenance Water from **Purchased** M&I Water		0.0000	0.0000	0.0000	0.0000
Factor: **(Inj 4)** Pressure Maintenance Water from **Treated** Produced Water		0.0015	0.0000	0.0000	0.0010
Factor: **(Inj 5)** Water Disposal of **Purchased** M&I Water		0.0000	0.0000	0.0000	0.0000
Factor: **(Inj 6)** Water Disposal of **Treated** Produced Water		1.0336	3.9664	2.2573	1.4551
Factor: **(Inj 7)** Waterflood using **Purchased** M&I Water		0.0000	0.0000	0.0000	0.0000
Factor: **(Inj 8)** Waterflood using **Treated** Produced Water		1.2635	0.7140	0.0287	0.8605

(WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection, p. Summary for CH 2)

2.1.3.1 Calculations:

In order to calculate the volumes of water injected in acre feet the following calculation technique using the factors from **Table 2.1-3** by Sub-Region should be utilized. Some factors are zero due to no historic utilization of the water types within certain uses and certain Sub-Regions.

Calculating Steam Injection using Purchased M&I Water (INJ 1):

$$INJ\ 1_n(bbl) = INJ\ 1 \times\ new\ wells_n$$

Calculating Steam Injection using Treated Produced Water (INJ 2):

$$INJ\ 2_n(bbl) = INJ\ 2 \times new\ wells_n$$

Calculating Pressure Maintenance Injection using Purchased M&I Water (INJ 3):

$$INJ\ 3_n(bbl) = INJ\ 3 \times\ new\ wells_n$$

Calculating Pressure Maintenance Injection using Treated Produced Water (INJ 4):

$$INJ\ 4_n(bbl) = INJ\ 4 \times new\ wells_n$$

Calculating Water Disposal of Purchased M&I Water (INJ 5):

$$INJ\ 5_n(bbl) = INJ\ 5 \times\ new\ wells_n$$

Calculating Water Disposal of Treated Produced Water (INJ 6):

$$INJ\ 6_n(bbl) = INJ\ 6 \times new\ wells_n$$

Calculating Waterflood Injection using Purchased M&I Water (INJ 7):

$$INJ\ 7_n(bbl) = INJ\ 7 \times\ new\ wells_n$$

Calculating Waterflood Injection using Treated Produced Water (INJ 8):

$$INJ\ 8_n(bbl) = INJ\ 8 \times new\ wells_n$$

Where,

new wells = the new produce-able wells associated with a given target region for a target year

n= year

2.1.4 Water Balance: End Use/Disposal

In the Material Balance calculation, water regardless of source that is not injected as part of the operations with the subject fields is defined as disposal to land or other. This water may be reused as agricultural water depending on the quality. **Table 2.1-5** shows the Sub-Regional net results of the Material Balance Calculation.

Table 2.1-5

Table 2.1-5: Water Balance Net Export to Other Applications (by Sub-Region)

Net Water Balance after Injection		Factor Year, 2012		
		Western	Central	Eastern
Produced Water (A)	bbl	1,024,110,341	22,285,099	798,390,009[25]
	ac-ft	132,007	2,873	102,912
Class II Water Injection Activity (B)	bbl	925,336,800	18,046,327	402,390,311
	ac-ft	119,275	2,326	51,868
Sub-Regional Transfers (C)	bbl	+1,676,217[26]	(3,554,888)[27]	+1,878,671[28]
	ac-ft	+216	(458)	+242
Net after Injection A-B+C	bbl	100,449,758	683,884	397,878,369
	ac-ft	12,948	88	51,286
Sub-Regional Producing Well	Count	36,058	497	17,388
Factor: (PWL) Produced Water to Land or Other	bbl/ produce-able well	2,786	1,376	22,882
	ac-ft/produce-able Well	0.36	0.177	2.95

(WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection, p. Table for Ch 2 Factor)

[25] Includes Kern River water well production of 2,603,822 bbls. J. Lilien,Chevron
[26] Rose and N. Shafter to Western Sub-Region.
[27] This volume is the sum of the transfers to Monument Junction and the additional water sent to Eastern Sub-Region from Central Sub-Region fields.
[28] Water from Central Sub-Region

2.1.4.1 Calculations

In order to calculate the volumes of water disposed to land or other in acre feet the following calculation technique using the factors from **Table 2.1-4** by Sub-Region should be utilized:

Calculating Produced Water to Land or Other that is fated to Land/Surface application (PWL):

$$PWL_n(bbl) = PWL \times new\ wells_n$$

Where,

new wells = the new produce-able wells associated with a given target region for a target year

PWL = Sub-Regional or County Wide Factor for Produced Water applied to Land, (Factor is provided in bbl and ac-feet)

n= year

The "Produced Water to Land or Other" represents the waters used as follows: dust control, land application/irrigation, evaporation and percolation in impoundments (sumps). Uniquely, in the case of the Eastern Sub-Region, Cawelo Water District is a major recipient of treated produced water for reuse as irrigation.

The locations of the sumps are shown below in **Figure No. 2.2-1, Sump Location Map**. (DOGGR S.) (location, p. qrysump)

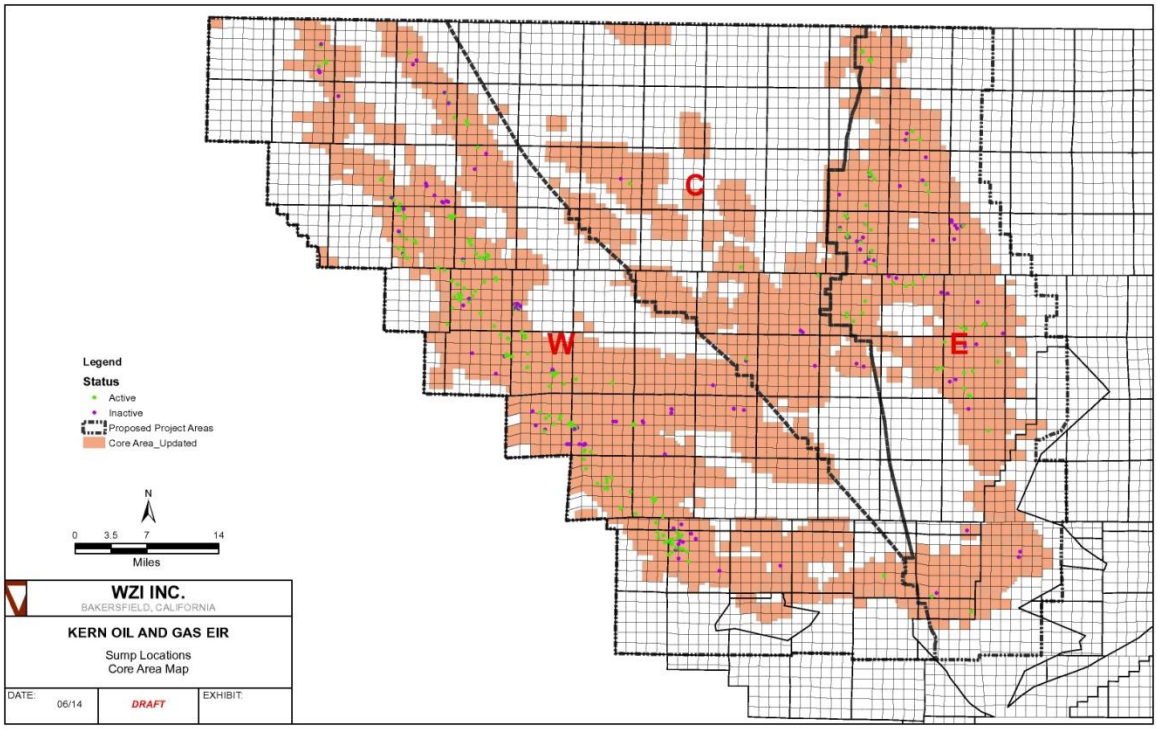


Figure 2.2-1
(WZI GIS Analysis)

When water is applied to land or is impounded for recharge the water's fate includes evaporation.[29] This evaporation from land application or other is conservatively not included on the Factors. Impoundment WDRs indicate that the pan evaporation can be as high as 108 inches (9 acre-feet per acre) as reported in Lost Hills.[30]

2.1.4.2 Western Sub-Region: Valley Water Management

In the Western Sub-Region certain non-oil associated water is pumped by non-oil and gas related wells. In order to maintain proper management some water is taken from local but not oil producing water zones and incorporated in the local fields' steam and water flood programs.[31] These water volumes are reported to DOGGR as produced water. The fate of waters from produced water to land or other activities is largely internally managed through steam enhancement, water flood and disposal via injection. Waste water (water that cannot be used) is managed on-site or sent to Valley Water Management for management, evaporation, and percolation.

2.1.4.3 Central Sub-Region:

Unique to the Central and Eastern Sub-Regions is the shared service of the Fruitvale oil field. Certain producers from Central fields situated in the Central Sub-Region have historically sent produced water to operators in Fruitvale for injection. This cross boundary transfer of about 1 million barrels from the Central to the Eastern Sub-Region is accounted for in the water balance (to establish the excess water fated to disposal to land), but the actual injection factors themselves are derived from the DOGGR reported injection. In addition, the produced water from North Shafter and Rose oil fields which is not injected is sent to the Western Sub-Region by truck.[32] Table 2.1-6 indicates the Central Sub-Region water balance adjustments.

[29] Estimates allow that half of the water volume delivered to unlined impoundments will be lost to percolation/recharge.
[30] CVRWQCB ORDER NO. R5-2006-0072
[31] Industry Survey and Communications.
[32] (Industry)Duane Dudics, OXY USA, personal communication, 2014

Table 2.1-6

Table No. 2.1 -6 2012 Fluids Mass Balance Data for Fields: Central Sub-Region					
	Mass Data, bbl				
Field	Oil Produced	Water Injected	Water Produced	Delta	Delta %
Bellevue	28794	668304	728371	60067	8%
Bellevue, West[33]	14119	0	127339	127339	100%
Bowerbank	4164	34982	10668	-24314	-228%
Calders Corner	0		0		
Canal	26523	137876	236120	98244	42%
Canfield Ranch[34]	111629	497640	736081	238441	32%
Greeley[35]	113233	2876169	3140433	264264	8%
Rio Bravo[36]	288080	3200491	3491334	290843	8%
Rose[37]	239302	306848	1010813	703965	70%
Rosedale	14387	263997	258802	-5195	-2%
Rosedale Ranch[38]	6490915	5119468	6490915	1371447	0%
Semitropic	43624	39895	48729	8834	18%
Seventh Standard	0	0	0	0	
Shafter, North[39]	1094052	2716217	3688469	972252	26%
Stockdale	110058		73011		
Strand	10369	1355	19272	17917	93%
Ten Section	103894	2183085	2222212	39127	2%
Wasco	52		2530		

(WZI, CH 2 Field Injection Mass Balance.xlsx) Central Source

2.1.4.4 Eastern Sub-Region: Treated Produced Water Reuse

One of the water balance considerations for the Eastern Sub-Region is the transfer of treated produced water from certain Eastern Sub-Region oil fields such as Kern River oil field to Cawelo Water District for use as farm irrigation and recharge under Waste Discharge Requirements issued by Central Valley Regional Water Control Board.[40]

Certain non-oil associated water is also pumped by wells within the fields in order to maintain proper oil reservoir management. This water is accounted for by DOGGR as produced water.[41] Additionally, some water is extracted by wells at local steam generation operations for processes related services requiring less salinity. These waters are accounted for in the Water Balance for waters not injected (applied to land).

The Kern River oil field specific water balance is presented below in Table 2.1-7.

[33] Sends water to Fruitvale Oil Field (which is adjacent) but located in the Eastern Sub Region by boundary line designation.
[34] Sends water to Fruitvale Oil Field (which is adjacent) but located in The Eastern Sub Region by boundary line designation.
[35] Sends water to Fruitvale Oil Field (which is adjacent) but located in The Eastern Sub Region by boundary line designation.
[36] Sends water to Fruitvale Oil Field (which is adjacent) but located in The Eastern Sub Region by boundary line designation.
[37] (Industry) Communication with D. Dudics, Water from Rose is sent to the Western Sub-Region for processing.
[38] (WZI, CH 2 Central Region Water Issues) Rosedale Ranch data showed an extraordinarily high water cut and year-to-year meter variation indicated that the field had a faulty meter, therefore, the Injection was trued-up to the Produced Water.
[39] (Industry) Communication with D. Dudics, Water from North Shafter Field is sent to the Western Sub-Region for processing.
[40] California Regional Water Quality Control Board Central Valley Region, Order R5-2012-0059, Waste Discharge Requirements for Valley Water Management Company and Cawelo Water District Produced Water Reclamation Project Kern Front No. 2 Treatment Facility Kern Front Oil Field Kern County.
California Regional Water Quality Control Board Central Valley Region, Order No. R-2007-0066, NPDES No. CA0081311, Waste Discharge Requirements for Valley Waste Disposal Company and Cawelo Water District. And other related WDR
[41] Industry Survey and Communications.

Table 2.1-7

Table 2.1-7: Kern River Specific Analysis: Eastern Sub-Region Net after Injection either goes to Cawelo Water District or is otherwise surface applied.			
Kern River[42]		283,802,002	bbl Produced
Eastern Sub-Region Fields[43]		2,603,822	bbl Well Water
Eastern Sub-Region Fields[44]		43,277,063	Bbl interdicted[45] water
Eastern Sub-Region Total (A)		329,682,887	Total Water in, bbl
	Type		
Kern River[46]	SC	3,799,165	bbl Injected
Kern River[47]	SF	49,143,546	bbl Injected
Kern River[48]	WD	22,530,496	bbl Injected
KR Total (B)		75,473,207	
KR Net after Injection (A-B)		254,209,680	To Cawelo
Producing Wells in Eastern Sub-Region		17388	
KR Net to Cawelo WD (or otherwise managed by KR) per well		14,619	bbl/ Eastern Region Producing Well
		1.884	ac-ft/Eastern Region Producing Well

(WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection) Kern River Analysis

Given the large size of the Kern River oil field, the Kern River oil field to Cawelo transfer itself accounts for a large portion (up to 208 million barrels) of the 397 million barrels for the entire Eastern Sub-Region that is land applied.[49] The amount of water otherwise used can be sent to Cawelo or applied to land for dust control and onsite evaporation and percolation as allowed by WDRs issued by CVRWQCB. The remaining non-injected otherwise managed waters for the entire Eastern Sub-Region are managed by the other remaining Eastern Sub-Region oil fields using methods that are similar to practices in oil fields in the Western Sub-Region where produced water is disposed to land or other is often managed on-site or sent offsite to Valley Water Management for disposition.

2.2 Well Servicing Specific Activity Factors.

Certain well servicing activities require the use of water. When a well is drilled, the site preparation may require the application of water for dust suppression, water for use in drilling muds, cements, completion activities and new facilities construction. Well reworks and maintenance also require the use of water as does well abandonment and site restoration. The following factors address the source and disposal of these subject waters. The conversion from barrels (bbls) to ac-ft is either done in the factor table or the conversion is given in the calculation section due to ease of calculation in whole numbers.

[42] DOGGR PR13
[43] (Industry, p. J. Lilien)
[44] (Industry, p. J. Lilien)
[45] "Interdicted" water is water that is produced at Kern River as part of the Maximum Efficient Rate processes although it contains little or no oil.
[46] (WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection) Acronyms "SC", "SF" and "WD" are database identifiers by DOGGR.
[47] Ibid
[48] Ibid
[49] The WDR allow up to 280 million bbls of water per year.

2.2.1 Mud Service/Oil Field Drilling

This activity takes place as part of the normal drilling of new wells or to "kill" an existing well as part of reworking wells or in certain well abandonments. The mud process involves mixing mud (additives to water or other fluids, pumping and circulating the mud and treating the mud at the surface to remove cuttings during recirculation. Review of historic DOGGR data indicates that there are on average approximately 2,154 wells drilled each year.[50] In 2012 the Factor datum year, the number of wells drilled in the Study Area was 2,520; in addition there were approximately 1,335 reworks. (WZI, CH 2 Wells Logged in Kern County.xlsx) The majority of mud volumes are attributed to the 2,520 new wells where mud is used to facilitate the drilling process by lubricating the tools, removing cuttings and to control formation pressure in wells to prevent uncontrolled releases to the surface. Of the wells that are reworked, approximately 1/3 require mud service; the remainder of the reworks utilize treated produced water. The mud chemistry generally precludes the use of produced water due to the difficulty in logging[51]; therefore it is conservatively estimated that 100% of the water used on an average Kern County "mud job" is M&I water. Water used in the mud (427 bbl) is held in the mud slurry and is displaced to the surface by circulation or by the cement job at the end of the drilling program. This return volume is estimated to be the entire mud job volume of water used plus two bore volumes (240 bbl) of displacing M&I water with 2% KCl or other suitable completion fluid. Industry survey data indicates 667 bbl of M&I water is used per average Kern County mud service.[52] The volume of mud and therefore water used is directly correlated with the depth of the well being drilled or reworked.

[50] (WZI, CH 2 Historic Activity Data, 1995 to 2012.xlsx)

[51] "Logging" is a term of art in the oil and gas industry and describes the surveys that are conducted down in the well bore as it is drilled to delineate the geologic formations and conditions of those formations at the time of drilling.

[52] Average well depth in Kern County is 2200 feet infers a total cased wellbore volume of 110 bbls thus indicating the general use of 6 well bore volumes of water in a given mud related well job.

Table 2.2-1

Table 2.2-1 Mud Related Fluids				
	Western	Central	Eastern	Kern County
Producer Well Population, 2012[53] count	36,058	497	17,388	53,943
Percentage of Jobs by Sub-Region[54]	67%	1%	32%	n/a
Kern County-Wide Mud Fluids wells drilled, average volume bbls [55] (A)	n/a	n/a	n/a	427
Average recorded well depth, feet[56] (B)	2,278	7,511	2,175	2,293
Mud water per well foot, bbl/ft [57] (C=A/B)	n/a	n/a	n/a	0.186
Total Number of Drilling, count [58] (D)	1,684	23	812	2,520
Total drilling Mud related water, bbl [59] (F=CXDXB)	714,536	32,478	329,026	1,076,040
New Producing Wells Drilled 2012, count [60] (G)	1,269	17	612	1899
Factor: (WDM 1) Drilling Mud Water per producing Well Drilled, bbl/ new producing well [61] (H=F/G)	563	1,856	538	n/a
Rework wells, count [62] (I)	892	12	430	1335
Drilling Mud Water Reworks, count [63] (J=I*.33)	297	4	143	445
Rework Mud Volume, bbl[64] (K=JXCXB)	126,178	5,735	58,102	190,015
Factor: (WDM 2) Rework Mud Water per well rework, bbl/rework well [65] (L=K/I)	141	466	135	142
Factor: (WDM 3) Return Water = 2 well bore volume for drilling and rework, bbl/ new well drilled or rework [66] (M)	252	830	240	

(WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary)
M&I water is purchased from non-oil and gas related sources.

2.2.1.1 Calculations

In order to calculate the Water Demand for mud such as use and return water to dispose of due to mud associated with drilling a new well or reworking a well in any Tier I, II, III, IV or other Area for any year, the Factor is multiplied by the number of wells estimated to be drilled or reworked in the target area (i.e., Sub-Region).

[53] (WZI, CH 1 2012 KC Wells Active O&G.xlsx)
[54] Ibid
[55] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. SIC 1389)
[56] (WZI, CH 2 Wells Logged in Kern County.xlsx)
[57] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary) WZI Calculation.
[58] (WZI, CH 2 Wells Logged in Kern County.xlsx) Sorted for 2012 Spud Date and all well types
[59] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx) WZI Calculation
[60] (WZI, CH 2 Wells Logged in Kern County.xlsx)
[61] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary) WZI Factor for water used in Drilling for mud.
[62] Ibid, WZI Calculation based on the Reworks for 2012 (WZI, CH 2 Historic Activity Data, 1995 to 2012.xlsx)
[63] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx), WZI Calculation
[64] Ibid, WZI Calculation
[65] Ibid, Factor by WZI for mud-water used when doing reworks.
[66] Ibid, Factor by WZI for water returned to surface after mud job.

Calculating Well Drilling Mud Water Demand Effect (WDM 1):

$$WDM\ 1_n(bbl) = WDM\ 1 \times\ wells\ drilled_n$$

Calculating Well Rework Mud Water Demand Effect (WD-M 2):

$$WDM\ 2_n(bbl) = WDM\ 2 \times wells\ reworked_n$$

Calculating Well Drilling and rework water returned to surface for disposal as produced water due to Mud Water (WD-M 3):

$$WDM\ 3_n(bbl) = WDM\ 3 \times (\ wells\ drilled_n +\ \ wells\ reworked_n)$$

n = Year

Conversion: 7758 bbl= 1 ac-ft

2.2.2 Cementing

This activity takes place as part of the normal drilling of new wells, and may be a part of reworking wells.[67] The majority of "cementing jobs" is attributed to new wells and is performed to bond casing to the native formations or to plug the hole to selected formations. For the average (shallow well) there are two cement jobs per well, the first is to set the conductor, the second is to set the long string. The cementing process involves mixing cement, pumping the cement and displacing the mud or water in the selected void spaces in a controlled manner completely bonding the casing. Review of historic DOGGR data in the Study Area indicates that since 2010 there have been approximately 2,154 wells drilled each year and since the new reporting requirements as of 2010 there have been approximately 1,335 reportable reworks each year.[68] The cement chemistry precludes the use of produced water due to the difficulty in controlling cement performance when undesirable connate salts or oils are mixed with the cement; therefore it is estimated conservatively that 100% of the water used on an average Kern County "cement job" is M&I water. Water used in the cementing job is held in the cement matrix and additional water may actually be drawn from the surrounding geologic formations to complete the cement setup; however; water is displaced to the surface by the cement job (either as water or as part of the mud), this return volume (for the long string cement job) is estimated to be the entire bore volume (120 bbl). Industry survey data indicates 320 bbl of M&I water is used per average Kern County well based on two cement jobs per well.[69]

[67] Industry Survey Halliburton, Baker Hughes, Cementing Handbook

[68] (WZI, CH 2 Historic Activity Data, 1995 to 2012.xlsx) DOGGR, 2009 Annual Report and DOGGR, 2013 Annual Report were combined and later year data were adjusted to reflect reporting requirements and data gaps in Kern County Specific data.

[69] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary) The per Cement job value is 160 bbl/cement job average per data from Halliburton. WZI assess each well with two cement jobs.

M&I water is purchased from non-exploration and production sources. Therefore, the 320 bbl per well should be accounted for in the estimation of incremental impacts associated with a new well drilled in Kern County.

Table 2.2-2

Table 2.2-2 Cement Related Fluids				
	Western	Central	Eastern	Kern County
Producer Well Population, 2012[70]	36,058	497	17,388	53,943
Percentage of Jobs by Sub-Region[71]	67%	1%	32%	n/a
Kern County-Wide Cement Fluids wells drilled, bbl[72]	n/a	n/a	n/a	320
Average recorded well depth, feet[73]	2,278	7,511	2,175	2,293
Cement water per well foot, bbl/ft[74]	n/a	n/a	n/a	0.140
Total Number of Drilling , 2012[75]	1,684	23	812	2,520
Total drilling cement related water, bbl[76]	535,484	24,340	246,577	806,400
New Producing Wells Drilled in 2012[77]	1,269	17	612	n/a
Factor: (WDDC 1) Drilling Cement Water per producing Well Drilled, bbl/new producing well[78]	422	1,391	403	n/a
Factor: (WDDC 2) Reworks, bbl/ reworked well[79]	211	696	201	n/a
Factor: (WDDC 3) Return Water = 1 well bore volume, bbl/well (new or reworked)[80]	126	415	120	

(WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary)

2.2.2.1 Calculations

In order to calculate the Water Demand for cement such as use and return water to dispose of due to cement associated with drilling a new well or reworking a well in any Tier I, II, III, IV or other Area for any year, the Factor is multiplied by the number of wells estimated to be drilled or reworked in the target area (i.e., Sub-Region).

Calculating Well Drilling Cement Water Demand Effect (WDDC 1):

$$WDDC\ 1_n(bbl) = WDDC\ 1 \times\ wells\ drilled_n$$

[70] (WZI, CH 1 2012 KC Wells Active O&G.xlsx)
[71] Ibid
[72] (Industry, p. Halliburton) (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. SIC 1389)
[73] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx, p. Frac Focus)
[74] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary) WZI calculation
[75] (WZI, CH 2 Wells Logged in Kern County.xlsx) Compared favorably with D4 Data when checked for verification, see discussion.
[76] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx) WZI Calculation
[77] (WZI, CH 2 Wells Logged in Kern County.xlsx)
[78] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary)
[79] Ibid, WZI calculation. Conservative estimate that one-half volume is required for re-cementing every well reworked.
[80] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary) (Crane, pp. B-17) Volume estimated for 7 ½ inch ID for entire well depth.

Calculating Well Rework Drilling Cement Water Demand Effect (WD-DC 2):

$$WDDC\ 2_n(bbl) = WDDC\ 2 \times wells\ reworked_n$$

Calculating Well Drilling and rework water returned to surface for disposal due to Cement Water (WD-DC 3):

$$WDDC\ 3_n(bbl) = WDDC\ 3 \times (\ wells\ drilled_n + \ \ wells\ reworked_n)$$

Where,

new wells = the new wells associated with a given target region for a target year

WDDC 1 = Sub-Regional or County Wide Factor for Cement Related Water

WDDC 2 = Sub-Regional or County Wide Factor for Cement Related Water

WDDC 3 = Sub-Regional or County Wide Factor for Cement Related Water that is Returned

n= Year

Conversion: 7758 bbl= 1 ac-ft

2.2.3 Potential SB-4 Activities

This activity takes place as part of the normal drilling of a certain population of new wells and as part of reworking certain limited wells. The majority of potential SB-4 Activities is attributed to new wells and is performed to allow better production/injection from or into selected oil and gas formations. Normally, there a multiple stages (up to six) per well. Review of historic DOGGR data the Study Area indicates that since 2010 there have been approximately 2,154 wells drilled each year and since the new reporting requirements as of 2010 there have been approximately 1,335 reportable reworks each year.[81]

Based on industry survey data for the last five years[82] and correlation with FracFocus and DOGGR data the average number of new wells and reworked wells completed with potential SB-4 Activities, (fracturing, acid fracturing and acid stimulation) are 936 wells per year.[83] Therefore, on this basis the entire Kern County population of wells requiring potential SB-4 completion techniques is estimated to be 27% of the new wells drilled and or reworked wells. (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx, p. Industry Potential SB4 Data)

[81] (WZI, CH 2 Historic Activity Data, 1995 to 2012.xlsx) DOGGR, 2009 Annual Report and DOGGR, 2013 Annual Report were combined and later year data were adjusted to reflect reporting requirements and data gaps in Kern County Specific data.
[82] 2008-2013
[83] Industry Survey data Aera and Oxy and Vintage, FracFocus, DOGGR data base for 2011, 2012, Hydraulic Well Stimulation Handbook

The fluid and proppant chemistry may in certain instances preclude the use of high salinity produced water due to the difficult in controlling performance when undesirable connate salts are mixed with specialty chemicals used in state-of-the-art completions. Therefore it is estimated on a conservative basis that 100% of the water used on an average Kern County potential SB-4 completion is M&I water. The 2882 bbl of water used in the completion accounts for all stages and is held in the solution/slurry of chemicals and proppant materials and is displaced to the surface by the return to production. The return water volume is estimated to be the entire volume (2882 bbl). (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx, p. Frac Focus)

Most Potential SB-4 Activities are in the Western Sub-Region distantly followed by the Central Sub-Region. In the Western Sub-Region M&I water is generally taken from non-oil sources. Large producers in the Western Sub-Region have contracts with Water Agencies that provide water. When practical the producers will treat less saline produced water to meet certain needs. However, the quality of water required to facilitate potential SB-4 activities may dictate M&I water be used, therefore the water is conservatively assumed to be sourced from M&I waters. Therefore, the 2,882 bbl per potential SB-4 activity should be accounted for in the estimation of incremental impacts associated with a new well in Kern County.[84]

The volume of the potential SB-4 Activity water use is related to the depth of the well that is being completed or recompleted. The average volume of water utilized in the Study Area as reported by FracFocus and Industry Survey is approximately 1.17 bbls per foot for potential SB-4 Activities. (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx, p. Frac Focus).

Table 2.2-3 delineates by Sub-Region the factors for Potential SB-4 Activities on a per-producing well drilled basis.

[84] Permitted volumes may be higher to allow for margins. FracFocus data showed higher per well volumes (3,026 bbl) or roughly 30% margin for permits v. actual.

Table 2.2-3

Table 2.2-3 Potential SB-4 Related Fluids			
	Western	Central	Eastern
Factor: (WSB4A) Percentage of Jobs by Sub-Region[85]	96.16%	3.72%	0.12%
SB4 related well depth[86]	2,278	7,511	2,175
Factor: (WSB4B) SB4 related fluids per foot per SB4 job[87]	1.18	1.08	1.18
Producer Well Population, 2012[88]	36,058	497	17,388
Factor: (WSB4C) New Producing Wells Drilled 2012[89] (A)	1,269	17	612
Total SB 4 Volume Used (M&I)[90] (B)	2,415,551	282,126	60
Factor: (WSB4D) SB 4 (M&I) Fluids per New Producer Drilled, bbl/well[91] (B/A)	1,903	16,125	0
Factor: (WSB4D) SB 4 (M&I) Fluids per New Producer Drilled, ac-ft/well[92]	0.245	2.08	0

(WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx, p. Table for CH 2 SB4)

This water is treated, reused, and/or disposed as discussed previously under operations.[93] Flow-back water is incorporated in the produced fluids from the well and processed through the tank battery which receives the well's production. This water is in the accounting of the factors as produced water and should not be double counted.

2.2.3.1 Calculations

In order to calculate the Water Demand for potential SB-4 Activities such as use and return water to dispose of due to these completion activities associated with drilling a new well or reworking a well for any year, the Factor is multiplied by the number of wells estimated to be drilled or reworked in the target area (i.e., Sub-Region).

Calculating new wells for a target Sub-Region for a target year (WSB4C):

$$WSB\ 4C_n = WSB4A_{SR} \times\ new\ wells_n$$

[85] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx) From FracFocus. Assigned FracFocus data to Sub Regions using field designation.

[86] Ibid, From FracFocus. Average well depth by Sub-Region.

[87] Ibid, From FracFocus. Calculated Volume per foot based on average depth by Sub Region. Eastern Sub Region Value is set to Western to compensate due to lack of activity.

[88] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) From D4 Data

[89] (WZI, CH 3 2012 Wells Logged in Kern County.xlsx) Data were sorted for Kern County, 2012 and well type to establish the number of producers drilled and logged and completed as opposed to wells of all types drilled and completed or abandoned. This value is approximately 3% higher than the D4 completion data due to varying precision in date of record and reporting cycle time.

[90] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx) From Frac Focus volumes and average 5 year industry data. The value is the result of 5 year industry SB 4 activity multiplied times the SB 4 per well stimulation volume.

[91] Ibid, Table for CH 2 SB 4.

[92] Ibid, Table for CH 2 SB 4.

[93] Industry Survey, Halliburton, Baker Hughes, Duane Dudics, Oxy USA, personal communication 2014, WZI Inc. professional experience

Calculating SB-4 Associated Water that is Injected (WSB 4D):

$$WSB\ 4D_n(bbl) = WSB4D \times\ new\ wells_n$$

Where,

new wells$_n$ = the total new produce-able wells Drilled in Kern County for a target year

WSB4A = Sub-Regional produce-able well allocation

WSB4B = Sub-Regional per foot water use per well subject to SB 4

WSB4C = Sub-Regional produce-able wells allocated according to historic pattern

WSB4D = Sub-Regional produce-able well allocation

n= Year

Conversion: 7758 bbl = 1 ac-ft

2.2.4 Acidizing Wells/Well Maintenance

This activity takes place as part of the normal maintenance of injection wells and as part of a development program for new and reworked wells. The majority of "acid jobs" are attributed to injection well service to mitigate the effect of plugging due to precipitation of injected water at downhole conditions. These acid jobs are generally small in volume and utilize acids having a concentration of 7% or less. Review of DOGGR data indicates that there are 10,292 injection wells[94] in operation, allowing 10% for non-injection wells stimulation not tied directly to a specific Potential SB-4 project and assuming an "acid job" is performed every three years on each injection well, it is estimated that roughly 8481 "acid jobs" [95]are performed each year or roughly 15% of the producing well population. (WZI, CH 1 2012 KC Wells Active O&G.xlsx, p. Summary for Table) The acid treatment chemistry uses M&I water (when available); therefore it is estimated that 100% of the water used on an average Kern County acid job is that water. Except in the case where a producing well is cleaned up after drilling or rework situation, water used in the acid job is displaced into the receiving zone that the acid program targets; therefore there are no water returns. Industry survey data indicates an average of 815 bbls. of M&I water is used per Kern County acid job.[96] Produced water that is associated with the return to production of production wells (as opposed to injection wells) is ultimately reused, or disposed as discussed in the Section 2.1 operational Factors.

[94] [2012 KC Active O&G]WD,WF,SF,AI,GD
[95] (WZI, CH 1 2012 KC Wells Active O&G.xlsx, p. Summary for Table) (Industry, p. Halliburton and Baker Hughes Personal Comm.)
[96] Industry Survey Halliburton, Baker Hughes, Acidizing Handbook

The M&I water is purchased from sources and is not associated with the production or otherwise injected sources. This is due to the fact that the volume and concentration of acid for these types of maintenance jobs is less than if treated produced water were used for the same operation. The weighted impact for 8140 acid jobs based on an incremental production well is 128 bbls per year per new producable well drilled on a Kern County-wide basis.

In this particular situation the volume needs to be spread over the total number of producing wells as it is a maintenance situation.

Table 2.2-4

Table 2.2-4 Non-SB-4 Maintenance Acid-treatment Related Fluids			
	Western	Central	Eastern
Percentage of Jobs by Sub-Region[97]	67%	1%	32%
Producer Well Population, 2012[98]	36,058	497	17,388
Total non SB 4 Volume Used (M&I)[99]	4,626,526	63,769	2,231,017
Factor: (WAcid) non-SB 4 (M&I) Fluids per New Producer Drilled, bbl[100]	128	128	128

(WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary)

2.2.4.1 Calculations

In order to calculate the Water Demand for Non-SB-4 acid treatments such as use and return water to dispose of due to these maintenance activities associated with drilling a new well or reworking a well for any year, the Factor is multiplied by the number of wells estimated to be drilled in the target area (i.e., Sub-Region).

Calculating Acidizing Associated Water that is Injected (WAcid):

$$WAcid_n(bbl) = WAcid \times new\ wells_n$$

Where,

new wells$_n$ = the new produce-able wells associated with a given target region for a target year

WAcid = Sub-Regional or County Wide Factor for Acid job related water

n= year

Conversion: 7758 bbl= 1 ac-ft

[97] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) Allocation of Producer Well Population
[98] Ibid
[99] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx) 8482 acid jobs were estimated using 10% of the Produce-able Well Population and 33% of the Injection Well Population per year (WZI, CH 1 2012 KC Wells Active O&G.xlsx) multiplied by the 816 barrels of fluid per job from Industry Survey
[100]

2.2.5 Coiled Tubing Operations and other similar well servicing operations

This activity takes place as part of the completion. Coiled tubing operations can also be associated with normal operation and maintenance of wells and as part of reworking wells or abandoning wells. Review of industry data indicates that there are approximately 720 wells utilizing coiled tubing each year.[101] Roughly 1% of the producing well population is worked with coiled tubing. The source water for coiled tubing operations is based on the job approximately one-half of the water is assumed[102] to be treated produced water and one-half is M&I water. (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. SIC 1389) The 442 bbl of water used is displaced to the surface by circulation and the return to production. The return water volume is estimated to be the entire volume (442 bbl).

M&I water is taken from non-oil sources. Therefore, the 221 bbl of M&I water per coiled tubing job should be accounted for in the estimation of incremental impacts associated with a new well in Kern County. The entire 442 bbl per coiled tubing job should be considered as returned produced water.

[101] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. SIC 1389) (Industry)-Halliburton

[102] Coiled tubing units and other similar types of equipment are used to clean sand and production debris out of a well. When no mud or foam is required and no logging will be conducted, then produced water is used as it controls the pressure in the well bore to an adequate degree. The assumption of 50% M&I water is considered a conservative and high assumption.

Table 2.2-5

Table 2.2-5 Coiled Tubing and Similar Services Related Fluids				
	Western	Central	Eastern	Kern County
Factor: (WCT1) Producer Well Population, 2012[103]	36,058	497	17,388	53,943
Percentage of Jobs by Sub-Region[104] (A)	67%	1%	32%	n/a
Kern County-Wide Coiled Tubing Fluids, bbl[105]	n/a	n/a	n/a	442
Average recorded well depth[106] (B)	2,278	7,511	2,175	2,293
Factor: (WCT2) Coiled Tubing water per well foot[107] (C=A/B)	n/a	n/a	n/a	0.193
Factor: (WCT3) Total Number of Serviced[108]	481	7	232	720
Total Coiled Tubing related water[109]	211,325	9,605	97,310	318,240
New Producing Wells Drilled 2012[110]	1,269	17	612	1899
Factor: (WCT4) Coiled Tubing Water per producing Well Drilled[111]	166	549	159	n/a
Factor: (WCT5) Return Water = total coil tubing job volume, bbl/job[112]	439	1448	419	

(WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx)

This water is recycled or treated and disposed of in Class II wells.

2.2.5.1 Calculations

In order to calculate the Water Demand for coiled tubing and similar related services including use and return water to dispose due to these maintenance activities associated with drilling a new well or reworking a well for any year, the Factor is multiplied by the number of wells estimated to be drilled in the target area (i.e., Sub-Region).

Calculating new wells serviced by Coiled Tubing for a target Sub-Region for a target year (WCT3):

$$WCT3_n = WCT1_{SR} \times new\ wells_n$$

[103] (WZI, CH 1 2012 KC Wells Active O&G.xlsx)
[104] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) Percentage of jobs is directly proportional to produce-able well population
[105] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx) (Industry) These data are from jobs reported by Halliburton.
[106] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx) Depth is derived from Frac Focus.
[107] WZI Calculation
[108] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary)
[109] Ibid
[110] Ibid
[111] Ibid
[112] Ibid

Calculating Coiled Tubing Associated Water that is used in service operation (W-CT4):

$$WCT4_n(bbl) = WCT4 \times new\ wells_n$$

Calculating Coiled Tubing Associated Water that is returned during operation (W-CT5):

$$WCT5_n(bbl) = WCT5 \times new\ wells_n$$

Where,

new wells$_n$ = the total new produce-able wells Drilled in Kern County for a target year

WCT1 = Sub-Regional produce-able well allocation

WCT2 = Sub-Regional per foot water use per well

WCT3 = Sub-Regional coiled tubing serviced wells allocated according to historic pattern

WCT4 = Coiled Tubing operation water used

WCT5 = Coiled Tubing operation water returned

n= year

Conversion: 7758 bbl= 1 ac-ft

2.2.6 Well Pulling Activities

This activity takes place as part of the annual maintenance cycle for various well duties. Well Pulling operations are associated with normal and customary operation and maintenance of wells. Review of industry data indicates that there are approximately 54,000 produce-able wells requiring well pulling service each year.[113] The source water for well pulling operations is based on the average well bore volume, (121 bbl). (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. SIC 1389) The 121 bbls of treated produced water used is displaced to the surface by circulation and the well is returned to production or injection. The return water volume is estimated to be the entire volume (121 bbls).

[113] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) (Industry)-Halliburton

Table 2.2-6

Table 2.2-6 Well Pulling Related Fluids				
	Western	Central	Eastern	Kern County
Producer Well Population, (Pulling Jobs per year)[114]	36,058	497	17,388	53,943
Percentage of Jobs by Sub-Region[115]	67%	1%	32%	n/a
Kern County-Wide Pulling Fluids per Well Pulled, bbl[116] (A)	n/a	n/a	n/a	121
Average recorded well depth[117] (B)	2,278	7,511	2,175	2,293
Pulling water per well foot, bbl/ft-well serviced [118] (C=A/B)	n/a	n/a	n/a	0.053
Total Pulling related water, bbl[119]	4,334,274	197,008	1,995,821	6,527,103
Factor: (WP) Incremental Pulling Related Water, bbl/well service[120]	126	415	120	

(WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx)

This water is recycled or treated and disposed of in Class II wells.

Calculating additional water demand for pulling new wells for a target Sub-Region for a target year (*n*):

$$WP_n = WP_{SR} \times new\ wells_n$$

Calculating the Total Annual Cumulative Well Pulling related fluids for sub area:

$$Total\ Sub\ Region\ Cumulative\ Water\ from\ Well\ Pulling = WP_{SR} \times [total\ sub\ region\ produce_{n-1} - able\ wells + new\ wells_n]$$

Where,

new wells$_n$ = the total new produce-able wells Drilled in Kern County for a target year

W-P_{SR} = Sub-Regional produce-able well allocation

"SR" = Sub-Regional Areas: Western= 1, Central =2, and Eastern =3

n= year

Conversion: 7758 bbl= 1 ac-ft

[114] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) Each active well is assumed to have a pulling job performed each year as part of planned maintenance.
[115] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) Each set of wells pulling jobs are allocated according to the well population and distribution.
[116] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. SIC 1389)
[117] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx, p. Frac Focus)
[118] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx) WZI Calculation
[119] Ibid, WZI Calculation
[120] Ibid, WZI Calculation

2.2.7 Plugging and Abandonment

This activity takes place when a well is determined to have no future use, or is found to interfere with an enhanced recovery program. The abandonment process involves circulating debris from the well bore (usually with treated produced water) and plugging with cement and heavy bentonitic muds. Once the well is plugged, the casing is cut and blanked off with a steel plate below the surface, and the site is restored. M&I water is used for mud, cement and site restoration dust control. Review of historic DOGGR data indicates approximately 1751wells are abandoned each year. [121] The distribution of abandonment to new production well drilled is:

- Western Sub-Region: 1.0214
- Central Sub-Region: 1.193
- Eastern Sub-Region: 0.415

The majority of abandonment water-use volumes is attributed to the cleaning, mud mixing and cement mixing process. The water that is circulated to clean the wellbore is generally treated produced water. The displaced well bore volume of this circulated water is treated produced water and is disposed of in a manner consistent with treated produced water treatment and disposal. The surface restoration water does not go into the well and is used for restoration, or compaction and dust control and is M&I water. In 2012 the entire Kern County population of wells abandoned in 2012 is estimated to be 1,751 wells out of a statewide permitted well abandonment population of 2,195 (i.e., roughly 3% of the 53,943 produce-able well population is plugged and abandoned each year).[122] It is conservatively estimated that 100% of the water used on an average Kern County abandonment is M&I water. Based on industry survey approximately 897 bbl of water are used in each abandonment in Kern County on an annual average basis.

[121] DOGGR, 2012 Annual Report

[122] The 2013 annual report did not include the typical county-wide data. DOGGR reported for 2102 that there were 2,811 statewide completions to production and that 2,195 abandonments were permitted. The conversion from statewide to D4 using 1995 to 2009 ratios indicates D4 abandonments are 1,533 wells on average and 1,903 for 2012, in Kern County this translates to 1751 wells abandoned in 2012.

Table 2.2-7

Table 2.2-7 Abandonment Related Fluids				
	Western	Central	Eastern	Kern County
Producer Well Population, 2012[123]	36,058	497	17,388	53,943
Percentage of Jobs by Sub-Region[124]	67%	1%	32%	n/a
Kern County-Wide Abandonment Fluids, bbl[125] (A)	n/a	n/a	n/a	897
Average recorded well depth, ft[126] (B)	2,278	7,511	2,175	2,293
Abandonment water per well, ft[127] (C= A/B)	n/a	n/a	n/a	0.391
Total Number of Abandonments count[128] (D)	1,170	16	564	1,751
Total Abandonment related water, bbl[129] (E=BXCXD)	1,042,976	47,407	480,264	1,570,647
Factor: (WP&A) Abandonment Water per Abandonment, bbl/abandonment[130]	891	2,939	851	n/a

(WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx)

Therefore, the 897 bbl per abandonment should be accounted for in the estimation of incremental impacts associated with a new well in Kern County.

2.2.7.1 Calculations

In order to calculate the Water Demand for Plugging and Abandonment such as use and return water to dispose of due to these activities associated with abandonment of a well in any Tier I, II, III, IV or other Area for any year, the Factor is multiplied by the number of wells estimated to be plugged in the target area (i.e., Sub-Region).

[123] (WZI, CH 1 2012 KC Wells Active O&G.xlsx)
[124] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) Well population is proportional to produce-able wells.
[125] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. SIC 1389) Halliburton
[126] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx, p. Frac Focus)
[127] (WZI, CH 2 SIC 1389 Water Use 4 Jul.xlsx, p. Summary)
[128] Ibid
[129] Ibid
[130] Ibid

Calculating Plugging and Abandonment Water (WP&A):

$$WP\&A_n(bbl) = WP\&A \times wells_n$$

Where,

$wells_n$ = the number of wells associated with a given target region for a target year to be abandoned

WP&A= Sub-Regional or County Wide Factor for plugging and abandonment related water

n= year

Conversion: 7758 bbl= 1 ac-ft

2.3 Water used for Dust Control

Water is used to prevent dust forming from barren soil at well sites and on roads part of the operational process. The per well operational surface disturbance is based on the footprint including access roads as well as gathering lines and tanks settings in the more historic oil fields having a large representative population of wells (based on aerial photo review of the Western and Eastern Sub-Region Oil fields and new development footprints in the Central Sub-Region). On a per well basis, the dust control during a drilling or rework activity is estimated to be 240 bbl or one-half inch of water per acre minus the equipment coverage.[131]

2.4 Water Used for New Well Related Surface Facility Construction

Water for Surface facilities was based on adding a new facility for every 10 new wells. This facility consisted of 2-Tanks and 1-heater treater, as well as Balance of Plant equipment and piping. The water used for the construction is estimated to be primarily related to the cement and included wash water before and after the pour.[132] 20% was added for margin. The water was estimated to be 17 bbls. per new well based on a 10 well facility.

2.5 Underground Injection Control Program (UIC)

A Class II well is a well that is used for the injection of produced water and other fluids associated with oil and gas production either as a means of disposal of produced fluids, as an enhanced recovery fluid, or for purposes of hydrocarbon storage. The Class II UIC program dictates well construction standards and mechanical integrity monitoring, as well as the types and composition of fluids that can be injected. Within the Study Area DOGGR has been delegated from the USEPA primacy over the Underground Injection Control (UIC) program. Under that delegation certain aquifers within the Study Area were exempted from being an Underground Source

[131] WZI Inc. has professionals that are certified by the San Joaquin Valley Air Pollution Control District for writing and reviewing Dust Control Plans. Based on the volume of traffic on a daily basis, ½ inch per acre was determined to be sufficient to meet the requirements.
[132] The cement volumes were estimated based on the average size of tanks and equipment and 20% was added to account for wash water.

of Drinking Water for Class II injection purposes. This section will describe the Injection-related Factors by Sub-Region and Tier. The Injection-related factors include number and type of UIC wells and injection, factors for subsidence, factors for seismicity due to over pressuring, and factors for Underground Source of Drinking Water contamination. While the Material Balance analysis includes all of the UIC activities, this section specifically identifies the UIC Activities and factors for its discrete analysis.

2.5.1 Aquifer Exemptions under the UIC program

The primacy delegation for the UIC program for the Study Area was reviewed. Certain underground formations which produced oil and gas at the time of delegation and other formations into which injection had taken place historically were exempted from being an Underground Source of Drinking Water even though the natural total dissolved solids in the connate water was less than 10,000 parts per million. **Appendix 2-I, Aquifer Exemption List [by WZI]**[133] contains the aquifer exemption listing from the delegation from USEPA as well as a listing of the formations by field and connate water total dissolved solids that were exempted for Class II activities.[134,135] **Figure 2.5-1, Aquifer Exemption Areas by Sub-Region**, shows the areas in which the aquifer exemptions were granted in each Sub-Region.

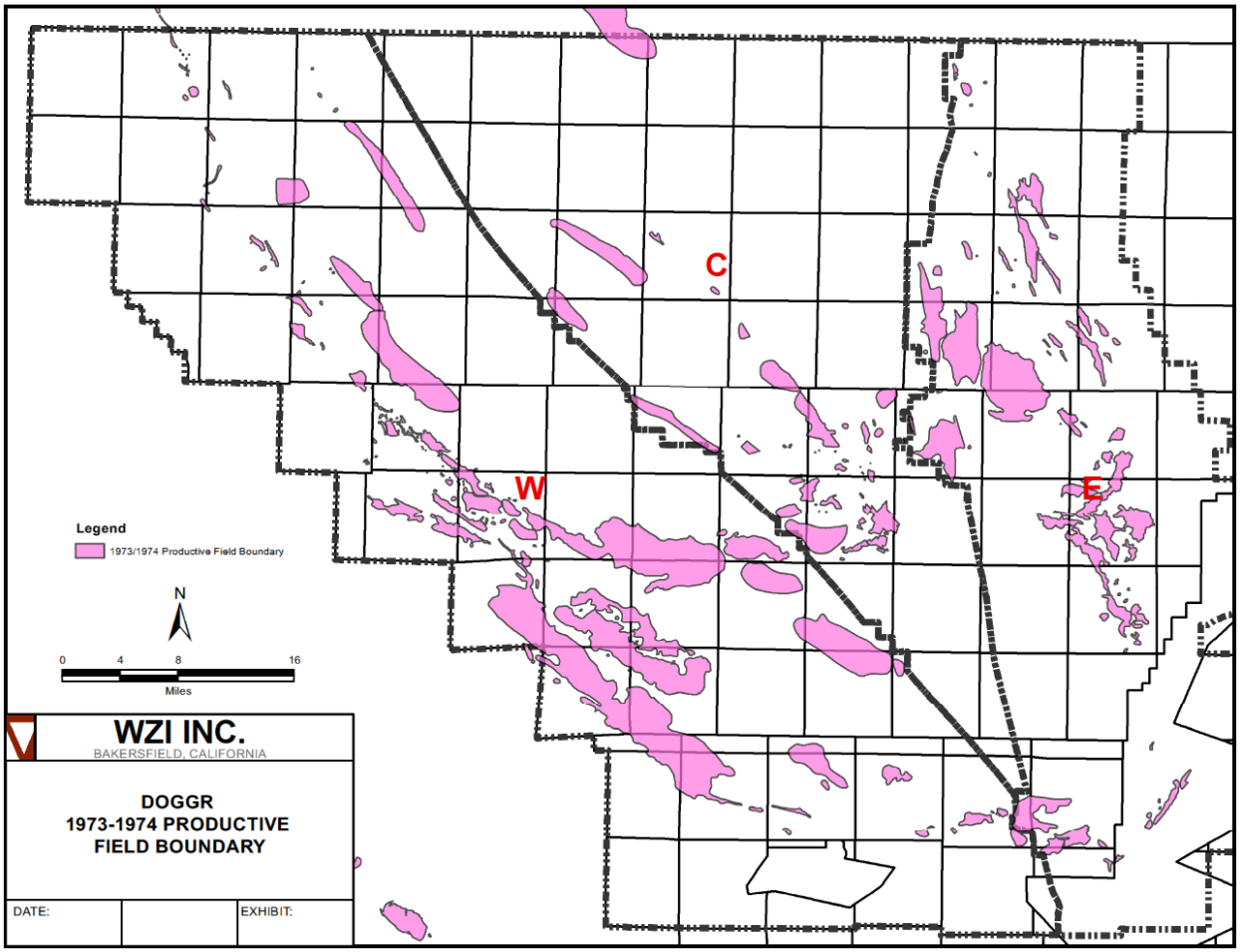


Figure 2.5-1
(WZI GIS Analysis)

[133] (State of California Resources Agency, 1981)
[134] (State of California Resources Agency, 1981) UIC Delegation and associated correspondence
[135] (WZI GIS Analysis), (Gas, 1973) DOGGR Productive Field Boundaries

A larger version of each aquifer exemption area by field is included in **Appendix 2-II, Aquifer Exemption GIS Analysis.**[136]

2.5.2 UIC Well Activities and Potential SB-4 Activites

Utilizing the DOGGR data base and GIS Well Finder and FracFocus, WZI identified the UIC well types and activities as well as Potential SB-4 Activities. The well types group into the following general categories:

- Wells used for enhanced oil recovery programs- Water Flood including chemically enhanced, Cyclic Steam, Steam Flood, Air Injection, Gas Injection of all kinds;
- Oil field Waste Water Disposal;
- Pressure Maintenance; and
- Potential SB-4 Activities.

Table 2.5-1 below delineates these activities by Sub-Region.

Table 2.5-1

Table 2.5-1: 2012 Kern County Well Data

	Well Count			
	Western	Central	Eastern	Total
Cyclic Wells [137]	19574	0	13386	32960
Water Disposal[138]	591	73	282	946
Water Flood[139]	3073	7	78	3158
Steam Flood[140]	4636	0	1451	6087
Air Injection[141]	2	0	3	5
Gas Disposal[142]	86	0	10	96
Total Wells: Less Potential SB 4[143]	8388	80	1824	10292
Potential SB 4[144]	900	35	1	936

(WZI, CH 1 2012 KC Wells Active O&G.xlsx, p. Summary for Table (2))

It is estimated that these types of activities will continue into the future at the same ratio as the well projection. The volume of treated produced water used for water flooding of all kinds and waste water disposal will increase as the volume of these types of wells increase. **Table 2.1-3** (in the previous Section 2.1) provides a Factor to estimate the volumes of Class II Injectate utilized in each Sub-Region on a per-producing well basis. (WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection, p. Summary for Chap 2)

[136] (State of California Resources Agency, 1981)
[137] (WZI, CH 1 2012 KC Wells Active O&G.xlsx, p. Sumary for table) These wells are the wells that are duplicated in the active list as injectors and as producers (with identical API number)
[138] Ibid. Sorted for DOGGR designation "WD"
[139] Ibid. Sorted for DOGGR designation "WF"
[140] Ibid. Sorted for DOGGR designation "SF"
[141] Ibid. Sorted for DOGGR designation "AI"
[142] Ibid. Sorted for DOGGR designation "GD"
[143] Ibid, WZI Calculation- Sum of wells in injection service
[144] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx) Estimated average from 2008 -2012.

The Potential SB-4 Activities were discussed in Section 2.3.3 above. The potential for ground water aquifer contamination from these types of activities are most commonly attributed to accidental surface spillage.[145] Surface spills and their factors including those attributed to Potential SB-4 activities are treated in Chapter 6 Waste. The other Factors are discussed along with the UIC activities.

2.5.3 Subsidence

Subsidence occurs when the fluid withdrawal from the underground formations exceed the fluid inflow into that formation. Within the Study Area in each Sub-Region current MER[146] practices are shown by Material Balance to meet this standard definition. The volume of fluids produced both oil and water, as well as gas all exceed the volume of fluids re-injected. However, subsidence does not always occur due to the strength of the pore structure and in some cases the high influx of connate water from the water bearing formations in communication with the petroleum bearing strata.

Subsidence has occurred in South Belridge and Lost Hills in the Western Sub-Region due to fluid withdrawal from the Diatomite.[147] Prior to 1980, subsidence in Lost Hills was tenths of inches per year due to production. The rate in 1990 was estimated to be approximately 1 ft/yr. The subsidence that has occurred is in the Tier I area. Water flooding into the Diatomite has significantly slowed the subsidence. The following table illustrates the subsidence in a lease in the South Belridge oil field and the slowing of the rate due to UIC injection[148].

Table 2.5-2

Table 2.5-2:Historic Subsidence Rates in Study Area

Year	Rate	Activity
1984	No data	Commence Diatomite Production
1985	7.5 ft/yr (estimate)	
1987	1.87 ft/yr	Commence Water Injection
1988	0.92 ft/yr	
1989	0.65 ft/yr	

Subsidence measured in the 1990s utilizing spaceborne interferometric synthetic aperture radar (InSAR) in Lost Hills and South Belridge oil fields by various have indicated that the average subsidence rate is 1.0 ft/yr with ongoing water injection.[149,150,151,152]

The rate of subsidence in the northern portion of the Western Sub-Region is expected to continue due to the production of the Diatomite. No other subsidence is expected in any other Sub-Region due to the presence of strong water drives due to natural processes.[153]

[145] (WZI, CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx), Data from USEPA Frac study.
[146] (Code), MER is the Maximum Efficient Rate as defined by the State of California as the means by which production is managed to ensure no waste of resources.
[147] No other oil field subsidence in the Study Area has been documented. There is subsidence in the Arvin Lamont area due to groundwater withdrawals.
[148] (Bowersox & R.A., 1990, pp. 225-230).
[149] (Fielding, Blom, & Goldstein, 1998), pp. 3215-3218
[150] (Patzek, Silin, & Fielding, 2001)
[151] (Xu H. , 2002)
[152] (Van der Kooij, 1997)
[153] DOGGR Data showing high water cuts historically, Reference also the DOGGR yellow books on each field

Based on the data, the **Factor for Oil and Gas Subsidence is: 1.0ft/yr** in the South Belridge/Lost Hills area. And the **Factor is zero** for all other areas.

2.5.4 Induced Seismicity from UIC Activity and Potential SB-4 Activities

Seismic activity has been induced by injection of waters under specific circumstances.[154] Particularly it has been linked to injection volumes increasing the pressure along or near fault surfaces to such a degree as to induce earth movement.[155] US EPA has stated that the impacts from UIC injection including Potential SB-4 Activities is related to the localized geology and hydrology.[156] Unlike the areas where seismicity has been induced, the Study Area has long been managed in a pressure depleting reservoir management scenario. The 2012 Material Balance calculations demonstrate that in the Study Area that there is more volume of oil, gas, and water being extracted than is being injected. The general year-to-year mass balance is consistent with this observation, in District 4 the average Mass Balance shows approximately 1.5 billion barrels of fluids are extracted over what is injected. (WZI, CH 2 WZI Produced_Volumes.xlsx, p. Production and Injection Mass Balance)

While some M&I water is being introduced into the system, more treated produced fluids are leaving the system, thereby reducing the pressures in the system through disposal to land or other.

The DOGGR monitors injection projects for increasing formation pressures and for interference with production. Currently, there have been no reports of induced seismicity or pressures such that induced seismicity would take place in the Study Area.[157,158] WZI Inc. reviewed the historic seismic occurrence maps in the Study Area and found no correlation with earthquake occurrence and oil field injection activity. **Figure 2.5-2, GIS Maps with Seismic Events 2008 to 2014** shows the locations of the various seismic events in the Study Are that were recorded with magnitudes over 2.3 on the Richter Scale.[159]

[154] (Warner & Lehr, 1981, pp. 40-42)
[155] Ibid. Both documented seismicity systems were disposal only systems with injection volumes without production where fluid compressibility, rock compressibility were the only disposal capacity available.
[156] (Rutqvist & al, 2013)
[157] (DOGGR, Department of Oil and Gas and Geothermal Resources Data sets and Personnel) Communication Mike Toland, 2014
[158] Monitoring Water Injection Projects, Bill Gerard
[159] (Rutqvist & al, 2013) This study noted that quakes with magnitude 2.3 or greater could be induced by fracturing in some geologic formations.

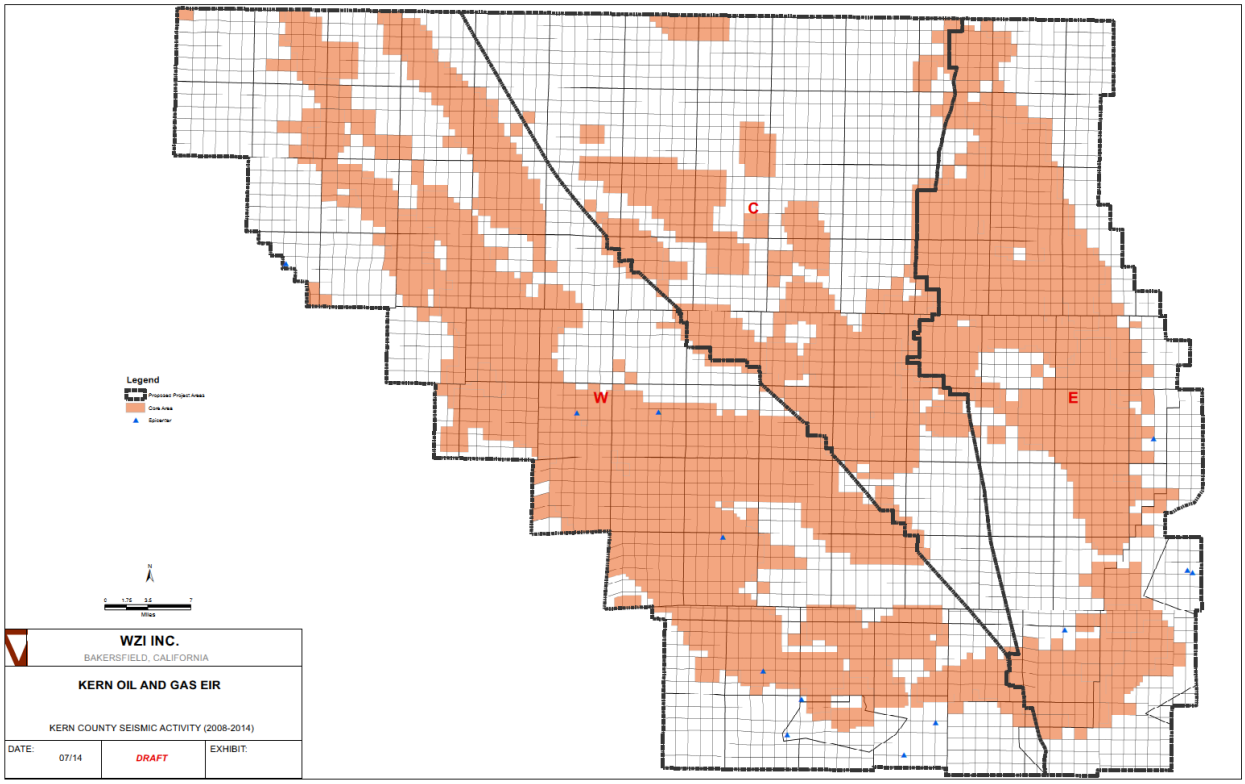


Figure 2.5-2
(CalTech, 2008 to 2014)

The Potential SB-4 Activities were included in the review as they took place within the time period of the review (2008-20014). The Western Sub-Region had the majority of the Potential SB-4 activities. There was no correlation of seismicity within the five years period of Potential SB-4 activities.

No Factor for Induced Seismicity is considered necessary based on the record.

2.5.5 Potential Groundwater Contamination from UIC Activities

The UIC application for primacy prepared by DOGGR delineated all of the cases in District 4 where a potential for contamination of the ground water was discovered due to injection. Between the years of 1940 to 1980, sixteen injection wells in District 4 failed in such a way as to potentially cause groundwater contamination.[160] The population of injection wells during that time in District 4 was over 16,000. (State of California Resources Agency, 1981, p. Appendix A Table 3) Between the years of 2000 and 2009, no failures of injection wells such that ground water was contaminated occurred in District 4.[161] The Mean-Time-Between-Failure prior to the UIC program (1981) was calculated to be 2.5 years whereas the current Mean-Time-Between-Failure for one well for the past 30 years is 15 years, i.e., one well will fail each fifteen years, reflecting state-of-the-art of integrity testing.

Based on the UIC Reporting Form 75-20, there have been two failures in the 30 years since 1984 which contributed potential introduction of treated produced water to a USDW in District 4 which includes the

[160] (State of California Resources Agency, 1981, pp. Appendix A-3 and A-4), Primacy Application by DOGGR submitted to EPA,
[161] 2010 UIC Review

Study Area. (DOGGR, Department of Oil and Gas and Geothermal Resources Data sets and Personnel, pp. DOGGR Forms 75-20) One of the two well failures was in Fruitvale oil field and one was in Round Mountain. The Fruitvale well failure did not contribute a significant volume of treated produced water due to limited injection during the failure.[162] The Round Mountain injection well failure according to DOGGR did not require any remediation due to the distance from any ground water wells.[163] Currently, there are 43,151 injection wells operating in the Study Area, including cyclic wells operating the in the study area. Since injection wells are monitored for mechanical integrity under the UIC program and monthly reporting is required by the operator, the Factor for maximum volume of discharge of treated produced water into a USDW is conservatively estimated to be one month of injection every fifteen years.

Table 2.5-3

Table 2.5-3: UIC Failure Potential Analysis				
	Western	Central	Eastern	County Wide
Injection,[164] bbl/yr	925,352,477	18,046,327	402,597,981	1,345,996,785
Injector Well Population,[165] count	27,874	80	15,197	43,151
Annual Per well Injectate, bbl/well[166]	33,198	225,579	26,492	31,193
Daily Per Well Injectate, bbl/well[167]	91	618	73	85
Failure Duration, days[168]	30	30	30	30
Factor: **(UIC FV1)**15-Year Failure Volume, bbl/15 years[169]	2,729	18,541	2,177	2,564

(WZI, CH 2 Field Injection Mass Balance.xlsx, p. Injection Failure Analysis)

Calculating the Volume of Class II water lost to formation or communicated to the surface in contact with a USDW (UIC FV1). This failure event has been shown to occur in the Kern County Study Area population of injection wells once every fifteen years. This volume is only realized at the time of the failure and lasts until it is found during routine operational visits.

$$UIC\ FV1_n(bbl) = UIC\ FV1 \times y\ events$$

$$y\ events = truncation(n\ years/15)$$

Where,

y events = the number of events in the analysis period (i.e., if the study period is 30 years then the number of events is 2)

n= study period in years

[162] (DOGGR, Department of Oil and Gas and Geothermal Resources Data sets and Personnel)
[163] (DOGGR, Department of Oil and Gas and Geothermal Resources Data sets and Personnel)
[164] (WZI, CH 2 DOGGR WZI Data Request.xlsx - Injection)
[165] (WZI, CH 1 2012 KC Wells Active O&G.xlsx) Sorted 2012 data for all types of injection wells
[166] WZI calculation
[167] Ibid
[168] (WZI, CH 2 Field Injection Mass Balance.xlsx) This time period represents the longest time that a failure could go unnoticed due to reporting to DOGGR. Operators must report on a monthly basis. Typically operations personnel visit wells on a daily basis however smaller operators with more remote wells may only visit the well location on a weekly basis.
[169] (WZI, CH 2 Field Injection Mass Balance.xlsx) WZI Calculation based on failure duration times the average injection rate per Sub-Region.

2.6 References

Bowersox, J., & R.A., S. (1990). Reservoir Compaction of the Belridge diatomite and surface subsidence, South Belridge field, Kern County, California. (J. Kuespert, & S. Reid, Eds.) *Structure, Stratigraphy and Hydrocarbon Occurence of the San Joaquin Basin*, 225-230.

Bruno, M., & Bovberg, C. (1992). Reservoir Compaction and Surface Subsidence above the Lost Hill Field, California. (Tillerson, & Wawersik, Eds.) *Rock Mechanics: Proceeding of the 33rd Symposium*, 263-272.

Code, C. P. (n.d.). CAL. PRC. CODE § 3451, Maximum Efficient Rate.

Crane. (n.d.). Flow of Fluids through valves, fitting and pipe. *TP 410*.

DOGGR. (n.d.). Annual Report PR13, 2013 for year ending 2012.

DOGGR. (n.d.). *Department of Oil and Gas and Geothermal Resources Data sets and Personnel.*

DOGGR. (n.d.). WZI Request. *Injection Data by type of injection activity*.

DOGGR, S. (n.d.). CH 2 Sump Status-02254.xls.

Fielding, E., Blom, R., & Goldstein, R. (1998). Rapid Subsidence over Oil Field measured by SAR interferometry. *Geophysical Research Letters, 25*(17), 3215-3218.

Fredrich, J., Deitrick, G., Arguello, J., & DeRouffignac, E. (2000). Geomechanical Modeling of Reservoir Compaction, Surface Subsidence and Casing Damage at the Belridge Diatomite Field. *SPE 47284.* Society of Petroluem Engineers.

Gas, D. O. (1973). *California Oil and Gas Fields (North and East Central California).* Sacramento: California Department of Conservation.

Govt., U. (n.d.). 40 CFR 146.04.

Industry. (n.d.). Surveys and personal communication concering oil field practices.

location, D. S. (n.d.). CH 2 qrySump022514.xlsx.

NAICS/SIC. (n.d.). *The North American Industry Classification System (NAICS) is replacing the U.S. Standard Industrial Classification (SIC) system. Please visit thhttp://www.census.gov/epcd/www/naics.html*.

Patzek, T., Silin, D., & Fielding, E. (2001). Use of Radar Images in Surveillance and Control of Two Giant Oilfields in California. *Society of Petroleum Engineers.* SPE 71610.

Rutqvist, J., & al, e. (2013, April). Modeling of Fault Reactivation and Induced Seismicity During Hydraulic Fracturing of Shale-Gas Reservoirs. *Journal of Petroleum Science and Engineering*.

State of California Resources Agency, D. O. (1981). Application for Primacy in the Regulation of Class II Injection Wells. Department of Conservation.

Van der Kooij, M. (1997). Land Subsidence Meassurements at the Belridge Oil Fields from ERS InSAR Data. *ESA ERS Symposium.* Florence. Retrieved from http://earth.esa.int/workshops/er97/papers/vanderkooij1/

Warner, D., & Lehr, J. (1981). *Subsurface Wastewater Injection.* Berkeley: Premier press.

WZI. (2014). CH 2 2012 Land Use Field Production by Sub Region.xlsx.

WZI. (n.d.). CH 1 2012 KC Wells Active O&G.xlsx.

WZI. (n.d.). CH 2 Central Region Water Issues.

WZI. (n.d.). CH 2 D4 and FracFocus Data 26 Jun.

WZI. (n.d.). CH 2 DOGGR WZI Data Request.xlsx - Injection.

WZI. (n.d.). CH 2 Field Injection Mass Balance.xlsx.

WZI. (n.d.). CH 2 Historic Activity Data, 1995 to 2012.xlsx.

WZI. (n.d.). CH 2 Hydraulic Stimulation Industry Report_D4_and Frac Focus.xlsx.

WZI. (n.d.). CH 2 Injection Inventory Projection.xlsx.

WZI. (n.d.). CH 2 SIC 1311 Water Balance PR13_Inj Data.xlsx.

WZI. (n.d.). CH 2 SIC 1389 Water Use 4 Jul.xlsx.

WZI. (n.d.). CH 2 Wells Logged in Kern County.xlsx.

WZI. (n.d.). CH 2 WZI Produced_Volumes.xlsx.

WZI. (n.d.). CH 3 2012 Wells Logged in Kern County.xlsx.

WZI GIS Analysis. (n.d.).

Xu, H. (2002). *Production Induced Reservoir Compaction and Surface Subsidence, with Applications to 4D Seismic.* Dissertation in Partial Fulfilment of Degree of Doctor of Philosophy, Stanford University, Department of Geophysics and the Committee on graduate Studies.

Xu, H., Dvorkin, J., & Nur, A. (2001). Linking Oil Production to Surface Subsidence for Satellite Radar Interferometry. *Geophysical Research Letters, 28*(7), 1307-1310.

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY
DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

September 2, 2015

File: General Correspondence
Revisions to County Zoning Ordinance

FILE COPY

Holly King
13501 Arbolado Court
Bakersfield, CA 93314

RE: Public Records Act Request – Revisions to the County Zoning Ordinance – 2015 C – Proposed text amendments to Chapter 19.98 (Oil and Gas Production) and additional affected chapters.

Dear Ms. King:

The Kern County Planning and Community Development Department is in receipt of your August 26, 2015 Public Records Act Request. Specifically, you requested within your email any resolutions adopting or amending Chapter 19.98 (Oil & Gas Production) of the Kern County Zoning Ordinance.

In response to this request, County Staff notes that Chapter 19.98 was initially adopted in 1957. Attached to this letter is a CD containing separate pdf files of documents related to the initial adoption of the Oil & Gas Zoning Ordinance Chapter and all subsequent amendments. The attached CD contains the following pdfs:

- Zoning Ordinance Amendment to Oil & Gas Production – This pdf is a compilation of amendments to particular Sections of the Oil and Gas Chapter (19.98) with references to the Ordinances adopted by the Kern County Board of Supervisors (See attached) and the time frame that particular adopted Zoning Ordinance was in effect. (For example: 1994 – Current or July 1993 – May 1994. This document has been highlighted by County Staff to enable its use as a cross reference tool.
- A current copy of the Kern County Zoning Ordinance last updated (05/15) - Oil and Gas Chapter 19.98 – Oil and Gas Production
- A copy of the 1957 edition of the Oil and Gas Chapter, referred to as Article 26 – Oil and Gas Production, Sections 7240 – 7244, (See Ord. No. G-299 (06/18/1957)
- A copy of the 1986 edition of the Oil and Gas Chapter, referred to as Article 7260 – Oil and Gas Production, Referencing Ordinance G-4147 (02/10/1986), Section 7260.01 – 7260.07
- Ordinance No. G-299, 1957
- Ordinance No. G-4157, 1986
- Ordinance No. G-5346, 1990
- Ordinance No. G-5885, 1992
- Ordinance No. G-6077, 1994
- Ordinance No. G-6551, 1998
- Ordinance No. G-8035, 2012 (This ordinance is being provided as reference only as it cited (highlighted) in the Zoning Ordinance Amendment pdf. However, it does not reference amendments to the Oil and Gas Chapter 19.98 but references changes to the organizational structure of the Kern County Development Services Agency.

This completes the Kern County Planning and Community Development Department's response to your Public Records Act Request. Please contact me directly if you have any questions or concerns as they relate to this letter.

Sincerely,

Craig M. Murphy, Division Chief
Planning & Community Development Dept.

Cc: County Counsel, Attn: Phil Hall
Clerk of the Board, Attn: Kathleen Krause

Public Records Act Request

Revisions to the County Zoning Ordinance – 2015 C
Proposed text amendments to Chapter 19.98
(Oil and Gas Production) and additional affected chapters

Kern County
Planning & Community
Development Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661) 862-8600

Contents:

ZO Amendments to Oil and Gas Production; ZO Chapter 19.98 (2015);
ZO Article 26 (1957); ZO Article 7260 (1986);
Ordinance No. G-299, 1957; Ordinance No. G-4157, 1986;
Ordinance No. G-5346, 1990; Ordinance No. G-5885, 1992;
Ordinance No. G-6077, 1994; Ordinance No. G-6551, 1998;
Ordinance No. G-8035, 2010

September 2, 2015

Article 24. H Zone

Section 7220. H Airport Approach Height Zone. Land classified in an H zone shall also be classified in another zone and the additional regualtions set forth in this Article shall apply in the H airport approach height zone unless otherwise provided in this Chapter. 7220

Section 7221. Airport Zoning Commission. The Planning Commission is hereby appointed as the Airport Zoning Commission of the County of Kern with all the powers and duties specified by the Airport Approaches Zoning Law of the State of California, Chapter 1741, Statutes of 1953, now included in Sections 50481 to 50485.14, inclusive, of the Government Code, or any amendment thereto. 7221

Section 7222. Procedure. No building or structures, including all super-structures and appurtenances, shall be erected, moved, altered or reconstructed, nor shall any plant or tree be allowed to grow in such a manner, so that the height thereof will constitute a hazard to the safe landing or take-off of aircraft using the airport in the district subject to these regulations. The height limit thus imposed shall be determined in each case by the Planning Commission and shall be governed by and not more restrictive than those imposed by Civil Aeronautics Administration Technical Standard Order N18, "Criteria for Determining Obstructions to Air Navigation," dated April 26, 1950, as amended. A copy of said Technical Standard Order N18, with amendments, shall be on file in the office of the Planning Commission. In no event shall the provisions of this Section prevent the erection or maintenance of a building, structure or tree, no part of which exceeds thirty-five (35) feet in height. Permits issued for buildings and structures in areas subject to Airport Approach zones shall specify the height limitations of such buildings or structures as set forth in this Section. 7222

The proceedings for classifying any land in the H Airport Approach Height Zone shall comply with the provisions of said Airport Approaches Zoning Law.

Article 25. B Zone.

Section 7230. B Buffer Zone. Land classified in a B Zone may also be classified in another zone, except in the C and M zones, and the regulations set forth in this Article shall apply in the B buffer zone unless otherwise provided in this Chapter. 7230

Section 7231. Uses Permitted. 7231

A. Any use permitted in the other respective zone in which the land is classified and with which the B zone is combined, provided, however, as follows:

1. No outdoor advertising sign or outdoor advertising structure shall be placed and/or maintained in any B zone, provided, however, that there may be displayed on the premises occupied by any permitted business use which is located in any B zone outdoor advertising structures for the advertising only of such business; and the total area for all outdoor advertising signs and outdoor advertising structures in the aggregate displayed by or for any one place of business shall not exceed the equivalent of one (1) square foot for each one (1) foot of frontage actually occupied by such business, including the widths of driveways directly appurtenant thereto.
2. No junk, salvage or auto wrecking yard shall be established in any B zone unless the same is completely enclosed within a building or within a fence approved by the Planning Commission.

B. The following additional uses, if not permitted in the other zone, may be permitted in a B zone upon the granting of a conditional use permit:

1. Automobile parking areas
2. Automobile service stations
3. Directional or informational signs of a public or quasi-public nature
4. Drug stores
5. Garages, public, including repairing and servicing
6. Grocery, fruit and vegetable stores
7. Hotels, apartment houses and multiple residences
8. Motels, auto courts and tourist courts
9. Meat markets or delicatessen stores
10. Professional offices
11. Restaurants, tea rooms and cafes

Section 7232. Building Height, Front Side and Rear Yards, Area Requirements and Distance Between Buildings On The Same Lot. None, except that on parcels or lots of less than ten thousand (10,000) square feet in area, said regulations shall be the same as required in the R-3 zone; and provided that all buildings, except temporary stands, shall be located not nearer than ninety (90) feet from the centerline of any public street or highway. 7232

Article 25.1, Sections 7235 – 7237 – See next page.

Article 26. Oil and Gas Production.

Section 7240. Oil and Gas Production. It hereby is declared to be the purpose and object of Article 26 of the Land Use Zoning Ordinance of the County of Kern to establish reasonable limitations, safeguards and controls with respect to the future drilling for, development and production of oil, gas and other hydrocarbon substances within the unincorporated territory of the County of Kern. 7240

Such limitations, safeguards and controls are deemed necessary in the public interest to insure practices which will permit the economic recovery of the maximum amount of oil, gas and other hydrocarbon substances but which will also take into consideration the surface uses of land as such uses are indicated by the value and character of the existing improvements in or near localities where oil and gas operations are conducted, the desirability of the area for residential or other uses, and other factors relating to the public health, comfort, safety and general welfare.

It is recognized that in regulating the surface uses of land for the development of such natural resources it is in the public interest that such regulations be of a character designed to impose the minimum burdens consistent with the maximum enjoyment of each use.

Section 7241. Oil Drilling Permitted In Specific Zones. Notwithstanding the provisions of any other part of this Chapter, oil wells or well holes for the exploration for, development and production of oil, gas and other hydrocarbon substances may be drilled, operated and maintained, together with the installation and use of such equipment, structures and facilities as are necessary or convenient for such purposes, including but not limited to the initial separation of oil, gas and water, and for the storage, handling, recycling and transportation of such oil, gas and water to and from the premises in the unincorporated territory of the County of Kern, and the owner or operator thereof shall not be required to obtain any permit or variance as a condition precedent therefor, except as in this Article hereinafter provided. However, variance may be granted to the provisions of this Article 26, according to the provisions of Article 29 of this Chapter. 7241

Section 7242. Unrestricted Drilling. In the U Unclassified Zone, M-3 General Manufacturing Zone, A-2 General Agricultural Zone and A-1 Light Agricultural Zone the following conditions shall apply. 7242

No review or permit shall be required for the drilling of any well hole for the exploration for, development and production of oil, gas and other hydrocarbon substances, or the installation of equipment, structures and facilities incidental thereto provided that all drilling installations and operations shall conform to State law and to fire and safety ordinances or regulations of the County of Kern in force and effect and applicable, provided, further, that drilling shall not be commenced within one hundred (100) feet of any residence then in existence without the written consent of the owner thereof.

Section 7243. Drilling By Conditional Use Permit. In the R-1 One Family Dwelling Zone, R-2 Two Family Dwelling Zone, R-3 Limited Multiple Family Dwelling Zone, R-4 Multiple Family Dwelling Zone, R-S Suburban Residential Zone, E-1 Estate Zone, E-2 Estate Zone, E-3 Estate Zone, C-O Professional Office Zone, C-1 Limited Commercial Zone and C-2 Commercial Zone the following conditions shall apply: 7243

No person, firm or corporation shall conduct the drilling of any well, hole or holes for the exploration for, development and production of oil, gas and other hydrocarbon substances, or install any equipment, structures and facilities incidental thereto, on or upon lands within the zones above specified in Section 7243 without first having applied for and obtained, by payment of the fee hereinafter provided, a conditional use permit from the Planning Commission so to do. No plant for the refining of petroleum products from such operation shall be permitted hereunder. The procedure for filing of applications, investigation, notices, public hearings, findings and appeal shall be the same as herein provided for variances, in Sections 7274, 7276, 7277, 7278 and 7279 of this Chapter, except that the Planning Commission may waive public hearing if all the owners of surface rights within three hundred (300) feet of the proposed site consent in writing. Such permit shall provide that all drilling and producing operations shall conform to conditions No. 1 to No. 10, inclusive, as hereinafter set forth, and one or more of conditions No. 11 to No. 15, inclusive, if applicable and determined as hereinafter set forth, except that upon request of the applicant, at or subsequent to the time the permit is issued, the Planning Commission, by specific action in each instance, may waive any one or more of such conditions if it finds that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity thereof.

1. That no oil or gas well shall be drilled within one hundred (100) feet on any public highway or within one hundred and fifty (150) feet of any residence constructed prior to the commencement of such drilling, without the written consent of the owner thereof.
2. That all drilling and producing shall conform to all applicable fire and safety regulations.
3. That no signs, other than directional and warning signs and those required for identification of the well shall be constructed, erected, maintained or placed on the premises or any part thereof except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.
4. That suitable and adequate sanitary toilet and washing facilities, approved by the Kern County Health Department, shall be installed and maintained in a clean and sanitary condition at all times.
5. That proven technological improvements generally accepted and used in drilling and production methods shall be adopted as they may become from time to time available if capable of reducing factors of nuisance

and annoyance.

6. That the derrick, all boilers and all other drilling equipment used pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well, shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derrick, boilers and drilling equipment are to be used, within a reasonable time limit determined by the Planning Commission, for the drilling of another well or wells on the premises.
7. That after any well has been placed on production no earthen sumps shall be used for the storage of petroleum.
8. That within ninety (90) days after any well has been placed on production or after its abandonment earthen sumps used in drilling or production or both, unless such sumps are to be used, within a reasonable time limit determined by the Planning Commission, for the drilling of another well or wells, shall be filled and the drilling site restored as nearly as practicable to a uniform grade.
9. That any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Planning Commission may approve the use of a standard type of derrick.
10. That prior to the drilling, redrilling or deepening of any well, the permittee shall file with the Board of Supervisors a satisfactory corporate surety bond in favor of the County of Kern in the sum of Five Hundred Dollars ($500) per well or Twenty-five Hundred Dollars ($2,500) for five or more wells, executed by such permittee as principal and by an authorized surety company as surety, conditioned that the principal named in the bond shall faithfully comply with all the provisions of this section in drilling, redrilling or deepening any well or wells covered by the bond, and shall secure the County of Kern against all losses, charges and expenses incurred by it to obtain such compliance by the principal named in the bond.

The following additional conditions No. 11 to No. 15. inclusive, may be added by the Planning Commission if deemed necessary or desirable to protect the public health, safety, comfort, convenience and general welfare.

11. That all oil or gas produced shall be carried away by pipelines or, if produced into and shipped from tanks located on the premises, such tanks shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping and, insofar as practicable, screen such tanks from public view.
12. That, except in case of emergency, no materials, equipment, tools or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of 8:00 A.M. and 8:00 P.M. of any day.
13. That adequate fire fighting apparatus and supplies, approved by the County Fire Department, shall be maintained on the drilling site at all times during drilling and production operations.
14. That pumping wells shall be operated by electric motors or muffled internal combustion engines, and the height of all pumping units shall be not more than twenty (20) feet. All permanent equipment shall be painted and kept in neat condition. All producing operations shall be as free from noise as possible with modern oil operations.
15. That the drilling site shall be fenced or landscaped as prescribed by the Planning Commission.

If a producing well is not secured upon land subject to said permit within twelve (12) months from the date of issuance of said permit, or within any extended period thereof, the permit shall expire and the premises shall be restored to their original condition as nearly as practicable so to do. No permit shall expire, however, while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. For the purposes hereof, continuous operations are operations suspended not more than thirty (30) consecutinve days. If at the expiration of said twelve (12) months period the permittee has not completed his drilling program on the lands covered by such permit, the Planning Commission may, upon a written request of permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

Section 7244. Drilling By Counter Permit. In the M-1 Limited Manufacturing Zone, M-2 Light Manufacturing Zone and the R-F Recreational-Forestry Zone the following conditions shall apply. 7244

No person, firm or corporation shall drill any well hole for the exploration for, development and production of oil, gas and other hydrocarbon substances or install any equipment, structures and facilities incidental thereto without first having applied and obtained, by payment of the fee hereinafter provided, an oil well counter permit from an authorized employee of the Planning Commission. Said permit shall provide that all drilling and producing operations shall conform to conditions No. 1 to No. 10, inclusive, as specified in Section 7243 except that upon request of the applicant, at or subsequent to the time the permit is issued, the Planning Commission, by specific action in each instance, may waive any

one or more of such conditions if it finds that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity thereof. No plant for the refining of petroleum products from such operation shall be permitted hereunder.

Section 7245. Filing Fee For Oil Well Drilling. No fee shall be collected for unrestricted drilling under the provisions of Section 7242. 7245

The County shall charge and collect the following fees for the purpose of defraying the expenditures incidental to the proceedings described in this Article 26.

A. A fee of Thirty-five Dollars ($35.00) shall be collected for each Conditional Use Permit granted under the provisions of Section 7243. An additional fee of Thirty-five Dollars ($35.00) shall be paid by the permittee for each well (after the first well) drilled upon lands covered by a Conditional Use Permit.

B. A fee of Five Dollars ($5.00) shall be collected for each Counter Permit issued under the provisions of Section 7244. An additional fee of Five Dollars ($5.00) shall be paid by the permittee for each additional well (after the first well) drilled upon lands covered by a Counter Permit.

Article 27. General Provisions.

Section 7250. General Provisions. The regulations specified in this Chapter shall be subject to the following interpretations and exceptions. 7250

Section 7251. Less Restrictive Uses Prohibited. The express enumeration and authorization in this Chapter of a particular class of building, structure, premises or use in a designated zone shall be deemed a prohibition of such building, structure, premises or use in all zones of more restrictive classification, except as otherwise specified. 7251

Section 7252. Additional Permitted Uses. Uses other than those specifically mentioned in this Chapter as uses permitted in each of the zones may be permitted therein, provided such uses are similar to those mentioned and are in the opinion of the Board of Supervisors as evidenced by a resolution in writing, after a report and recommendation by the Planning Commission, not more obnoxious or detrimental to the welfare of the community than the permitted uses specifically mentioned in the respective zones. 7252

Section 7253. Additional Excluded Uses. Uses other than those specifically mentioned in this Chapter as uses excluded from any zone may be excluded therefrom provided such uses are in the opinion of the Board of Supervisors, as evidenced by a resolution in writing, after a report and recommendation by the Planning Commission, not less obnoxious or detrimental to the welfare of the community than the excluded uses specifically mentioned in any zone. 7253

Section 7254. Non-Conforming Buildings and Uses. The following regulations shall apply to all non-conforming buildings and structures or parts thereof and uses existing at the effective date of this Chapter, provided, however, that that these regulations shall not apply in the U-Zone. 7254

A. Any such non-conforming building or structure may be continued and maintained provided there is no physical change other than necessary maintenance and repair in such building or structure except as permitted in other sections of this Chapter.

B. Any such non-conforming use may be maintained and continued provided there is no increase or enlargement of the area, space or volume occupied or devoted to such non-conforming use, except as otherwise provided in this Chapter.

C. Any part of a building, structure or land occupied by such a non-conforming use which is changed to or replaced by a use conforming to the provisions of this Chapter shall not thereafter be used or occupied by a non-conforming use.

D. Any part of a building, structure or land occupied by such a non-conforming use, which use is abandoned, shall not again be used or occupied for a non-conforming use. Any part of a building, structure or land occupied by such a non-conforming use, which use shall have ceased for a period of one (1) year or more, shall not again be used or occupied for a non-conforming use.

E. If no structural alterations are made, a non-conforming use of a building may be changed to another non-conforming use of a more restrictive classification.

F. Every non-conforming use of land (where no main building is involved)existing at the time this Chapter becomes effective shall be discontinued within three (3) years from the effective date of this Chapter, except that this provision shall not apply to public utility structures of companies under the jurisdiction of the Public Utilities Commission of the State of California.

Ordinance G-4157
2/10/1986

ARTICLE 7260

OIL AND GAS PRODUCTION

SECTIONS:

7260.01 PURPOSE AND APPLICATION
7260.02 UNRESTRICTED DRILLING
7260.03 DRILLING BY MINISTERIAL PERMIT
7260.04 DRILLING BY CONDITIONAL USE PERMIT
7260.05 DEVELOPMENT STANDARDS AND CONDITIONS
7260.06 APPLICATION CONTENTS
7260.07 PERMIT REVOCATION AND MODIFICATION

SECTION 7260.01 PURPOSE AND APPLICATION

The purpose of this article is to promote the economic recovery of oil, gas, and other hydrocarbon substances in a manner compatible with surrounding land uses and protection of the public health and safety by establishing reasonable limitations, safeguards, and controls on exploration, drilling, and production of hydrocarbon resources. The procedures and standards contained in this article shall apply to all exploration drilling and production activities related to oil, gas, and other hydrocarbon substances carried out in unincorporated Kern County.

SECTION 7260.02 UNRESTRICTED DRILLING

No review or permit shall be required for the drilling of any steam injection well, steam drive well, service well, or any well intended for the exploration for or development or production of oil, gas, and other hydrocarbon substances, or for any related accessory equipment, structure, or facility in the Exclusive Agriculture (A), Limited Agriculture (A-1), Medium Industrial (M-2), Heavy Industrial (M-3), or Natural Resource (NR) Districts, provided that:

A. All drilling installations and operations comply with the requirements of State law and with applicable fire and safety ordinances and regulations of the County of Kern.

B. Drilling shall not be commenced within one hundred (100) feet of any existing residence without the written consent of the owner thereof.

C. Signs shall be limited to directional, warning signs, and identification signs in connection with oil, gas, or other hydrocarbon drilling and development operations.

D. Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

2. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

SECTION 7260.03 DRILLING BY MINISTERIAL PERMIT

No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services as consistent with the standards set out in Section 7260.05 and in accordance with the procedures set out in Section 7284.02 of this chapter. In approving an application for plot plan review, the Director of Planning and Development Services may waive any standards set out in Section 7260.05 if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

A. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

B. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

SECTION 7260.04 DRILLING BY CONDITIONAL USE PERMIT

No well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this chapter in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 7260.05 and in accordance with the standards and procedures set out in Section 7284.04 and Article 7286 of this chapter. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 7260.05 if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

A. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

B. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this article and Article 7286 within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) months period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

SECTION 7260.05 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Sections 7105.02, 7260.03, and 7260.04, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this article:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and fire fighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those

required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F. All derricks, boilers, and other drilling equipment employed pursuant to this section, to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well, shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Director of Planning and Development Services, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Director of Planning and Development Services for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Director of Planning and Development Services may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of 8:00 a.m. and 8:00 p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Director of Planning and Development Services. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

O. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas
2. Kern County Fire Department
3. Kern County Health Department
4. Regional Water Quality Control Board
5. Air Pollution Control District
6. Kern County Public Works Department

SECTION 7260.06 APPLICATION CONTENTS

An application for plot plan review pursuant to Section 7260.03 and an application for a conditional use permit pursuant to Section 7260.04 shall include the following:

1. Name and address of the applicant
2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abondoned wells if such are known to exist

   c. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

   d. North arrow

6. Narrative description of the proposed development, including:

   a. Acreage or square footage of the property

   b. Nature of hydrocarbon development activity

   c. Description of equipment to be used

   d. Distance to all existing buildings

   e. Phasing or development schedule

SECTION 7260.07 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

Therefore IT IS RECOMMENDED that your Board 1) receive and file this report 2) provide direction and 3) continue to January 22, 2013.

Sincerely,

LORELEI H OVIATT, AICP, Director
Kern County Planning and Community Development Department

LHO:am

I:\WP\MRG\ADM\JVB\BOARD.LTR\oil and gas permitting brd ltr dec. 11, 2012.docx

cc County Administrative Officer
County Counsel
Committee to Protect Farmland and Clean Water
Western States Petroleum Association
California Independent Petroleum Association
Independent Oil Producers Association
Kern County Farm Bureau
California Department of Oil, Gas and Geothermal
Development Services Agency
Grand Jury

KERN COUNTY ZONING ORDINANCE

Permitting of Oil and Gas Exploration and Production

1957, 1986, 1988, 2012

Article 24. H Zone

Section 7220. H Airport Approach Height Zone. Land classified in an H zone shall also be classified in another zone and the additional regualtions set forth in this Article shall apply in the H airport approach height zone unless otherwise provided in this Chapter. 7220

Section 7221. Airport Zoning Commission. The Planning Commission is hereby appointed as the Airport Zoning Commission of the County of Kern with all the powers and duties specified by the Airport Approaches Zoning Law of the State of California, Chapter 1741, Statutes of 1953, now included in Sections 50481 to 50485.14, inclusive, of the Government Code, or any amendment thereto. 7221

Section 7222. Procedure. No building or structures, including all super-structures and appurtenances, shall be erected, moved, altered or reconstructed, nor shall any plant or tree be allowed to grow in such a manner, so that the height thereof will constitute a hazard to the safe landing or take-off of aircraft using the airport in the district subject to these regulations. The height limit thus imposed shall be determined in each case by the Planning Commission and shall be governed by and not more restrictive than those imposed by Civil Aeronautics Administration Technical Standard Order N18, "Criteria for Determining Obstructions to Air Navigation," dated April 26, 1950, as amended. A copy of said Technical Standard Order N18, with amendments, shall be on file in the office of the Planning Commission. In no event shall the provisions of this Section prevent the erection or maintenance of a building, structure or tree, no part of which exceeds thirty-five (35) feet in height. Permits issued for buildings and structures in areas subject to Airport Approach zones shall specify the height limitations of such buildings or structures as set forth in this Section. 7222

The proceedings for classifying any land in the H Airport Approach Height Zone shall comply with the provisions of said Airport Approaches Zoning Law.

Article 25. B Zone.

Section 7230. B Buffer Zone. Land classified in a B Zone may also be classified in another zone, except in the C and M zones, and the regulations set forth in this Article shall apply in the B buffer zone unless otherwise provided in this Chapter. 7230

Section 7231. Uses Permitted. 7231

A. Any use permitted in the other respective zone in which the land is classified and with which the B zone is combined, provided, however, as follows:

1. No outdoor advertising sign or outdoor advertising structure shall be placed and/or maintained in any B zone, provided, however, that there may be displayed on the premises occupied by any permitted business use which is located in any B zone outdoor advertising structures for the advertising only of such business; and the total area for all outdoor advertising signs and outdoor advertising structures in the aggregate displayed by or for any one place of business shall not exceed the equivalent of one (1) square foot for each one (1) foot of frontage actually occupied by such business, including the widths of driveways directly appurtenant thereto.
2. No junk, salvage or auto wrecking yard shall be established in any B zone unless the same is completely enclosed within a building or within a fence approved by the Planning Commission.

B. The following additional uses, if not permitted in the other zone, may be permitted in a B zone upon the granting of a conditional use permit:

1. Automobile parking areas
2. Automobile service stations
3. Directional or informational signs of a public or quasi-public nature
4. Drug stores
5. Garages, public, including repairing and servicing
6. Grocery, fruit and vegetable stores
7. Hotels, apartment houses and multiple residences
8. Motels, auto courts and tourist courts
9. Meat markets or delicatessen stores
10. Professional offices
11. Restaurants, tea rooms and cafes

Section 7232. Building Height, Front Side and Rear Yards, Area Requirements and Distance Between Buildings On The Same Lot, None, except that on parcels or lots of less than ten thousand (10,000) square feet in area, said regulations shall be the same as required in the R-3 zone; and provided that all buildings, except temporary stands, shall be located not nearer than ninety (90) feet from the centerline of any public street or highway. 7232

Article 25.1, Sections 7235 – 7237 – See next page.

Article 26. Oil and Gas Production.

Section 7240. Oil and Gas Production. It hereby is declared to be the purpose and object of Article 26 of the Land Use Zoning Ordinance of the County of Kern to establish reasonable limitations, safeguards and controls with respect to the future drilling for, development and production of oil, gas and other hydrocarbon substances within the unincorporated territory of the County of Kern. 7240

Such limitations, safeguards and controls are deemed necessary in the public interest to insure practices which will permit the economic recovery of the maximum amount of oil, gas and other hydrocarbon substances but which will also take into consideration the surface uses of land as such uses are indicated by the value and character of the existing improvements in or near localities where oil and gas operations are conducted, the desirability of the area for residential or other uses, and other factors relating to the public health, comfort, safety and general welfare.

It is recognized that in regulating the surface uses of land for the development of such natural resources it is in the public interest that such regulations be of a character designed to impose the minimum burdens consistent with the maximum enjoyment of each use.

Section 7241. Oil Drilling Permitted In Specific Zones. Notwithstanding the provisions of any other part of this Chapter, oil wells or well holes for the exploration for, development and production of oil, gas and other hydrocarbon substances may be drilled, operated and maintained, together with the installation and use of such equipment, structures and facilities as are necessary or convenient for such purposes, including but not limited to the initial separation of oil, gas and water, and for the storage, handling, recycling and transportation of such oil, gas and water to and from the premises in the unincorporated territory of the County of Kern, and the owner or operator thereof shall not be required to obtain any permit or variance as a condition precedent therefor, except as in this Article hereinafter provided. However, variance may be granted to the provisions of this Article 26, according to the provisions of Article 29 of this Chapter. 7241

Section 7242. Unrestricted Drilling. In the U Unclassified Zone, M-3 General Manufacturing Zone, A-2 General Agricultural Zone and A-1 Light Agricultural Zone the following conditions shall apply. 7242

No review or permit shall be required for the drilling of any well hole for the exploration for, development and production of oil, gas and other hydrocarbon substances, or the installation of equipment, structures and facilities incidental thereto provided that all drilling installations and operations shall conform to State law and to fire and safety ordinances or regulations of the County of Kern in force and effect and applicable, provided, further, that drilling shall not be commenced within one hundred (100) feet of any residence then in existence without the written consent of the owner thereof.

Section 7243. Drilling By Conditional Use Permit. In the R-1 One Family Dwelling Zone, R-2 Two Family Dwelling Zone, R-3 Limited Multiple Family Dwelling Zone, R-4 Multiple Family Dwelling Zone, R-S Suburban Residential Zone, E-1 Estate Zone, E-2 Estate Zone, E-3 Estate Zone, C-O Professional Office Zone, C-1 Limited Commercial Zone and C-2 Commercial Zone the following conditions shall apply: 7243

No person, firm or corporation shall conduct the drilling of any well, hole or holes for the exploration for, development and production of oil, gas and other hydrocarbon substances, or install any equipment, structures and facilities incidental thereto, on or upon lands within the zones above specified in Section 7243 without first having applied for and obtained, by payment of the fee hereinafter provided, a conditional use permit from the Planning Commission so to do. No plant for the refining of petroleum products from such operation shall be permitted hereunder. The procedure for filing of applications, investigation, notices, public hearings, findings and appeal shall be the same as herein provided for variances, in Sections 7274, 7276, 7277, 7278 and 7279 of this Chapter, except that the Planning Commission may waive public hearing if all the owners of surface rights within three hundred (300) feet of the proposed site consent in writing. Such permit shall provide that all drilling and producing operations shall conform to conditions No. 1 to No. 10, inclusive, as hereinafter set forth, and one or more of conditions No. 11 to No. 15, inclusive, if applicable and determined as hereinafter set forth, except that upon request of the applicant, at or subsequent to the time the permit is issued, the Planning Commission, by specific action in each instance, may waive any one or more of such conditions if it finds that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity thereof.

1. That no oil or gas well shall be drilled within one hundred (100) feet on any public highway or within one hundred and fifty (150) feet of any residence constructed prior to the commencement of such drilling, without the written consent of the owner thereof.
2. That all drilling and producing shall conform to all applicable fire and safety regulations.
3. That no signs, other than directional and warning signs and those required for identification of the well shall be constructed, erected, maintained or placed on the premises or any part thereof except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.
4. That suitable and adequate sanitary toilet and washing facilities, approved by the Kern County Health Department, shall be installed and maintained in a clean and sanitary condition at all times.
5. That proven technological improvements generally accepted and used in drilling and production methods shall be adopted as they may become from time to time available if capable of reducing factors of nuisance

and annoyance.

6. That the derrick, all boilers and all other drilling equipment used pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well, shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derrick, boilers and drilling equipment are to be used, within a reasonable time limit determined by the Planning Commission, for the drilling of another well or wells on the premises.
7. That after any well has been placed on production no earthen sumps shall be used for the storage of petroleum.
8. That within ninety (90) days after any well has been placed on production or after its abandonment earthen sumps used in drilling or production or both, unless such sumps are to be used, within a reasonable time limit determined by the Planning Commission, for the drilling of another well or wells, shall be filled and the drilling site restored as nearly as practicable to a uniform grade.
9. That any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Planning Commission may approve the use of a standard type of derrick.
10. That prior to the drilling, redrilling or deepening of any well, the permittee shall file with the Board of Supervisors a satisfactory corporate surety bond in favor of the County of Kern in the sum of Five Hundred Dollars ($500) per well or Twenty-five Hundred Dollars ($2,500) for five or more wells, executed by such permittee as principal and by an authorized surety company as surety, conditioned that the principal named in the bond shall faithfully comply with all the provisions of this section in drilling, redrilling or deepening any well or wells covered by the bond, and shall secure the County of Kern against all losses, charges and expenses incurred by it to obtain such compliance by the principal named in the bond.

The following additional conditions No. 11 to No. 15. inclusive, may be added by the Planning Commission if deemed necessary or desirable to protect the public health, safety, comfort, convenience and general welfare.

11. That all oil or gas produced shall be carried away by pipelines or, if produced into and shipped from tanks located on the premises, such tanks shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping and, insofar as practicable, screen such tanks from public view.
12. That, except in case of emergency, no materials, equipment, tools or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of 8:00 A.M. and 8:00 P.M. of any day.
13. That adequate fire fighting apparatus and supplies, approved by the County Fire Department, shall be maintained on the drilling site at all times during drilling and production operations.
14. That pumping wells shall be operated by electric motors or muffled internal combustion engines, and the height of all pumping units shall be not more than twenty (20) feet. All permanent equipment shall be painted and kept in neat condition. All producing operations shall be as free from noise as possible with modern oil operations.
15. That the drilling site shall be fenced or landscaped as prescribed by the Planning Commission.

If a producing well is not secured upon land subject to said permit within twelve (12) months from the date of issuance of said permit, or within any extended period thereof, the permit shall expire and the premises shall be restored to their original condition as nearly as practicable so to do. No permit shall expire, however, while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. For the purposes hereof, continuous operations are operations suspended not more than thirty (30) consecutinve days. If at the expiration of said twelve (12) months period the permittee has not completed his drilling program on the lands covered by such permit, the Planning Commission may, upon a written request of permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

Section 7244. Drilling By Counter Permit. In the M-1 Limited Manufacturing Zone, M-2 Light Manufacturing Zone and the R-F Recreational-Forestry Zone the following conditions shall apply. 7244

No person, firm or corporation shall drill any well hole for the exploration for, development and production of oil, gas and other hydrocarbon substances or install any equipment, structures and facilities incidental thereto without first having applied and obtained, by payment of the fee hereinafter provided, an oil well counter permit from an authorized employee of the Planning Commission. Said permit shall provide that all drilling and producing operations shall conform to conditions No. 1 to No. 10, inclusive, as specified in Section 7243 except that upon request of the applicant, at or subsequent to the time the permit is issued, the Planning Commission, by specific action in each instance, may waive any

one or more of such conditions if it finds that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity thereof. No plant for the refining of petroleum products from such operation shall be permitted hereunder.

Section 7245. Filing Fee For Oil Well Drilling. No fee shall be collected for unrestricted drilling under the provisions of Section 7242. 7245

The County shall charge and collect the following fees for the purpose of defraying the expenditures incidental to the proceedings described in this Article 26.

A. A fee of Thirty-five Dollars ($35.00) shall be collected for each Conditional Use Permit granted under the provisions of Section 7243. An additional fee of Thirty-five Dollars ($35.00) shall be paid by the permittee for each well (after the first well) drilled upon lands covered by a Conditional Use Permit.

B. A fee of Five Dollars ($5.00) shall be collected for each Counter Permit issued under the provisions of Section 7244. An additional fee of Five Dollars ($5.00) shall be paid by the permittee for each additional well (after the first well) drilled upon lands covered by a Counter Permit.

Article 27. General Provisions.

Section 7250. General Provisions. The regulations specified in this Chapter shall be subject to the following interpretations and exceptions. 7250

Section 7251. Less Restrictive Uses Prohibited. The express enumeration and authorization in this Chapter of a particular class of building, structure, premises or use in a designated zone shall be deemed a prohibition of such building, structure, premises or use in all zones of more restrictive classification, except as otherwise specified. 7251

Section 7252. Additional Permitted Uses. Uses other than those specifically mentioned in this Chapter as uses permitted in each of the zones may be permitted therein, provided such uses are similar to those mentioned and are in the opinion of the Board of Supervisors as evidenced by a resolution in writing, after a report and recommendation by the Planning Commission, not more obnoxious or detrimental to the welfare of the community than the permitted uses specifically mentioned in the respective zones. 7252

Section 7253. Additional Excluded Uses. Uses other than those specifically mentioned in this Chapter as uses excluded from any zone may be excluded therefrom provided such uses are in the opinion of the Board of Supervisors, as evidenced by a resolution in writing, after a report and recommendation by the Planning Commission, not less obnoxious or detrimental to the welfare of the community than the excluded uses specifically mentioned in any zone. 7253

Section 7254. Non-Conforming Buildings and Uses. The following regulations shall apply to all non-conforming buildings and structures or parts thereof and uses existing at the effective date of this Chapter, provided, however, that that these regulations shall not apply in the U-Zone. 7254

A. Any such non-conforming building or structure may be continued and maintained provided there is no physical change other than necessary maintenance and repair in such building or structure except as permitted in other sections of this Chapter.

B. Any such non-conforming use may be maintained and continued provided there is no increase or enlargement of the area, space or volume occupied or devoted to such non-conforming use, except as otherwise provided in this Chapter.

C. Any part of a building, structure or land occupied by such a non-conforming use which is changed to or replaced by a use conforming to the provisions of this Chapter shall not thereafter be used or occupied by a non-conforming use.

D. Any part of a building, structure or land occupied by such a non-conforming use, which use is abandoned, shall not again be used or occupied for a non-conforming use. Any part of a building, structure or land occupied by such a non-conforming use, which use shall have ceased for a period of one (1) year or more, shall not again be used or occupied for a non-conforming use.

E. If no structural alterations are made, a non-conforming use of a building may be changed to another non-conforming use of a more restrictive classification.

F. Every non-conforming use of land (where no main building is involved)existing at the time this Chapter becomes effective shall be discontinued within three (3) years from the effective date of this Chapter, except that this provision shall not apply to public utility structures of companies under the jurisdiction of the Public Utilities Commission of the State of California.

Ordinance G-4157
2/10/1986

ARTICLE 7260

OIL AND GAS PRODUCTION

SECTIONS:

7260.01 PURPOSE AND APPLICATION
7260.02 UNRESTRICTED DRILLING
7260.03 DRILLING BY MINISTERIAL PERMIT
7260.04 DRILLING BY CONDITIONAL USE PERMIT
7260.05 DEVELOPMENT STANDARDS AND CONDITIONS
7260.06 APPLICATION CONTENTS
7260.07 PERMIT REVOCATION AND MODIFICATION

SECTION 7260.01 PURPOSE AND APPLICATION

The purpose of this article is to promote the economic recovery of oil, gas, and other hydrocarbon substances in a manner compatible with surrounding land uses and protection of the public health and safety by establishing reasonable limitations, safeguards, and controls on exploration, drilling, and production of hydrocarbon resources. The procedures and standards contained in this article shall apply to all exploration drilling and production activities related to oil, gas, and other hydrocarbon substances carried out in unincorporated Kern County.

SECTION 7260.02 UNRESTRICTED DRILLING

No review or permit shall be required for the drilling of any steam injection well, steam drive well, service well, or any well intended for the exploration for or development or production of oil, gas, and other hydrocarbon substances, or for any related accessory equipment, structure, or facility in the Exclusive Agriculture (A), Limited Agriculture (A-1), Medium Industrial (M-2), Heavy Industrial (M-3), or Natural Resource (NR) Districts, provided that:

A. All drilling installations and operations comply with the requirements of State law and with applicable fire and safety ordinances and regulations of the County of Kern.

B. Drilling shall not be commenced within one hundred (100) feet of any existing residence without the written consent of the owner thereof.

C. Signs shall be limited to directional, warning signs, and identification signs in connection with oil, gas, or other hydrocarbon drilling and development operations.

D. Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

2. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

SECTION 7260.03 DRILLING BY MINISTERIAL PERMIT

No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services as consistent with the standards set out in Section 7260.05 and in accordance with the procedures set out in Section 7284.02 of this chapter. In approving an application for plot plan review, the Director of Planning and Development Services may waive any standards set out in Section 7260.05 if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

A. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

B. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

SECTION 7260.04 DRILLING BY CONDITIONAL USE PERMIT

No well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this chapter in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 7260.05 and in accordance with the standards and procedures set out in Section 7284.04 and Article 7286 of this chapter. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 7260.05 if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

A. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

B. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this article and Article 7286 within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) months period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

SECTION 7260.05 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Sections 7105.02, 7260.03, and 7260.04, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this article:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and fire fighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those

required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F. All derricks, boilers, and other drilling equipment employed pursuant to this section, to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well, shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Director of Planning and Development Services, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Director of Planning and Development Services for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Director of Planning and Development Services may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of 8:00 a.m. and 8:00 p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Director of Planning and Development Services. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

O. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas
2. Kern County Fire Department
3. Kern County Health Department
4. Regional Water Quality Control Board
5. Air Pollution Control District
6. Kern County Public Works Department

SECTION 7260.06 APPLICATION CONTENTS

An application for plot plan review pursuant to Section 7260.03 and an application for a conditional use permit pursuant to Section 7260.04 shall include the following:

1. Name and address of the applicant
2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abondoned wells if such are known to exist

   c. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

   d. North arrow

6. Narrative description of the proposed development, including:

   a. Acreage or square footage of the property

   b. Nature of hydrocarbon development activity

   c. Description of equipment to be used

   d. Distance to all existing buildings

   e. Phasing or development schedule

SECTION 7260.07 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

CHAPTER 19.98

OIL AND GAS PRODUCTION

SECTIONS:

19.98.010 PURPOSE AND APPLICATION
19.98.020 UNRESTRICTED DRILLING
19.98.030 DRILLING BY MINISTERIAL PERMIT
19.98.040 DRILLING BY CONDITIONAL USE PERMIT
19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS
19.98.060 PLOT PLAN REVIEW — CONDITIONAL USE PERMIT — APPLICATION CONTENTS
19.98.070 PERMIT REVOCATION AND MODIFICATION

19.98.010 PURPOSE AND APPLICATION

The purpose of this chapter is to promote the economic recovery of oil, gas, and other hydrocarbon substances in a manner compatible with surrounding land uses and protection of the public health and safety by establishing reasonable limitations, safeguards, and controls on exploration, drilling, and production of hydrocarbon resources. The procedures and standards contained in this chapter shall apply to all exploration drilling and production activities related to oil, gas, and other hydrocarbon substances carried out in unincorporated Kern County.

19.98.020 UNRESTRICTED DRILLING

No review or permit shall be required for the drilling of any steam injection well, steam drive well, service well, or any well intended for the exploration for or development or production of oil, gas, and other hydrocarbon substances, or for any related accessory equipment, structure, or facility in the Exclusive Agriculture (A), Limited Agriculture (A-1), Medium Industrial (M-2), Heavy Industrial (M-3), or Natural Resource (NR) Districts, provided that:

A. All drilling installations and operations comply with the requirements of State law and with applicable fire and safety ordinances and regulations of the County of Kern.

B. Drilling shall not be commenced within one hundred (100) feet of any existing residence without the written consent of the owner thereof.

C. Signs shall be limited to directional, warning, and identification signs in connection with oil, gas, or other hydrocarbon drilling and development operations.

D. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation-Forestry (RF) District until an application for plot plan review has been submitted to and approved by the Planning Director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Planning Director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Planning Commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Planning Commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Planning Commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F. All derricks, boilers, and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Planning Director, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Planning Director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Planning Director may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Planning Director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

O. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas

2. Kern County Fire Department

3. Kern County Health Department

4. Regional Water Quality Control Board

5. Air Pollution Control District

6. Kern County Engineering and Survey Services Department

19.98.060 PLOT PLAN REVIEW — CONDITIONAL USE PERMIT — APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Planning Director, which includes the following information:

1. Topography and proposed grading

2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

4. North arrow

F. Narrative description of the proposed development, including:

1. Acreage or square footage of the property

2. Nature of hydrocarbon development activity

3. Description of equipment to be used

4. Distance to all existing buildings

5. Phasing or development schedule

19.98.070 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this chapter may be revoked or modified pursuant to Section 19.102.020 of this title.

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

Lorelei H. Oviatt, AICP, Director
2700 "M" STREET, SUITE 100
BAKERSFIELD, CA 93301-2323
Phone: (661) 862-8600
FAX: (661) 862-8601 TTY Relay 1-800-735-2929
E-Mail: planning@co.kern.ca.us
Web Address: www.co.kern.ca.us/planning

DEVELOPMENT SERVICES AGENCY

Administrative Operations
Engineering, Surveying and Permit Services
Planning and Community Development
Roads

DEVELOPMENT SERVICES AGENCY
Additional Material for

B/S Agenda Date	*Item No.*
12/11/12	21

Clerk of the Board	*S.D.1*
CAO	*S.D.2*
County Counsel	*S.D.3*
Grand Jury	*S.D.4*
Media	*S.D.5*

December 11, 2012

ADDENDUM

Board of Supervisors
Kern County Administrative Center
1115 Truxtun Avenue
Bakersfield, CA 93301

Oil and Gas Exploration and Production Permitting
(Fiscal Impact: None) All S.D.'s

Since the preparation of the Board Letter staff report, the Committee to Protect Farmland and Clean Water provided a letter dated December 7, 2012 with responses and requests for your Board to immediately refer to staff to start the process to amend the zoning ordinance to provide that in the A (Exclusive Agriculture) Zone District a Conditional Use Permit (CUP) would be required for oil well drilling. The letter offers a compromise position that a CUP would only be required if the surface owner and mineral rights owner, if a separate estate, do not have an agreement on how to proceed. This action would provide for Kern County to be lead agency for CEQA for those specific permits and involve a CEQA document, Planning Commission hearing and if appealed a hearing before the Board of Supervisors. The Committee proposes that this amendment be completed with a Mitigated Negative Declaration within 120 days of your referral. The letter also contains other assertions and representations that require clarification by staff for your Board's complete information.

The Committee is incorrect that such a change would only affect land outside the established boundaries of the oil fields and that as asserted on Page 1 and 2 "Natural Resource areas like Taft Midway, Kern River, Belridge, Elk Hills, etc., are <u>not</u> part of our proposed CUP and would not be affected." The Committee appears to believe that only agricultural land designated as Prime is designated in the zoning ordinance as A (Exclusive Agriculture). That is incorrect. In fact these established oil fields would be affected as 70% of the oil fields are zoned A (Exclusive Agriculture) with the rest being zoned A-1 (Limited Agriculture) which is inconsistent with the General Plan and must be rezoned to A during the next General Plan update.

Conditional Use permits have been required in other zones such as Residential (R-1, R-2, R-3 E) and Commercial zones (CO, C-1, C-2) since the beginning of zoning. Since 1957 the county has issued three Conditional Use permits in the residential zones for drilling and five Conditional Use Permits for Class II injection wells that were not associated with an oil

field operation. Staff notes the contrast with the fact that DOGGR averages over 1900 permits a year for oil field wells and injection wells in Kern County. The scope of the request, to add a Conditional Use Permit process, needs to be carefully considered in light of the directive from your Board to streamline process whenever possible.

Finally, Staff notes that the Committee appears to believe that meetings have been conducted between DOGGR, Oil and Gas Production representatives and the Planning Director that they have been excluded from. There have been no such meetings. The Planning Director is in discussions with DOGGR, agency to agency, first due to the lawsuit filed by the Sierra Club and then at the direction of your Board to understand the specific issues.

The Committee has raised the issue of "home rule' as mandating local control. For background the Home Rule resolution adopted by the Kern County Board of Supervisors in 1994 is attached. The Planning and Community Development Department is designated the Home Rule Coordinator and monitors State and Federal regulations to ensure they are not adversely affecting the businesses, environment and property of Kern County residents. The Committee is correct that decisions by DOGGR have adversely impacted the property of Kern County owners and it is appropriate for your Board to consider methods to ensure those protections. This needs to be done in conjunction with ensuring that regulations and permitting are coordinated and provide for economic stability for our largest employers; Oil and Gas Companies and Agriculture which produced a combined $ 32.9 billion of property tax revenue last year.

Your Board has indicated you wanted to be involved in Oil/Gas permitting and be a Lead Agency for a CEQA review of that activity. Staff is working on the details of such a proposal that would involve amending Chapter 19.98 Oil and Gas Production to include more development standards for such operations and that can include solutions for surface and mineral rights disagreements such as those already included in the Land Division Ordinance. Such a solution could include an appeal right to your Board. The amendment of the zoning ordinance is a project under CEQA and does require environmental review. Such a review could provide CEQA streamlining for the oil/gas activities, extensive development standards and requirements to address surface owners' issues and environmental mitigation. Given the size and scope of the oil activities it should not be done in a piecemeal fashion but comprehensively considered.

Your board has consistently sent the message that our zoning regulations need to be streamlined when possible, that what other counties do is not the standard if it constrains business and that economic growth needs to be balanced with environmental protection. Last year, your board removed the CUP requirement for solar projects that provide on-site power. This was a request of the agricultural industry and has provided for new growth in that sector.

The CUP's cited for agriculture are very limited and very specific and many other very intensive industrial uses such as poultry farms in specific areas of the county, animal products processing, fruit, vegetable and plant products cold storage, packing, canning and

shipping are all allowed with minimal development standards and no CUP. The issues raised are important and need to be addressed through a streamlined process, formulated through a public process, reviewed under CEQA and one that serves to enhance economic development not step back into a "California solution", i.e. lengthy public process on each well.

Staff requests direction and a continuance so that the very productive conversations with DOGGR, the Committee, other agricultural interests, and the Oil and Gas companies can be completed and a pathway provided to your Board in January, 2013.

Therefore IT IS RECOMMENDED that your Board 1) receive and file this report 2) provide direction and 3) continue to January 22, 2013.

Sincerely,

LORELEI H OVIATT, AICP, Director
Kern County Planning and Community Development Department

LHO:am

I:\WP\MRG\ADM\JVB\BOARD.LTR\ADDENDUM oil and gas permitting brd ltr dec. 11, 2012.docx

cc County Administrative Officer
County Counsel
Committee to Protect Farmland and Clean Water
Western States Petroleum Association
California Independent Petroleum Association
Independent Oil Producers Association
Kern County Farm Bureau
California Department of Oil, Gas and Geothermal
Development Services Agency
Grand Jury

BEFORE THE BOARD OF SUPERVISORS

COUNTY OF KERN, STATE OF CALIFORNIA

In the matter of:

Resolution No. 94-664

RESOLUTION TO PROTECT HOME RULE AND ECONOMIC STABILITY OF THE COUNTY OF KERN AND PRIVATE PROPERTY RIGHTS OF ITS CITIZENS FROM ADVERSE ACTIONS BY FEDERAL AND STATE AGENCIES

Reference No. 9412079 (8887)

I, SUE DAVIS, Clerk of the Board of Supervisors of the County of Kern, State of California, hereby certify that the following resolution, on motion of Supervisor Shell, **seconded by Supervisor** Peterson, **was duly and regularly adopted by the Board of Supervisors of the County of Kern at an official meeting thereof on the** 6th **day of** December, **1994, by the following vote and that a copy of the resolution has been delivered to the Chairman of the Board of Supervisors.**

AYES: ASHBURN, AUSTIN, LARWOOD, PETERSON, SHELL

NOES: NONE

ABSENT: NONE

SUE DAVIS
Clerk of the Board of Supervisors
County of Kern, State of California

Nancy E. Cody
Deputy Clerk

BOARD OF SUPERVISORS KERN COUNTY, CAL

RESOLUTION

Section 1. WHEREAS:

(a) The Board of Supervisors and citizens of the County of Kern are concerned in the extreme about the adverse impacts on the economy, private property rights, resources, and land use within the County arising from certain regulatory and administrative practices by federal and state agencies in recent years; and

(b) Federal and state agencies have a legal and enforceable duty to observe the limitations placed on such agencies by the U.S. and California constitutions, including but not limited to, the taking of private property and private property interests for public use without just compensation in violation of the Fifth and Fourteenth Amendments of the U.S. Constitution, and the violation of the rights, privileges, and protections guaranteed to the citizens of Kern County by the U.S. Constitution and the federal and state Civil Rights Acts; and

(c) Federal and state agencies before taking certain governmental actions are required by law to comply fully with federal and state regulations that are promulgated to protect the due process rights, private property rights, economy, resources, and land use decisions of the County and its citizens; and

(d) In order to protect the due process rights, private property rights, economy, resources and economic stability of the County of Kern and it citizens, it is critical that federal and state agencies recognize and address the effects of any actions proposed within the County or concerning the land, private or public, within the County; and

(e) Under and by current law, such coordination and consideration of the County's interests and those of its citizens and property owners is required by the Federal Endangered Species Act of 1973, the National Environmental Protection Act, the National Forest Management Act, the Intergovernmental Cooperation Act, the Federal Land Policy and Management Act, the Federal Administrative Procedures Act, the California Endangered Species Act, State of California Public Resources Code, the California Environmental Quality Act, and numerous other federal and state statutes and administrative procedures; and

(f) There is serious concern among the citizens of the County that, in the past, the legally required process of notification, referral, and coordination of activities described above was not consistently followed by state and federal agencies, and that this disregard for due process and local citizen interests has resulted in federal and state action within the County that has been detrimental to the economic stability, private property interests, business activity, resources, and environment of the County of Kern and its citizens.

Section 2. NOW, THEREFORE, IT IS HEREBY RESOLVED by the Board of Supervisors of the County of Kern, State of California, as follows:

1. Federal and state agencies are herewith notified that the County of Kern and its citizens expect and require that federal and state officers and employees observe the limitations of the U.S. and California constitutions on governmental actions and that federal and state officers and employees follow the laws and regulations governing their agencies that guarantee to the citizens and property owners of Kern County due process, economic stability, public health, safety, local land use, and conservation of natural resources and the environment of the County of Kern, including its agricultural industry, oil industry, livestock grazing, water resources, mining of gold and other mineral resources, and outdoor recreation in scenic natural settings.

2. Federal and state agencies shall inform the County of Kern, or its designee(s), of all pending, contemplated or proposed actions affecting local communities, citizens, or affecting County policy, and shall, if requested by the County, coordinate the planning and implementation of those actions with the County or its designee(s). Such

notification shall include a detailed description of the proposed action, plan, procedure, rule, guideline, or amendment sufficient to fully inform lay persons of its intent and effects on the resources, environment, private property interests, and economic stability of the County of Kern.

3. The Kern County Board of Supervisors shall be consulted in accordance with the laws and regulations of the State of California and the United States regarding any pending, contemplated or proposed actions affecting local communities and citizens of the County.

4. All federal and state agencies shall, to the fullest extent permissible by law, comply with all applicable policies and procedures issued by the County of Kern.

5. When required by law or when requested by the County of Kern, all federal and state agencies proposing actions that may impact citizens of the County of Kern shall prepare and submit in writing, and in a timely manner as soon as is reasonable, report(s) on the purposes, objectives and estimated impacts of such actions, including environmental, health, safety, private property, and economic impacts, to the County of Kern and its citizens. Those reports shall be provided to the County of Kern for review and coordination with sufficient lead time for the County to prepare a meaningful response for consideration by the federal or state agency.

6. Before federal and state agencies take or adversely affect private property interests or alter land use(s), environmental review of the proposed action shall be conducted by the lead agency, and mitigation measures adopted in accordance with policies, practices, and procedures applicable to the proposed action and in accordance with all applicable federal, state, and local laws. Impact studies shall, as needed, address the effects on community and economic resources, the environment, public health, safety and welfare, private property, grazing rights, mining rights, flood prone areas and access and any other relevant impacts.

7. For the purpose of this Resolution, each federal and state agency shall, unless specifically authorized otherwise, give the required notice(s) to the County of Kern and the Board of Supervisors via certified mail as follows:

Clerk of the Kern County Board of Supervisors
1115 Truxtun Avenue, 5th Floor
Bakersfield, California 93301

8. Not less than 5 (five) complete copies of the written documents supporting the proposed action shall be provided to the Clerk of the Board of Supervisors at the above-referenced address in order that members of the Board of Supervisors, County staff, and the public shall have an opportunity to review and consider the documents.

9. Copies of these documents shall also be provided by the proposing agency for public review at the following location:

Resource Management Agency
2700 "M" Street, Suite 350
Bakersfield, California 93301

10. Notification of the availability of related documents shall be available for the minimum time set forth by the federal and state statute for such review or, if none is established by law, for a period of not less than 45 days prior to the proposed date of action, adoption or approval. This time is necessary to ensure adequate local opportunity for consideration and response.

11. Upon receipt of such notification and documents, the Clerk of the Board shall list the notification and related materials on the next Board of Supervisors public agenda correspondence list. This list shall be available at the Clerk of the Board's office, 1115 Truxtun Avenue, 5th Floor, Bakersfield, California, 93301.

12. Any citizen or group claiming to be affected by any pending, contemplated, or proposed action of any federal or state agency where a decision or comment upon such action is within the subject matter jurisdiction of the Board of Supervisors is encouraged to present relevant information to the Board. The Board shall consider such information and, where appropriate, shall convey such information to the particular federal or state agency for consideration as an official statement(s) of the County of Kern.

13. The Board of Supervisors may designate one or more members of its staff, and one or more citizens, to receive, review, and comment upon any pending, contemplated, or proposed action of any federal or state agency, or any related information and may request that such designee(s) report back to the Board.

14. If any part of this Resolution shall be held void by a court of competent jurisdiction, such part shall be deemed severable, and the invalidity thereof shall not affect the remaining parts of this Resolution.

15. The Clerk of this Board shall cause a copy of this Resolution to be forwarded to the following:

U.S. Dept. of Fish and Wildlife
U.S. Dept. of Agriculture, Forest Service
U.S. Dept. of Interior, Bureau of Land Management
California Dept. of Fish and Game
County Counsel
County Administrative Office
Resource Management Agency

And be it further resolved that copies of this Resolution shall be distributed to all Members of the Legislature, the Congress, all California Counties, and Kern County Lobbyists.

BCB:gm/bcblit
rshomrul
94.1010

GRIMMWAY FARMS

A family of *Growing* companies.

December 10, 2012

Board of Supervisors
1115 Truxtun Avenue
Bakersfield, Ca 93301

Re: Oil & Gas Exploration and Production Permitting
County Staff Report Dated December 11, 2012

To Board of Supervisors,

Please accept this letter as our support of Staff's Recommendation to continue to January 22, 2013 the Oil & Gas Exploration and Production Permitting process.

We would also request that as staff receives additional information such as studies, data and letters that we be provided copies. We would like to be informed as information is received so that we can meaningfully participate with the County, Stakeholders, and the Committee to Protect Farmland and Clean Water.

We would also ask to be included in all future stakeholder meetings. We are committed to work with staff and all stakeholders to come up with a mutually agreed upon solution or process.

Thank you for allowing us to submit this letter of support and we look forward to working together for the betterment of our community.

Sincerely,

Jeff Meger
President

Jeff Huckaby
Executive Vice President

Barbara Grimm
Owner/Director

P.O. 81498 • Bakersfield, CA 93380-1498
tel: (661) 854-6200 • fax: (661) 854-6209
www.grimmway.com

Bolthouse PROPERTIES, LLC
2000 Oak Street, Suite 250 • Bakersfield, CA 93301
Ph: (661) 323-4005 • Fax: (661) 323-4006
www.BolthouseProperties.com

December 10, 2012

KERN COUNTY BOARD OF SUPERVISORS

Re: **Oil and Gas Exploration and Production Permitting**
County Planning Staff Report dated December 11, 2012

To Board of Supervisors:

This letter is submitted in support of Staff's Recommendation to continue the above-mentioned matter to the January 22, 2013 Board meeting.

As a concerned member of Kern County's agricultural community, we are striving to learn more about the issues and matters related to the coexistence of both the agriculture and oil & gas industries. We request that staff do everything they can to completely study the issues and receive input from all of the affected stakeholders. Bolthouse welcomes the opportunity to participate in this effort and is eager to join all those involved to obtain a better understanding of the issues before us.

Bolthouse is committed to working with all those involved to obtain the best possible solutions for both industries. We look forward to our continued involvement in this process and ask that we be included in all future correspondence and meetings. We appreciate this opportunity to offer comment.

Sincerely,

STEPHAN J. DeBRANCH
Vice-President of Development

SJD:jh

12 DEC 10 PM 2:38

FILE ... CLERK OF THE BD. OF SUPERVISORS
BY_____ DEPUTY

A family of *Growing* companies.™

Received by Clerk of the Board
Additional Material for
Board Agenda Date of: 12-11-12 Item No. Am 21

SD 1	CAO	
SD 2	County Counsel	
SD 3	Planning	
SD 4	DSA	
SD 5		

(Distributed via e-mail)

December 10, 2012

Board of Supervisors
1115 Truxtun Avenue
Bakersfield, Ca 93301

Re: Oil & Gas Exploration and Production Permitting
County Staff Report Dated December 11, 2012

To Board of Supervisors,

Please accept this letter as our support of Staff's Recommendation to continue to January 22, 2013 the Oil & Gas Exploration and Production Permitting process.

We would also request that as staff receives additional information such as studies, data and letters that we be provided copies. We would like to be informed as information is received so that we can meaningfully participate with the County, Stakeholders, and the Committee to Protect Farmland and Clean Water.

We would also ask to be included in all future stakeholder meetings. We are committed to work with staff and all stakeholders to come up with a mutually agreed upon solution or process.

Thank you for allowing us to submit this letter of support and we look forward to working together for the betterment of our community.

Sincerely,

Jeff Meger
President

Jeff Huckaby
Executive Vice President

Barbara Grimm
Owner/Director

P.O. 81498 • Bakersfield, CA 93380-1498
tel: (661) 854-6200 • fax: (661) 854-6209
www.grimmway.com

The Committee to Protect Farmland and Clean Water
29341 Kimberlina Road
P.O. Box 1200
Wasco, CA 93280
Tel: (661) 587-2250 Fax: (661) 587-2254

December 10, 2012

Received by Clerk of the Board
Additional Material for
Board Agenda Date of: 12-11-12 Item No. 21 AM
SD 1 ✓ CAO ✓
SD 2 ✓ County Counsel ✓
SD 3 ✓ Planning ✓
SD 4 ✓
SD 5 ✓

Via E-Mail and Hand Delivery

(Distributed via e-mail)

Jon McQuiston
Board of Supervisors
1115 Truxton Avenue, 5th Floor
Bakersfield, CA 93301

Re: December 11, 2012, 9:00 am Meeting for Local Control

Dear Supervisor McQuiston,

As a member of the Committee to Protect Prime Farmland and Clean Water, my family and I personally would like to reach out and ask for your support this Tuesday at the Board of Supervisor's meeting for a positive vote to bring back local control over permitting of oil and gas drilling on our prime farmland. For generations, farm families have worked the ground they bought and paid for. We recognize the oil industry has certain rights to produce their mineral interest and we would like to work closely with them to allow both of our interests to co-exist and prosper. However, changes to the status are necessary in order to create a climate for a better relationship to take place on the surface.

I am passionate about this issue because as a third generation farmer in this County, we have worked long and hard and are very proud of the contributions Ag has made to provide food, fiber and jobs for this Community, State and Country. Please be assured this is not about one disgruntled land owner fighting against Big Oil. Our committee and its supporters today are made up of 59 farming entities and represent over 100,000 acres of prime farm ground within the County. These numbers are growing by the day, which is an indication that there are many concerned about this issue.

This issue has festered too long and is causing divisiveness among two of our most vital economic engines – Oil and Ag. It is time to update a policy made many years ago, and make that policy address the current day situation.

We believe the State Department of Oil and Gas (DOGGR) have let our County down by not providing proper oversight with respect to allowing permits for drilling in our County. This practice has left all of us in our community vulnerable to many unintended consequences beyond our control. It is not only putting our prime farmland at risk, but our groundwater supply as well.

I would like to thank you for your long and dedicated service to our community. As a member of the Kern County Board of Supervisors, you have been a trusted advocate of many issues that were important to me and other constituents in your District. As you prepare to leave office please consider as one of the last votes you make to allow us to control our own future and lay the ground work for our community to thrive and prosper.

Sincerely,

Keith Gardiner
Committee to Protect Prime Farmland and Clean Water

12 DEC 10 AM 9:05

FILE ... CLERK OF
THE BD. OF SUPERVISORS
BY_____ DEPUTY

The Committee to Protect Farmland and Clean Water

29341 Kimberlina Road
P.O. Box 1200
Wasco, CA 93280
Tel: 661-587-2250; Fax: 661-587-2254

December 7, 2012

Received by Clerk of the Board
Additional Material for
Board Agenda Date of: 12-11-12 Item No. AM 21
SD 1 ✓ CAO ✓
SD 2 ✓ County Counsel ✓
SD 3 ✓ Planning
SD 4 ✓ OSA
SD 5 ✓

(Distributed via e-mail)

VIA E-MAIL AND HAND DELIVERY

Jon McQuiston
Zack Scrivner
Mike Maggard
Ray Watson
Karen Goh
BOARD OF SUPERVISORS
1115 Truxtun Avenue, 5th Floor
Bakersfield, CA 93301

Re: December 11, 2012, 9:00 a.m. Meeting to Make Kern County the Lead Agency in Exclusively Agricultural Zoned Districts

Members of the Board:

Several Supervisors have asked our Committee to put in writing exactly what we wish to accomplish at the December 11, 2012 meeting and to respond to any statements made by staff after the public presentation was closed at the November 13 meeting.

We believe the best way to accomplish the request of the Board is to first lay out exactly what needs to be done, how it needs to be done and why it needs to be done through a series of questions and answers, the questions being those presented by various staff and legislators to our proposal.

The proposal we are putting before the Board of Supervisors on December 11 is a compromise tailored only to protect the interests of our exclusive agricultural district. We have limited this request to bring back the lead agency to exclusively agricultural districts because it has the least impact on oil operations and serves the purposes of our committee.

We have received comments from some oil interests that if we are going to bring back the lead agency, it should be in all districts, not just exclusively agricultural districts. That is not our proposal but one the Board could take under consideration, if you choose, by amending the zoning code to require a conditional use permit on all oil and gas activities. Our Committee believes that would be an overkill and detrimental to the economic welfare of our community, and we are not, therefore, proposing such action. We are not asking for a CUP in any of the established oil fields outside of the exclusive agricultural district. Natural resource areas like

Taft Midway, Kern River, Belridge, Elk Hills, etc. are not part of our proposed CUP and would not be affected.

We insert and attach herewith a copy of Chapter 19.98 of the Kern County zoning ordinance concerning oil and gas production (Exhibit "A"). You will note that under section 19.98.020, Unrestricted Drilling, all that needs to be done to bring the lead agency back to Kern County in exclusive agricultural zoned districts is to strike the words "exclusive agriculture (a)" as we have done on the enclosed sample. With that minor modification to the zoning law and conforming it to the exclusive agricultural section, a conditional use permit would be required in order to drill and put in auxiliary operations in exclusive agricultural areas.

By making these very simple changes to the land use law of the County of Kern, local control, also known as "home rule," is brought back to Kern County simply and swiftly. We would recommend that the County provide a provision in the ordinance where a conditional use permit is not necessary in an exclusively agricultural district if the surface owner signs a waiver of the conditional use permit and the applicant or operator agrees to defend and indemnify the County of Kern should the County be sued based on another lead agency, i.e. DOGGR's, inadequate environmental studies.

This proposal can be turned into a draft ordinance to be presented to the Board of Supervisors at their December 18 meeting whereby the Board can instruct the staff to begin the process for adopting the ordinance with the changes recommended. What we need on December 11 is a vote to instruct the staff to start on the proposal we are submitting and accomplish it as quickly as is feasible.

It was quite clear at the November 13, 2012 Board of Supervisors meeting that the Board directed staff to come back with a proposal and method to bring back local agency status for environmental studies. We quote from the four supervisors who spoke to the matter as follows:

Supervisor Maggard:

> "I'd like to clarify, and have there be no question about, when we meet on the 11th, the issue of our being the lead agency, and can we – I believe we can – be the lead agency, and whatever process follows. Whether that be full blown CEQA, whether that be just a modification of some zoning ordinances, or whatever that is, we can perform the role of being lead agency. So I would like you to lay out for us, on the 11th, what our options and alternatives might be as we move forward as the lead agency, and whether or not that requires any action by us to step into that role."

Supervisor Watson:

> "Thank you Mr. Chairman. Mr. Martin and Supervisor Maggard both touched on a question I had, and that is, why do we need to wait for the oil industry to make a

> decision for us to become the lead agency? And what is required for us to take the simple act of declaring ourselves or making ourselves the lead agency, and how fast can that happen? I know there are a lot of other things that get involved in that process, but I think merely doing what the law intends us to do, and that is to make many of these decisions in Kern County. It seems to me that we have to be able to claim that status and then work from there rather than wait for anybody to make that decision for us and tell us how we are going to do that."
>
> Supervisor McQuiston:
>
> "I think we have to [bring back the lead agency], and I think it would really be great if we were prepared to make some decisions on the 11th in terms of how we might want to structure and implement it and so forth. But in terms of the decision, I think we must move toward local permitting with respect to oil and gas."
>
> Supervisor Goh:
>
> "Thank you Chairman. I just want to reiterate that I do believe it's important for our Board to make these land use decisions and take that responsibility locally."

From the above, we think it is quite clear that the intention of the Board of Supervisors was on December 11 to start the process to bring back lead agency authority to Kern County regarding oil and gas extraction. Our Committee has laid out the above proposal for bringing back lead agency authority over the oil industry in exclusive agricultural zones.

At a meeting held at the P Street County facility on November 26, 2012, facilitated by the Kern County planning director and assistant County counsel, we were asked questions about our proposal, listened to concerns from the oil industry, and at the end of the meeting, asked for any proposals anyone else had. There were none. Since November 26, 2012, we have met with various oil interests and trade groups in person, by phone and in correspondence. Other than wanting to maintain status quo, we have had no proposal from anyone to bring back local decision making through lead agency status regarding the oil industry.

Supervisor Maggard was quite clear at the November 13, 2012 meeting that he expected to see an application for a zone change from the oil industry by December 11 if they were serious about going forward with that application. We have been hearing that the oil industry was going to step up and re-do the zoning laws at their expense for many, many months, and we have seen no such attempt, nor do we expect to.

> Supervisor Maggard to the planning director:
>
> "So if we need to hand them a piece of paper and say, 'Specify what you're asking us to do and sign it and give it back to us,' then let's see if we can get that done by the 11th. Because there should be no confusion about that. Every bit of

> my understanding of what they are asking us when they were here last week was to do that very thing. So I think we should move forward under the full understanding that that's what they ask us. So we'll respond accordingly. So, I guess enough has been said for now, but I don't know how else to, is there any other conceivable purpose that they came to speak to us?"

So what the Board is faced with on December 11 is that our committee has given you a specific, quick, and inexpensive way to bring back lead agency status to Kern County in the least disruptive manner to the current practice as possible. Your Board was not asking at the November 13, 2012 meeting about how to further regulate the oil industry and make extensive zoning changes, but rather you were asking staff to find a pathway to bringing back lead agency status quickly. We have given you that pathway.

At this time, we would like to ask you to consider questions presented in individual meetings by various supervisors and our answers to those questions so that all the supervisors will know how we responded. If there are still further questions, we of course stand ready to answer those. Please call or email me at your convenience.

Question: Staff maintains that the County of Kern never gave up its land use authority over acting as lead agency for environmental studies.

Answer: Staff and we are saying the same thing, but the words used are different. When the County gave up its right to permit through its zoning laws, which are land use laws, it gave up its right to be the lead agency. That is unquestionable. We sincerely doubt that the Board of Supervisors intended the consequences of that land use decision since CEQA had not been enacted. The simple change that our Committee is requesting of the County's land use ordinance will make the County the lead agency for CEQA.

Question: County counsel on November 13 inferred that there was a restriction on the County's ability to study the environmental effects of down hole operations, even if the County had lead agency status. So isn't the County preempted by State law in studying many of the effects of the drilling operation? In other words, should not DOGGR actually be the lead agency for oil and gas operations?

Answer: County counsel is mistaken as to the pre-emption of environmental studies of down hole operations. We attach hereto the Attorney General's opinion that County counsel cited as legal authority for the proposition that down hole operations have been preempted (Exhibit "B"). Attorney General opinions are not law. They are just what they are called: opinions. And when cited by a Court as secondary authority, they become law, not the other way around. The attorney general's opinion cited by County counsel is a 1976 opinion given to various agencies, which has never been cited by any Court. It is not law, but a guideline to agencies. The opinion actually supports the Committee's position that environmental studies, regardless of whether they are above the ground or below the ground have not been pre-empted by the state of California, and a County is the general jurisdiction for studying those issues when it is the lead agency. What the County cannot do that is relegated to the sole authority of

DOGGR is make "field rules" and determine what operators must do to keep from encroaching on other operators' mineral rights and zones of production. The methodology of drilling a well is not something that the County of Kern needs to be concerned with, but the environmental impact of the drilling materials and the effects on the environment are something very much within the realm of study by the County of Kern.

Question: County counsel on November 13 stated that there are very specific protocols on who can be the lead agency under the CEQA guidelines, so are you sure we would be the lead agency even if we passed the ordinance that you request?

Answer: Actually, what I believe Counsel is referring to is Public Resources Code section 15051, which we attach hereto (Exhibit "C"). With the changes our Committee is requesting, the County has general jurisdiction as opposed to specific jurisdiction and would therefore be the lead agency rather than DOGGR.

Further, "field rules" are not CEQA vetted, and the public is not permitted to be involved, including the landowner, and therefore "field rules" do not take the place of the environmental studies done under CEQA.

Question: Isn't adding a conditional use permit another form of duplicative regulation on the oil industry?

Answer: Certainly not. The oil industry is required to have conditional use permits throughout the State of California and even in Kern County. The conditional use permit being added to exclusively agricultural zoning is a matter of bringing the lead agency back to Kern County where it belongs. Failure to require a conditional use permit as we have requested is giving up the County's jurisdiction over that part of its land use laws that enable it to be the lead agency for environmental studies. What seems to be missing is the complete understanding of the word "exclusive" in "exclusive agricultural zoned district." If the oil operators wish to drill in exclusive agricultural zoning areas, they should get a conditional use permit if they cannot get a waiver from the surface owner. They are in agriculture's district. This is not a question of agriculture trying to go into a mineral resources zoned area, but rather one where oil and gas wish to do extensive drilling operations in exclusively agricultural areas.

Question: Isn't the addition of a conditional use permit a way to allow the surface owners to extract money from the oil producers?

Answer: No. If the oil producer believes that the surface owner is asking for inappropriate remuneration, information or accommodation, the oil producer can file for the conditional use permit and the planning commission and/or this Board will decide what the conditions will be, not the two parties. This process goes on constantly with conditional use permits. This Board has recently heard conditional use issues involving many much more minor accommodations, including the recent Talladega Frights Halloween operation. Nothing we are asking is unheard of or uncommon in Kern County or any other county. The environmental studies triggered by a conditional use permit would have to be done even if there was not a

conditional use permit requirement. The difference is they would be done by DOGGR instead of our local planning department, and that is the only difference.

Question: Why not wait for the oil companies to come up with a plan to amend the zoning ordinance as the planning director has suggested?

Answer: We have no problem with the oil companies amending the zoning ordinance, but that does not bring back the lead agency status as quickly as a conditional use permit does. Amending the zoning ordinance without a discretionary permit does not accomplish what this Board told staff they wanted to accomplish. You can add the conditional use permit by ordinance, and the oil industry can work on its zone changes that it wishes the Board to consider. These two actions are separate. We are not going to wait for another 18 months or two years while oil producers "drill by right" on our land.

Question: Why such an urgency to amend the ordinance and bring back the lead agency in exclusively agricultural zoning?

Answer: There is a tremendous oil boom taking place in exclusive agricultural districts because of the Monterey shale find. Every month that goes by, more oil and gas infrastructure is replacing our precious farmland with little or no consideration for making that infrastructure compatible for generations of farming to come. Further, because of DOGGR's lack of expertise and, by its own admission, lack of resources, it has failed to perform its duty as the lead agency which has resulted in litigation costly to the County of Kern. The County of Kern has been sued on one lawsuit brought by the Sierra Club, and since we are not a party of that lawsuit, we do not know what the final outcome will be as far as whether the County of Kern will end up owing attorneys' fees which would be paid out of the general fund. We do know that DOGGR has written a letter admitting that they were improperly giving categorical exemptions and retroactively voided the permit they gave in that case. Attached hereto is the letter from DOGGR to the oil company in question (Exhibit "D"). As it stands, the County does not have a mechanism to be defended and indemnified when they get sued on these actions when DOGGR fails to follow the law. Obviously, when Kern County knows that DOGGR is not following that law and, as a responsible agency, does nothing about it, the County will continue to get sued much more frequently. Why should the County put its taxpayers hard earned money at risk because they cannot be defended and indemnified for actions done by a State agency? It is critical to quickly enact this ordinance, taking back the lead agency in exclusively agricultural zones and requiring a defense and indemnity by the oil producer whether a CUP is required or not.

Question: At the November 13 Board meeting, the planning director stated that it would cost $5 million and take 18 months to process an EIR necessary to change the zoning and permitting laws the way the oil companies want it changed. Why should the County spend $5 million and that time if the oil companies are willing to pick up the tab?

Answer: The planning director's comments to the Board on November 13 had nothing to do with our pathway to the County obtaining the lead agency. Our pathway is a

simple ordinance change to the land use laws and not a revamping of the permitting and zoning laws for oil and gas exploration. If the oil and gas industry wishes to put forth a proposal to add to the zoning laws and regulations that regulate them, then certainly they can do that, but that is not inconsistent with passing the ordinance that we are requesting.

Question: What would the cost and timeline be to do what your Committee is requesting, and who would pay for it?

Answer: We believe the cost would be less than $5,000 and that the ordinance could be drafted, approved and put into effect in less than 120 days. The ordinance can be done with a negative declaration under CEQA since there are no environmental impacts to adding a conditional use permit in the exclusive agricultural zones. The County would pay for the cost of preparing the ordinance, and it could be paid by the general plan surtax, which developers pay into the County fund. This is the same method used by the County to do County instigated specific plans. Our pathway is simple, fair, cost-effective and timely. It also adds an element of protection from lawsuit costs that the County simply does not have at this time.

Question: Shouldn't we wait and more thoroughly consider the unintended consequence of taking back lead agency status?

Answer: No. This has been studied, including the idea of a CUP for almost a year.

The only unintentional consequence argument that is mentioned is that the oil industry will punish agriculture through its friends in Sacramento if this CUP requirement is passed. That is not a reason to give up our rights in Kern County.

More importantly, we may not have thought of every unintended consequence of "home rule," but our clients know the direct consequences to their land and their rights by allowing oil producers to drill with no meaningful environmental safe guards or proper planning.

Question: The oil industry is important to jobs in Kern County. Won't bringing back lead agency status to Kern County threaten jobs and slow down projects?

Answer: "Home rule" does not threaten jobs at all. It is just a decision of who does the environmental review. We respectfully submit that now that the governor has squeezed the oil industry for money to pass Proposition 30 that the oil industry will soon be glad Kern County is the lead agency instead of DOGGR.

Our Committee is not asking to change or add any regulations on drilling in Kern County. All we are asking is to remove the "drill by right" in only exclusively agricultural districts if, and only if, the operator does not have a waiver of objection to the project by the surface owner (farmer) when the operator does not own the surface.

Please note that all we are considering is the exclusive agricultural district zoning. Why is it hard to understand what the words "exclusive agricultural district zoning" means? Exclusive means exclusive. Agriculture is not asking to go into natural resources areas, and we are not asking for a CUP in those established fields. Oil is asking to come into our exclusively zoned area, and we are asking that if they do not have a waiver from the farmer or surface owner that they get a conditional use permit to operate in our exclusive agricultural zones. The oil industry already, in many instances, gets a conditional use permit. This is not something new and it is not something that is going to destroy the industry, but failure to allow agriculture to be a voice in the conditions to put on drilling in exclusive agricultural areas could lead to the destruction of the finest farmland in the world.

If, and only if, the oil company felt the farmer was being unreasonable would they need to file a conditional use permit and bring the matter to the planning commission and this Board. This process leads to a serious meet and confer between the mineral rights owners and the land owners, which will bring about cooperation and communication before drilling. This leads to self-regulation and better planning for the benefit of both industries who have vested interest in one piece of land.

The overwhelming amount of oil production in Kern County is not in "exclusive agricultural districts" and would not be affected by the ordinance in anyway. And then even in an exclusive agricultural district, a CUP would only be required if a waiver could not be obtained from the surface owner. We have been very cognizant of the need to balance the equities without taking a bazooka to the oil industry by purposely limiting the discretionary permit only to exclusive agricultural areas.

Our Committee is not asking for any new zone changes. None. We are not asking for any new regulations. None. What we are asking is for the oil producers on our land to consider the environmental and planning issues in advance along with us and to satisfy the mutual interests of the mineral rights owner and the surface owner, or to go through the CUP process. Without this process, the best agricultural land in the world will disappear before our eyes. It does not have to be that way. If oil producers have to consider the interests of the farmer and work out a plan so that the oil producers can extract their oil with minimum damage to the farms, the process, for the most part, will become cooperative, informative and self-regulating. The County's assistance through the CUP process would only be necessary if and when the farmer and oil could not agree. We believe this would be relatively infrequent, if at all. We have been attempting to have this conversation with the oil industry, and we have met separately and with the planning director. We have asked what proposals they might have that would solve the obvious conflict between some members of agriculture and some members of oil. We have received no meaningful suggestions. The County has received no application to make changes as the oil industry has no intention of paying for any environmental work that would properly protect one of our greatest assets, our prime agricultural land. We have been delayed for almost a year in any progress while wastewater disposal wells, tank farms, exploratory wells, etc. have been placed on our land with no environmental studies. In those cases where environmental studies have been done, they have been inadequate and illegal.

If we do not get this ordinance passed quickly, then the County will be subjected to many more lawsuits because DOGGR does not properly apply the laws of the State of California regarding environmental studies. If our County government refuses to quickly take back lead agency status swiftly, our Committee will have to ask the County for the protection it deserves.

We would now like to respond to the request to continue by the County Planning Department. (See proposed motions, Exhibit "E").

Your planning director has stated that we cannot achieve lead agency by our proposed pathway because of legalities and that our pathway is inequitable. We have asked for the legal authority for why we cannot proceed as we propose.

We will tell you what is inequitable, and that is all of the conditional use permits required of the agriculture industry in an exclusive agricultural zone (see Exhibit "F") while multimillion dollar industrial and environmentally damaging infrastructure does not need any permits to drill away in our agricultural zones. Please take time to review Exhibit "F," CUP requirements for agriculture in its own exclusive zone. To name a few agricultural uses that need a CUP in exclusive agricultural zones – cattle or livestock feed lots, commercial poultry farms, hog farms and ranches, contract harvesting, creameries, dairies, fertilizer manufacture, and wineries.

Our planning director believes it inequitable to require a CUP in exclusive agricultural zones for industry that is industrial in nature, uses very toxic and damaging materials, high pressure pipelines, discharges wastewater, constructs tanks farms, and sends flares burning in agriculture's orchards.

The only proposal to bring back lead agency status was the one submitted by our Committee. Shockingly, the planning director asserts in her request for continuance that our proposal would call for a full EIR with much expense. We attach hereto as Exhibit "G" the CEQA Environmental checklist that is to be used in assessing whether or not a negative declaration is permissible when enacting a discretionary ordinance. The test is whether there is an environmental impact, and there is none. The Board can go through the checklist itself and answer the questions. It is very simple. Who would oppose a negative declaration on a simple amendment to add a CUP?

The planning director next states that "while the proposal [by the Committee to Protect Farmland and Clean Water] provides a focused solution to this one issue, bringing back lead agency authority to the County, it does not address all the issues that have been discussed with staff by DOGGR for permitting and CEQA and provides an unequal negotiating context for the surface and mineral owners."

The Board has never been informed, that we know of, what the discussions between DOGGR, the planning department and the oil industry pertain to. Our organization certainly is excluded. Whatever issues DOGGR and the oil industry have going forward with

permitting and CEQA, that should be entirely separate from the ordinance that our organization is proposing.

The planning director then states that our proposal would "provide unequal negotiation context for the surface and mineral owners." Let us be clear – our organization does not care whether there is a surface objection waiver or not. We put that proposal on the table to limit the amount of work for the County when there was no dispute. That is for the benefit of the oil industry and the County, not the surface owner. We only request a conditional use permit, but we are willing to compromise with the surface waiver language. Further, if the planning director has another type of discretionary permit that would bring back lead agency, please tell us.

The planning director also states:

> "It [the Committee to Protect Farmland and Clean Water] exposes the County to potential significant monetary taking claims if a conditional use permit was denied for the mineral owner and provides the opportunity for significant, costly litigation over the final decision and resulting lengthy delays in oil activities."

This is almost an outrage that it would even be raised and shows that the planning director and assistant County counsel, who raised the same issue at the one and only meeting between the oil industry and ourselves, is merely attempting to block bringing back "home rule." There is absolutely no chance that the conditional use permit would be a taking because it does not ban drilling, it merely puts conditions that this Board would feel necessary on the drilling activities. That is "home rule."

At this very moment, the oil industry is scheming with its money buddies in Sacramento to eliminate this County's "home rule" regarding environmental issues.

The oil industry knows that, your planning director knows that, and if you did not, now you know it.

The oil industry has aided and abetted in, at least, a civil conspiracy to intentionally violate the environmental laws of the State of California and the federal government.

The oil industry in the last session tried to eliminate CEQA for oil drilling, defeated a bill to simply require oil companies to notify DOGGR if they are fracking a well, defeated a bill to tell a homeowner if they were fracking near their home (horizontal fracks can extend up to 9000 feet), etc.

The oil industry has known, as has DOGGR, that they need to do Environmental Impact Reports on their fields and still have failed to do so. Now they want to have the County not take back lead agency status while they consider doing what Aspen Consulting told them was needed a decade ago (see Exhibit "H").

Your planning director is asking for a continuance until late January, 2013, to report back on progress on a pathway that by her own admission would stall taking back the lead agency status into 2015 or move to 2016.

It also gives your planning director and the oil industry a chance to deal with three new Board members in blocking the efforts to bring back lead agency status to Kern County.

What we need from the planning director is a way to bring back lead agency status quickly. That is what you asked for at the last meeting.

Very truly yours,

George F. Martin, on behalf of
The Committee to Protect Farmland
and Clean Water

GFM:jl
Enclosures

EXHIBIT A

CHAPTER 19.98

OIL AND GAS PRODUCTION

SECTIONS:

19.98.010 PURPOSE AND APPLICATION
19.98.020 UNRESTRICTED DRILLING
19.98.030 DRILLING BY MINISTERIAL PERMIT
19.98.040 DRILLING BY CONDITIONAL USE PERMIT
19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS
19.98.060 PLOT PLAN REVIEW — CONDITIONAL USE PERMIT — APPLICATION CONTENTS
19.98.070 PERMIT REVOCATION AND MODIFICATION

19.98.010 PURPOSE AND APPLICATION

The purpose of this chapter is to promote the economic recovery of oil, gas, and other hydrocarbon substances in a manner compatible with surrounding land uses and protection of the public health and safety by establishing reasonable limitations, safeguards, and controls on exploration, drilling, and production of hydrocarbon resources. The procedures and standards contained in this chapter shall apply to all exploration drilling and production activities related to oil, gas, and other hydrocarbon substances carried out in unincorporated Kern County.

19.98.020 UNRESTRICTED DRILLING

No review or permit shall be required for the drilling of any steam injection well, steam drive well, service well, or any well intended for the exploration for or development or production of oil, gas, and other hydrocarbon substances, or for any related accessory equipment, structure, or facility in the ~~Exclusive Agriculture (A~~), Limited Agriculture (A-1), Medium Industrial (M-2), Heavy Industrial (M-3), or Natural Resource (NR) Districts, provided that:

A. All drilling installations and operations comply with the requirements of State law and with applicable fire and safety ordinances and regulations of the County of Kern.

B. Drilling shall not be commenced within one hundred (100) feet of any existing residence without the written consent of the owner thereof.

C. Signs shall be limited to directional, warning, and identification signs in connection with oil, gas, or other hydrocarbon drilling and development operations.

D. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation-Forestry (RF) District until an application for plot plan review has been submitted to and approved by the Planning Director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Planning Director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Planning Commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Planning Commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Planning Commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F. All derricks, boilers, and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Planning Director, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Planning Director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Planning Director may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Planning Director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

O. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas

2. Kern County Fire Department

3. Kern County Health Department

4. Regional Water Quality Control Board

5. Air Pollution Control District

6. Kern County Engineering and Survey Services Department

19.98.060 PLOT PLAN REVIEW — CONDITIONAL USE PERMIT — APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Planning Director, which includes the following information:

1. Topography and proposed grading

2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

4. North arrow

F. Narrative description of the proposed development, including:

1. Acreage or square footage of the property

2. Nature of hydrocarbon development activity

3. Description of equipment to be used

4. Distance to all existing buildings

5. Phasing or development schedule

19.98.070 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this chapter may be revoked or modified pursuant to Section 19.102.020 of this title.

ORDINANCE NO. G-299

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN, STATE OF CALIFORNIA, CONCERNING THE ADOPTION OF AN OFFICIAL LAND USE ZONING ORDINANCE FOR THE COUNTY OF KERN.

The following ordinance, consisting of three (3) sections, was duly and regularly passed and adopted by the Board of Supervisors of the County of Kern, State of California, at a regular meeting of the Board of Supervisors held on the 18th day of June, 1957, by the following vote, to-wit:

FILED

JUN 18 1957

VERA K. GIBSON CLERK OF BOARD OF SUPERVISORS

By W. R. Tebeau Deputy

AYES: Woollomes, Holt, Webb, Hanning

NOES: None

ABSENT: Ming

W. R. Woollomes

Pro Tem Chairman of the Board of Supervisors of the County of Kern, State of Californ

(SEAL)

ATTEST:

Vera K. Gibson

County Clerk and ex-Officio Clerk of the Board of Supervisors.

FILED

JUN 18 1957

VERA K. GIBSON Secretary Board Of Sanitation District

By W. R. Tebeau Assistant

THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN DOES ORDAIN AS FOLLOWS:

Section 1. This ordinance shall take effect and be in full force on and after the 18th day of July, 1957, and prior to the expiration of fifteen (15) days from the passage hereof shall be published once in The Bakersfield Californian, a newspaper of general circulation, published and printed in the County of Kern, State of California, together with the names of the members of the Board of Supervisors voting for and against the same.

Section 2. Chapters 1 and 2 of Division 1, Part 7 of the Ordinance Code of the County of Kern, consisting of Sections 7000 to 7117, both inclusive, are hereby repealed.

Section 3. Chapter 1 is hereby added to Division 1, Part 7 of the Ordinance Code of the County of Kern, commencing with Article 1, Section 7000, to read:

CHAPTER 1

OFFICIAL LAND USE ZONING ORDINANCE FOR THE COUNTY OF KERN

ARTICLE 1

PURPOSE OF CHAPTER

Section 7000. General Purpose. An Official Land Use Zoning Ordinance for the County of Kern is hereby adopted and established to serve the public health, safety, comfort, convenience and general welfare and to provide the economic and social advantages resulting from an orderly planned use of land resources, and to encourage, guide and provide a definite plan for the future growth and development of the County of Kern.

ARTICLE 2

DEFINITIONS

Section 7001. Definitions. This Chapter shall be known as the "Land Use Zoning Ordinance of the County of Kern".

For the purpose of this Chapter certain terms and words are defined as provided in the succeeding sections of this Article.

When not inconsistent with the context, words used in the present tense include the future, words in the singular number include the plural number and words in the plural number include the singular number and the masculine includes the feminine. The word "shall" is always mandatory and not merely directory.

Section 7002. Accessory Use. A use naturally and normally incidental to, subordinate to and devoted exclusively to the main use of the premises.

Section 7003. Accessory Building. A detached subordinate building, the use of which is customarily incidental to that of the main

building or to the main use of the land and which is located on the same lot with the main building or use.

Section 7004. Alley. A public way permanently reserved as a secondary means of access to abutting property.

Section 7005. Apartment Hotel. A building or portion hereof designed for or containing both individual guest rooms or suites of rooms and dwelling units.

Section 7006. Apartment House. A building, or portion thereof, designed for or occupied by three (3) or more families living independently of each other.

Section 7007. Automobile Service Station. A service station which supplies gasoline and Diesel fuel to motor vehicles, and including grease racks or elevators, wash racks or pits, tire repairs, battery servicing and repairing, ignition service, sales of motor vehicle accessories and other customary services for automobiles, but excluding painting, body work and steam cleaning.

Section 7008. Boarding and Rooming House. A building or portion thereof which is used to accommodate, for compensation, five or more boarders or roomers, not including members of the occupant's immediate family who might be occupying such building. The word "compensation" shall include compensation in money, services or other things of value.

Section 7009. Building. Any structure having a roof supported by columns or walls for the housing or enclosure of persons, animals, chattels or property of any kind.

Section 7009.1. Building Height. The vertical distance from the "Grade" to the highest point of the structure.

Section 7009.2. Building Site. The ground area of a building or group of buildings together with all open spaces as required by this Chapter.

Section 7009.3. Bungalow Court. A group of three or more detached one-story, one-family or two-family dwellings located upon a single lot, together with all open spaces as required by this Chapter, but not including motels.

Section 7009.4. Carport. A permanent, roofed structure with not more than two enclosed sides and which is used or intended to be used for automobile shelters and storage.

Section 7009.5. Church. A building, together with its accessory buildings and uses, where persons regularly assemble for worship, and which building, together with its accessory buildings and uses, is maintained and controlled by a religious body organized to sustain public worship.

Section 7009.6. Club. An association of persons, whether incorporated or unincorporated, for some common purpose but not including groups organized primarily to render a service carried on as a business.

Section 7009.7. Dwelling. A building or portion thereof designed for or occupied for residential purposes, including one-family, two-family and multiple dwellings, but not including hotels, motels, boarding and lodging houses and trailers.

Section 7009.8. Dwelling, One Family. A detached building designed for or occupied exclusively by one (1) family.

Section 7009.9. Dwelling, Two-Family. A detached building designed for or occupied exclusively by two (2) families living independently of each other.

Section 7009.10. Dwelling, Group. A combination or arrangement of dwellings on one (1) building site.

Section 7009.11. Dwelling, Multiple Family. A building, or portion thereof, designed for or occupied by three (3) or more families living independently of each other.

Section 7009.12. Dwelling Unit. One (1) or more rooms in a dwelling, apartment house or apartment hotel designed for or occupied by one (1) family for living or sleeping purposes and having not more than one (1) kitchen.

Section 7009.13. Educational Institution. A college or university giving general academic instruction equivalent to the standards prescribed by the State Board of Education.

Section 7009.14. Family. An individual, or two (2) or more persons related by blood or marriage or legal adoption, or a group of not to exceed five (5) persons (excluding servants) living together as a single house-keeping unit in a dwelling unit.

Section 7009.15. Garage, Private. A building or portion of a building in which motor vehicles used by the occupants or tenants of the main building or buildings of the premises are stored or kept.

Section 7009.16. Garage, Public. A building other than a private garage, used for the care, repair, or equipment of automobiles, or where such vehicles are parked or stored for remuneration, hire or sale.

Section 7009.17. Grade. Grade (ground level) is the average of the finished ground level at the center of all walls of a building. In case walls are parallel to and within five (5) feet of a sidewalk, said ground level shall be measured at the sidewalk.

Section 7009.18. Hog Ranch. Any premise used for the commercial raising of hogs that are fed garbage secured from off the premises.

Section 7009.19. Home Occupation. An occupation carried on by the resident of a dwelling as a secondary use in connection with which there is no person employed, no sounds audible beyond the premises, no display and no advertising, except that one sign, not to exceed two (2) square feet in area, may be attached flat against the wall of a building.

Section 7009.20. Quasi-Home Occupation. An occupation carried on by the occupant of a dwelling as a secondary use in connection with which there is no display or signs; no stock in trade nor commodity sold upon the premises; no person employed; and no mechanical equipment used except such as is necessary for housekeeping purposes.

Section 7009.21. Hospital. Any building or portion thereof used for the accommodations and medical care of sick, injured or infirm persons and including sanitariums.

Section 7009.22. Hotel. A building designed for, or occupied as the more or less temporary abiding place of individuals who are lodged with or without meals in which there are six (6) or more guest rooms, and in which no provision is made for cooking in any individual room or suite.

Section 7009.23. Lot. A parcel of real property with a separate and distinct number of letter as shown on a plat recorded or filed with the Recorder of Kern County, State of California, or a parcel of real property abutting upon at least one (1) public street or private easement and held under separate ownership prior to the effective date of this Chapter.

Section 7009.24. Lot Area. The total horizontal area within the lot lines of a lot.

Section 7009.25. Lot, Corner. A lot situated at the intersection of two (2) or more streets having an angle of intersection of not more than one hundred thirty-five (135) degrees.

Section 7009.26. Lot, Interior. A lot other than a corner lot.

Section 7009.27. Lot, Key. The first lot to the rear of a reversed corner lot whether or not separated by an alley.

Section 7009.28. Lot, Reversed Corner. A corner lot whose side street line is substantially a continuation of the front lot line of the first lot to its rear.

Section 7009.29. Lot, Through. A lot having frontage on two (2) parallel or approximately parallel streets.

Section 7009.30. Lot Line, Front. The property line dividing a lot from a street. On a corner lot only one (1) street line shall be considered as a front line and the shorter street frontage shall be considered the front lot line.

Section 7009.31. Lot Line, Rear. The line opposite the front lot line.

Section 7009.32. Lot Line, Side. Any lot lines other than front lot lines or rear lot lines.

Section 7009.33. Motel. A group of attached or detached buildings containing individual sleeping or living units, designed for or used temporarily by automobile tourists or transients, with garage or parking space conveniently located to each unit, including tourist courts, auto courts, or motor lodges.

Section 7009.34. Non-Conforming Building. A building or structure or portion thereof existing in conflict with the provisions of this Chapter applicable to the zone in which it is situated.

Section 7009.35. Non-Conforming Use. The use of a structure or premises for a purpose which is in conflict with the provisions of this Chapter.

Section 7009.36. Occupied. The word "occupied" includes arranged, designed, built, altered, converted, rented or leased, or intended to be occupied.

Section 7009.37. Person. Any individual, firm, co-partnership, joint adventure, association, club, fraternal organization, corporation, estate, trust, receiver, organization, syndicate, city, county, municipality, district or other political subdivision, or any other group or combination acting as a unit.

Section 7009.38. School, Elementary or High. An institution of learning which offers instruction in the several branches of learning and study required to be taught in the public schools by the Education Code of the State of California. (High Schools include Junior and Senior).

Section 7009.39. Self-Service Laundry. Any establishment for laundering where there is no pick-up or delivery service and no steam or hand laundry of any type.

Section 7009.40. Stable, Private. A detached accessory building for the keeping of one or more horses owned by the occupants of the premises, and not kept for remuneration, hire or sale.

Section 7009.41. Stable, Public. A stable other than a private stable.

Section 7009.42. Stock Yard. An enclosed area where animals

are fed concentrated food prior to shipping to market or slaughtering or where animals are held for resale only.

Section 7009.43. Story. That portion of a building included between the surface of any floor and the surface of the floor next above it, or if there be no floor above it, then the space between such floor and the ceiling next above it.

Section 7009.44. Story, Half. A story with at least two (2) of its opposite sides situated in a sloping roof, the floor area of which does not exceed two-thirds (2/3) of the floor area immediately below it.

Section 7009.45. Street. A public thoroughfare which affords the principal means of access to abutting property.

Section 7009.46. Structure. Anything constructed or erected, which requires location on the ground or attached to something having a location on the ground, but not including fences or walls used as fences less than six (6) feet in height.

Section 7009.47. Trailer, House or Coach. A vehicle without motor power, designed to be drawn by a motor vehicle and to be used for human habitation or for carrying persons and property.

Section 7009.48. Use. The purpose for which land or building is designed, arranged or intended, or for which either is or may be occupied or maintained.

Section 7009.49. Yard. An open space other than a court, on a lot, unoccupied and unobstructed from the ground upward, except as otherwise provided in this Chapter.

Section 7009.50. Yard, Front. A yard extending across the full width of the lot between the front lot line and the nearest line or point of the main building.

Section 7009.51. Yard, Rear. A yard extending across the full width of the lot between the rear lot line and the nearest line or point of the main building.

Section 7009.52. Yard, Side. A yard extending from the front yard to the rear yard between the side lot line and the nearest line

or point of the main building or of accessory buildings attached thereto.

ARTICLE 3

ZONES

Section 7010. Establishment of Zones. In order to classify, regulate, restrict and segregate the uses of land and buildings; to regulate and restrict the height, bulk and construction of buildings; to regulate the area of yards and other open spaces about buildings; and to regulate the density of population, twenty-two (22) classes of land use zones are hereby established to be known as follows:

R-1 One-Family Dwelling Zone

R-2 Two-Family Dwelling Zone

R-3 Limited Multiple-Family Dwelling Zone

R-4 Multiple-Family Dwelling Zone

R-S Suburban Residential Zone

E-1 Estate Zone

E-2 Estate Zone

E-3 Estate Zone

C-O Professional Office Zone

C-1 Neighborhood Commercial Zone

C-2 Commercial Zone

M-1 Limited Manufacturing Zone

M-2 Light Manufacturing Zone

M-3 General Manufacturing Zone

A-1 Light Agricultural Zone

A-2 General Agricultural Zone

R-F Recreational-Forestry Zone

U Unclassified Zone

P Automobile Parking Zone

D Architectural Design Zone

H Airport Approach Height Zone

B Buffer Zone

or point of the main building or of accessory buildings attached thereto.

ARTICLE 3

ZONES

Section 7010. Establishment of Zones. In order to classify, regulate, restrict and segregate the uses of land and buildings; to regulate and restrict the height, bulk and construction of buildings; to regulate the area of yards and other open spaces about buildings; and to regulate the density of population, twenty-two (22) classes of land use zones are hereby established to be known as follows:

R-1 One-Family Dwelling Zone

R-2 Two-Family Dwelling Zone

R-3 Limited Multiple-Family Dwelling Zone

R-4 Multiple-Family Dwelling Zone

R-S Suburban Residential Zone

E-1 Estate Zone

E-2 Estate Zone

E-3 Estate Zone

C-O Professional Office Zone

C-1 Neighborhood Commercial Zone

C-2 Commercial Zone

M-1 Limited Manufacturing Zone

M-2 Light Manufacturing Zone

M-3 General Manufacturing Zone

A-1 Light Agricultural Zone

A-2 General Agricultural Zone

R-F Recreational-Forestry Zone

U Unclassified Zone

P Automobile Parking Zone

D Architectural Design Zone

H Airport Approach Height Zone

B Buffer Zone

Section 7011. Zoning Map. The boundaries of the aforesaid zones are not included in this Chapter but will be shown upon maps hereafter attached and then made a part of this Chapter, said maps being designated as the "Zoning Map", and said maps and all of the notations, references and other information shown thereon shall be as much a part of this Chapter as if the matters and information set forth by said maps were all fully described herein.

Said "Zoning Map",for convenience and identification, may be divided into separate maps. The classification and boundaries of said zones shall be determined, delineated and described by the adoption of said maps. Before the adoption of a map, however, hearings will be held for each area covered by said map as provided in the State Planning Law, Title 7 of the Government Code. Upon such adoption, regulations governing said zones shall become effective. Provided, however, that until such time as maps are prepared, adopted and become effective as herein provided, the following provisions of this Ordinance Code shall continue to apply, to-wit:

Chapter 4 of Division 1 of Part 7, commencing with Section 7350, which Chapter establishes a Highway Zoning Plan;

Chapters 1, 2, 3 and 4 of Division 2, Part 7, commencing with Section 7500, concerning specific zoning regulations;

Chapter 1 of Division 3, Part 7, commencing with Section 7700, establishing Interim Zone Districts;

Chapter 2 of Division 3, Part 7, commencing with Section 7750, concerning zoning plan for territory adjacent to Golden State Highway.

Section 7012. Boundaries of Zones. Where uncertainty exists as to the boundaries of any zone shown on said map, the following rules shall apply:

A. Where such boundaries are indicated as approximately following street and alley lines or lot lines, such lines shall be construed to be such boundaries;

B. In unsubdivided property or where a zone boundary

divides a lot, the location of such boundary, unless the same is indicated by dimensions, shall be determined by use of the scale appearing on the map;

C. In case any uncertainty exists, the Planning Commission shall determine the location of boundaries;

D. Where any public street or alley is officially vacated or abandoned, the regulations applicable to abutting property shall apply to such vacated or abandoned street or alley.

E. Where any private right of way or easement of any railroad, railway, canal, transportation or public utility company is vacated or abandoned, the regulations applicable to abutting property shall apply to such vacated or abandoned property.

Section 7013. Uses Permitted in Zones. Except as hereinafter provided:

A. No building shall be erected, and no existing building shall be moved, altered, added to or enlarged, nor shall any land, building or premises be used, designed or intended to be used for any purpose or in any manner other than a use listed in this Chapter or amendments thereto as permitted in the zones in which such land, building or premises is located.

B. No building shall be erected nor any existing building be moved, reconstructed or structurally altered to exceed in height the limit established by this Chapter or amendments thereto for the zone in which such building is located.

C. No building shall be erected nor shall any existing building be moved, altered, enlarged or rebuilt, nor shall any open spaces surrounding any building be encroached upon or reduced in any manner except in conformity with the building site requirements and the area and yard regulations established by this Chapter or amendments thereto for the zone in which such building is located.

D. No yard or other open space provided about any building for the purpose of complying with the regulations of this Chapter, or amendments thereof, shall be considered as providing a yard or open space for any other building or structure.

ARTICLE 4

R-1 ZONE

Section 7020. R-1 One-Family Dwelling Zone. The regulations set forth in this Article shall apply in the R-1 one-family dwelling zone unless otherwise provided in this Chapter.

Section 7021. Uses Permitted.

A. A one-family dwelling.

B. The accessory buildings and structures necessary to such use located on the same lot or parcel of land, including a private garage, the capacity of which shall not exceed three (3) automobiles. Detached Servants' Living Quarters shall be allowed only on lots having an area of more than seventy-five hundred (7,500) square feet on which there is a dwelling containing not less than two thousand (2,000) square feet.

C. Quasi-home occupations upon the granting of a special permit by the Planning Commission, which permit shall not be granted unless the Commission finds that the proposed quasi-home occupation complies with the definition of this Chapter.

D. Maintaining mail address for commercial, professional and business license purposes only, provided no stock in trade, supplies, professional equipment, apparatus or business equipment are kept on the premises, and provided that no employees or assistants are engaged for said services on the premises, and, except as otherwise provided in this Section, no signs are displayed.

E. One (1) unlighted sign of not to exceed one-half (1/2) square foot in area attached to and parallel with the front wall of the building, and containing only the name and title or occupation of the occupant.

F. One (1) sign of not to exceed four (4) square feet in area advertising the premises for sale, lease or rent, located not nearer than ten (10) feet to adjoining premises, nor nearer than five (5) feet to a street line.

G. One temporary sign of not to exceed six (6) square feet

in area giving the name of the contractors, engineers and architects during construction period.

H. Agricultural and horticultural uses for domestic purposes, including nurseries, greenhouses, orchards or the raising of field crops, tree crops, berry or bush crops, or vegetable or flower gardening.

I. Poultry, rabbits, or similar small fowl and animals raised for food, scientific or fur bearing purposes, provided not more than twelve (12) of any one or combination of such animals may be maintained on one lot. The keeping of such fowl and animals shall conform to all other provisions of law governing same, and no fowl or animals, nor any pen or coop, shall be kept or maintained within thirty (30) feet of any window or door of any residence, dwelling or other building used for human habitation, or within one hundred (100) feet of the front lot line of the lot upon which it is located, or within twenty-five (25) feet of the street side of a corner lot, or within one hundred (100) feet of any public park, school, hospital or similar institution.

J. Where a dwelling exists, prior to the passage of this Chapter, on the rear half of the lot and at least seventy-five (75) feet back of the front lot line, an additional dwelling may be constructed and maintained on the front half of said lot, provided there shall be a minimum distance of twenty (20) feet between said dwellings.

K. A trailer may be used or occupied as a temporary dwelling for a period not to exceed sixty (60) days in any one year period.

L. Oil and gas drilling and production shall be permitted by the Planning Commission if a conditional use permit has been secured from the Planning Commission for such purposes, as provided in Section 7243. Provided, however, that nothing herein shall be construed to require the Planning Commission to issue such permit, except as provided in said Section 7243.

M. Additional uses may be permitted by the Planning Commission according to the provisions of Section 7281 of this Chapter.

Section 7022. Building Height. Two and one-half (2-1/2) stories and not to exceed thirty-five (35) feet.

Section 7023. Front Yard. There shall be a front yard of not less than twenty-five (25) feet, except, where lots comprising forty (40) percent or more of the frontage on one side of a street between intersecting streets are developed with buildings having an average front yard with a variation of not more than ten (10) feet, no building hereafter erected or structurally altered shall project beyond the average front yard line so established. In determining such front yard depth, buildings located more than thirty-five (35) feet from the front property line or buildings facing a side street on a corner lot shall not be counted.

The front yard shall be measured from the front property line except that where there is an official plan line or a future street line the front yard shall be measured from said official plan line or future street line. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the center line of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the center line of the highway shall be required.

Section 7024. Side Yard. There shall be a side yard on each side of a main building of not less than five (5) feet, except that on the street side of corner lots there shall be a side yard of not less than ten (10) feet.

Section 7025. Rear Yard. There shall be a rear yard behind every main building of not less than five (5) feet.

Section 7026. Area Requirements. The minimum lot area shall be six thousand (6,000) square feet per dwelling unit, provided, however, that when a lot has less area than herein required and was recorded at the time of the passage of this Chapter, said lot may be occupied by

not more than one (1) dwelling unit. In no case shall more than forty-five (45) percent of any lot be covered by buildings or structures.

Section 7027. Distance Between Buildings On The Same Lot. There shall be a minimum distance of six (6) feet between a building used for dwelling purposes and an accessory building.

There shall be a minimum distance of six (6) feet between accessory buildings.

ARTICLE 5

R-2 ZONE

Section 7030. R-2 Two-Family Dwelling Zone. The regulations set forth in this Article shall apply in the R-2 two-family dwelling zone unless otherwise provided in this Chapter.

Section 7031. Uses Permitted.

A. Any use permitted in the R-1 zone.

B. A two-family dwelling or two one-family dwellings.

C. The accessory buildings and structures necessary to such use, located on the same lot or parcel of land.

D. Home occupations.

Section 7032. Building Height. Two and one-half (2-1/2) stories and not to exceed thirty-five (35) feet.

Section 7033. Front Yard. There shall be a front yard of not less than twenty-five (25) feet, except, where lots comprising forty (40) per cent or more of the frontage on one (1) side of a street between intersecting streets are developed with buildings having an average front yard with a variation of not more than ten (10) feet, no buildings hereafter erected or structurally altered shall project beyond the average front yard line so established. In determining such front yard depth, buildings located more than thirty-five (35) feet from the front property line or buildings facing a side street on a corner lot shall not be counted.

The front yard shall be measured from the front property line except that where there is an official plan line or a future street line the front yard shall be measured from said official plan

line or future street line. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the center line of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the center line of the highway shall be required.

Section 7034. Side Yard. There shall be a side yard on each side of a main building of not less than five (5) feet, except that on the street side of corner lots there shall be a side yard of not less than ten (10) feet.

Section 7035. Rear Yard. There shall be a rear yard behind every main building of not less than five (5) feet.

Section 7036. Area Requirements. The minimum lot area shall be six thousand (6,000) square feet. The minimum lot area per dwelling unit shall be three thousand (3,000) square feet. Provided, however, that when a lot has less area than herein required and was recorded at the time of the passage of this Chapter, said lot may be occupied by not more than one (1) dwelling unit. In no case shall more than fifty (50) percent of any lot be covered by buildings or structures.

Section 7037. Distance Between Buildings On The Same Lot. There shall be a minimum distance of ten (10) feet between buildings used for dwelling purposes.

There shall be a minimum distance of six (6) feet between a building used for dwelling purposes and an accessory building.

There shall be a minimum distance of six (6) feet between accessory buildings.

ARTICLE 6

R-3 ZONE

Section 7040. R-3 Limited Multiple-Family Dwelling Zone. The regulations set forth in this Article shall apply in the R-3 limited multiple-family dwelling zone unless otherwise provided in this Chapter.

Section 7041. Uses Permitted.

A. Any use permitted in the R-1 and R-2 zones.

B. Three-family dwellings, four-family dwellings, and bungalow courts.

C. The accessory buildings and structures necessary to such use located on the same lot or parcel of land.

Section 7042. Building Height. Two and one-half (2-1/2) stories and not to exceed thirty-five (35) feet.

Section 7043. Front Yard. There shall be a front yard of not less than fifteen (15) feet, except where lots comprising forty (40) percent or more of the frontage on one (1) side of a street between intersecting streets are developed with buildings having an average front yard with a variation of not more than ten (10) feet, no building hereafter erected or structurally altered shall project beyond the average front yard line so established. In determining such front yard depth, buildings located more than thirty-five (35) feet from the front property line or buildings facing a side street on a corner lot shall not be counted.

The front yard shall be measured from the front property line except where there is an official plan line or a future street line the front yard shall be measured from said official plan line or future street line. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the center line of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the center line of the highway shall be required.

Section 7044. Side Yard. There shall be a side yard on each side of a main building of not less than five (5) feet, except that on the street side of corner lots there shall be a side yard of not less than ten (10) feet.

Section 7045. Rear Yard. There shall be a rear yard behind every main building of not less than fifteen (15) feet, provided however, the rear yard may be reduced to five (5) feet if not more than fifty-five (55) percent of the lot is covered by buildings or structures.

Section 7046. Area Requirements. The minimum lot area shall be six thousand (6,000) square feet. The minimum lot area per dwelling unit shall be fifteen hundred (1500) square feet. Provided, however, that when a lot has less area than herein required and was recorded at the time of the passage of this Chapter, said lot may be occupied by not more than one (1) dwelling unit for each fifteen hundred (1500) square feet.

Section 7047. Distance Between Buildings On The Same Lot. There shall be a minimum distance of ten (10) feet between buildings used for dwelling purposes.

There shall be a minimum distance of six (6) feet between a building used for dwelling purposes and an accessory building.

There shall be a minimum distance of six (6) feet between accessory buildings.

ARTICLE 7

R-4 ZONE

Section 7050. R-4 Multiple-Family Dwelling Zone. The regulations set forth in this Article shall apply in the R-4 multiple-family dwelling zone unless otherwise provided in this Chapter.

Section 7051. Uses Permitted.

A. Any use permitted in the R-1, R-2, or R-3 zones.

B. Group dwellings, multiple-family dwellings, apartment houses, churches; schools, elementary or high; day nurseries; nursery schools; boarding and rooming houses; institutions of educational, philanthropic, or eleemosynary nature; lodge halls; and private clubs, except clubs the chief activity of which is a service customarily carried on as a business.

C. The accessory buildings and structures necessary to such use located on the same lot or parcel of land.

Section 7052. Building Height. Four (4) stories and not to exceed forty-five (45) feet.

Section 7053. Front Yard. There shall be a front yard of not less than ten (10) feet, except, where lots comprising forty (40) per

cent or more of the frontage on one (1) side of a street between intersecting streets are developed with buildings having an average front yard with a variation of not more than ten (10) feet, no building hereafter erected or structurally altered shall project beyond the average front yard line so established. In determining such front yard depth, buildings located more than twenty-five (25) feet from the front property line or buildings facing a side street on a corner lot shall not be counted.

The front yard shall be measured from the front property line except that where there is an official plan line or a future street line the front yard shall be measured from said official plan line or future street line. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the centerline of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the centerline of the highway shall be required.

Section 7054. Side Yard. There shall be a side yard on each side of a main building of not less than five (5) feet, except that on the street side of corner lots there shall be a side yard of not less than ten (10) feet.

Section 7055. Rear Yard. There shall be a rear yard behind every main building of not less than fifteen (15) feet, provided however, the rear yard may be reduced to five (5) feet if not more than sixty (60) percent of the lot is covered by buildings or structures.

Section 7056. Area Requirements. The minimum lot area shall be six thousand (6,000) square feet. The minimum lot area per dwelling unit shall be one thousand (1000) square feet. Provided, however, that when a lot has less area than herein required and was recorded at the time of the enactment of this Chapter, said lot may be occupied by not more than one (1) dwelling unit for each one thousand (1,000) square feet.

Section 7057. Distance Between Buildings On The Same Lot. There

shall be a minimum distance of ten (10) feet between buildings used for dwelling purposes.

There shall be a minimum distance of six (6) feet between a building used for dwelling purposes and an accessory building.

There shall be a minimum distance of six (6) feet between accessory buildings.

ARTICLE 8

R-S ZONE

Section 7060. R-S Suburban Residential Zone. All permitted uses and regulations in the R-S zone shall be the same as the R-1 zone, except that the following additional uses are permitted:

A. Breeding, hatching, raising and fattening of poultry, fowl, birds, rabbits, chinchillas, fish, frogs and bees for domestic use.

B. Keeping of horses on lots having an area of one-half (1/2) acre or more, provided that the number of horses on any one lot shall be limited to one horse for every one-quarter (1/4) acre.

The keeping of such fowl and animals shall conform to all other provisions of law governing same, and no fowl or animals, nor any pen, coop, stable, barn or corral shall be kept or maintained within fifty (50) feet of any dwelling or other building used for human habitation, or within one hundred (100) feet of the front lot line of the lot upon which it is located, or within twenty-five (25) feet of the street side of a corner lot, or within one hundred (100) feet of any public park, school, hospital or similar institution. There shall be no killing or dressing of any of such animals or poultry for commercial purposes.

ARTICLE 9

E-1 ZONE

Section 7070. E-1 Estate Zone. All regulations in the E-1 zone shall be the same as in the R-1 zone, except as follows:

Each single family dwelling with its accessory buildings hereafter erected shall be located upon a lot having an area of not less than twelve thousand (12,000) square feet.

ARTICLE 10

E-2 ZONE

Section 7080. E-2 Estate Zone. All regulations in the E-2 zone shall be the same as in the R-1 zone, except as follows:

Each single family dwelling with its accessory buildings hereafter erected shall be located upon a lot having an area of not less than eighteen thousand (18,000) square feet.

ARTICLE 11

E-3 ZONE

Section 7090. E-3 Estate Zone. All regulations in the E-3 zone shall be the same as in the R-1 zone, except as follows:

Each single family dwelling with its accessory buildings hereafter erected shall be located upon a lot having an area of not less than twenty-four thousand (24,000) square feet.

ARTICLE 12

C-O ZONE

Section 7100. C-O Professional Office Zone. The regulations set forth in this Article shall apply in the C-O Professional Office Zone unless otherwise provided in this Chapter.

Section 7101. Uses Permitted.

A. Any use permitted in the R-4 multiple-family zone.

B. Professional, executive and administrative offices, including, but not limited to: accountants, architects, attorneys-at-law, chiropractors, chiropodists, dentists, registered engineers and licensed surveyors, insurance agents, opticians, optometrists, osteopaths, physicians, real estate brokers and surgeons.

C. The accessory buildings and structures necessary to such use located on the same lot or parcel of land.

D. Automobile parking areas when developed as required in Section 7201 if adjacent to a residential zone.

Any exterior sign displayed shall pertain only to a use conducted within the building; shall be attached flat against a wall of the building and parallel with its horizontal dimension and shall

front the principal street, a parking area in the rear or, in the case of a corner building, on that portion of the side street wall within fifty (50) feet of the principal street. In no case shall a sign project above the roof line.

Section 7102. Building Height. Four (4) stories and not to exceed forty-five (45) feet.

Section 7103. Front Yard. There shall be a front yard of not less than ten (10) feet. The front yard shall be measured from the front property line except that where there is an official plan line or a future street line the front yard shall be measured from said official plan line or future street line. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the centerline of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the centerline of the highway shall be required.

Section 7104. Side Yard. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7105. Rear Yard. There shall be behind every building a rear yard having a minimum depth of twenty (20) feet.

Section 7106. Area Requirements. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7107. Distance Between Buildings On The Same Lot. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7108. Parking Requirements. For all professional offices, not less than the same area of parking space shall be provided on the same site as there is floor space in the office building.

ARTICLE 13

C-1 ZONE

Section 7110. C-1 Neighborhood Commercial Zone. The regulations set forth in this Article shall apply in the C-1 neighborhood commercial zone unless otherwise provided in this Chapter.

Section 7111. Uses Permitted.

A. Any use permitted in the R-1, R-2, R-3, R-4 and C-O zones.

B. Any of the following uses:

1. Apartment hotels
2. Automobile parking areas when developed as required in Section 7201 if adjacent to a residential zone
3. Automobile service stations, provided the station does not have more than two service bays and is located on a site not greater than 15,000 square feet in area
4. Banks
5. Barber shops
6. Beauty shops
7. Book stores
8. Confectionery stores
9. Dress or millinery shops
10. Drug stores
11. Dry cleaning, pressing and laundry agencies
12. Dry goods or notions stores
13. Electric appliance stores and repairs
14. Florist shops
15. Grocery, fruit and vegetable stores
16. Hardware stores
17. Ice storage houses of not more than five (5) ton capacity
18. Jewelry stores
19. Meat markets or delicatessen stores
20. Offices, business, professional or public utility
21. Pet food stores

22. Photographic shops

23. Restaurants, tea rooms or cafes where all customers are served at a table or counter (excluding dancing, entertainment and sale of intoxicating liquors)

24. Self-service laundries

25. Shoe stores or shoe repair shops

26. Stationery stores

27. Tailor, clothing or wearing apparel shops

The above specified stores, shops, or businesses shall be retail establishments selling new merchandise exclusively and shall be permitted only under the following conditions:

a. Such stores, shops or businesses except automobile service stations shall be conducted entirely within an enclosed building.

b. Products made incidental to a permitted use shall be sold at retail on the premises.

c. All public entrances to such stores, shops or businesses shall be from the principal street upon which the property abuts or within fifty (50) feet thereof, except that a rear or side entrance from the building to a parking area may be provided.

d. Except as hereinafter provided, any exterior sign displayed shall pertain only to a use conducted on the premises, shall not exceed a height of twenty-four (24) feet above the ground level, shall not project into a street or alley more than twelve (12) inches beyond any property line, and any sign projecting beyond a property line shall have a clearance of not less than ten (10) feet between the bottom of the sign and the ground level.

C. The accessory buildings and structures necessary to such use located on the same lot or parcel of land, including a storage garage for the exclusive use of the patrons and employees of the above stores or businesses.

Section 7112. Building Height. Four (4) stories and not to exceed fifty (50) feet.

Section 7113. Front Yard. All buildings shall be located not nearer than forty (40) feet from the centerline of a street. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the centerline of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the centerline of the highway shall be required.

All buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7114. Side Yard. All buildings used exclusively for dwelling purposes shall comply with the R-4 zone.

Section 7115. Rear Yard. There shall be behind every building a rear yard having a minimum depth of twenty (20) feet.

Section 7116. Area Requirements. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7117. Distance Between Buildings On The Same Lot. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

ARTICLE 14

C-2 ZONE

Section 7120. C-2 Commercial Zone. The regulations set forth in this Article shall apply in the C-2 commercial zone unless otherwise provided in this Chapter.

Section 7121. Uses Permitted.

A. Any use permitted in the R-1, R-2, R-3, R-4, C-O and C-1 zones.

B. Any of the following uses:

1. Retail or wholesale stores or businesses not involving any kind of manufacture, processing or treatment of products other than that which is

clearly incidental to the retail business conducted on the premises and provided that no more than five (5) persons are employed, and not more than fifty (50) percent of the floor area of the building is used, in the manufacture, processing or treatment of products, and that such operations or products are not objectionable due to noise, odor, dust, smoke, vibration, or other similar causes.

2. Advertising sign boards or structures
3. Automobile parking areas
4. Automobile service stations
5. Bakeries, employing not more than ten (10) persons on premises
6. Baths, Turkish and the like
7. Billiard or pool halls or bowling alleys
8. Blueprinting and photostating shops
9. Bird stores or pet shops
10. Churches, temporary revivals
11. Cleaning and pressing establishments using non-inflammable and non-explosive cleaning fluid
12. Conservatories of music
13. Department stores
14. Electric distributing substations and gas distribution regulating and metering stations
15. Furniture stores
16. Furniture warehouses for storing personal household goods
17. Garages, public
18. Hospitals or sanitariums (except animal hospitals, clinics, hospitals or sanitariums for contagious, mental or drug or liquor addict cases)
19. Hotels
20. Interior decorating shops
21. Liquor stores

22. Medical laboratories

23. Mortuaries or funeral parlors

24. Motels, auto courts and tourist courts

25. Music and vocal instructions

26. Music stores

27. Nurseries, flowers or plants

28. Plumbing and sheet metal shops

29. Printing, lithographing or publishing establishments

30. Public parking areas

31. Radio and television stores

32. Refrigerated lockers

33. Restaurants, tea rooms or cafes

34. Skating rinks

35. Studios

36. Taxidermists

37. Telephone exchanges

38. Theatres or auditoriums (except drive-in theatres)

39. Trade schools, not objectionable due to noise, odor, dust, smoke, vibration, or similar causes

40. Upholstery shops

41. Used car sales areas, provided (a) that no repair or reconditioning of automobiles shall be permitted, except when enclosed in a building and (b) that such area is located and developed as required in Section 7201 of this Chapter

42. Wedding Chapels

C. The accessory buildings and structures necessary to such uses located on the same lot or parcel of land.

Section 7122. Building Height. Six (6) stories and not to exceed seventy-five (75) feet unless the building sets back from each street, alley and lot line at least one (1) foot for each three (3) feet of height above six (6) stories or seventy-five (75) feet. No building shall exceed one hundred and thirty-five (135) feet or ten (10) stories.

Section 7123. Front Yard. All buildings shall be located not nearer than forty (40) feet from the centerline of a street. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the centerline of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, minimum setback of fifty-five (55) feet from the centerline of the highway shall be required.

All buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7124. Side Yard. All buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7125. Rear Yard. There shall be behind every building a rear yard having a minimum depth of twenty (20) feet.

Section 7126. Area Requirements. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7127. Distance Between Buildings On The Same Lot. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

ARTICLE 15

M-1 ZONE

Section 7130. M-1 Limited Manufacturing Zone. The regulations set forth in this Article shall apply in the M-1 Limited Manufacturing Zone unless otherwise provided in this Chapter.

Section 7131. Uses Permitted.

A. Any use permitted in the C-2 zone, provided, however, that no building shall be used as a dwelling except accessory buildings which are incidental to the use of the land.

B. Any of the following uses:

1. Any kind of manufacture, compounding, assembling, processing or treatment of products other than any which produces, causes or emits any fumes, odor,

dust, smoke, gas, noise or vibrations which are or may be detrimental to properties in the neighborhood or to the welfare of the occupants thereof and which are conducted wholly within a building

2. Assaying
3. Animal hospitals, kennels and veterinaries
4. Frozen food lockers
5. Wholesale businesses, storage buildings and warehouses
6. The following uses, if wholly enclosed within a solid masonry wall or fence as approved by the Planning Commission, not less than six (6) feet in height, and providing that such uses are conducted so that no material or equipment is visible to a person walking or riding on adjoining streets or property:
   a. Building material storage yards
   b. Contractors' plants or storage yards
   c. Draying, freighting, or trucking yards or terminals
   d. Feed and fuel yards
   e. Lumber yards
   f. Petroleum products storage
   g. Stone monument works
   h. Truck parking or storage

C. The accessory buildings and structures necessary to such use located on the same lot or parcel of land.

D. Oil and gas drilling and production shall be permitted by the Planning Commission according to the provisions of Section 7244 of this Chapter.

E. Additional uses may be permitted by the Planning Commission according to the provisions of Section 7281 and Section 7282 of this Chapter.

Section 7132. Building Height. Two (2) stories and not to exceed thirty-five (35) feet.

Section 7133. Front Yard. All buildings shall be located not nearer than forty (40) feet from the centerline of a street. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the centerline of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the centerline of the highway shall be required.

All buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7134. Side Yard. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7135. Rear Yard. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7136. Area Requirements. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7137. Distance Between Buildings On The Same Lot. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7138. Parking Requirements. For all buildings, not less than the same area of parking space shall be provided on the same site as there is floor space in the building.

ARTICLE 16

M-2 ZONE

Section 7140. M-2 Light Manufacturing Zone. The regulations set forth in this Article shall apply in the M-2 Light Manufacturing Zone unless otherwise provided in this Chapter.

Section 7141. Uses Permitted.

A. Any use permitted in the M-1 zone, provided, however, that no building shall be used as a dwelling except accessory buildings

which are incidental to the use of the land.

B. Any of the following uses:

1. Any kind of manufacture, compounding, assembling, processing or treatment of products other than any which produces, causes or emits any fumes, odor, dust, smoke, gas, noise or vibrations which are or may be detrimental to properties in the neighborhood or to the welfare of the occupants thereof.
2. Agricultural industries, including packing, canning and processing plants.
3. Aircraft and automobile factories (no foundries)
4. Automobile assembling, body and fender works, painting, upholstering, dismantling and used parts storage when operated or maintained wholly within a building.
5. Automobile and truck parking and storage
6. Auto wash
7. Bakeries
8. Blacksmith shops
9. Boat building
10. Bottling plants
11. Breweries
12. Building material storage yards
13. Cabinet or carpenter shops
14. Carpet, awning, blinds, mattress or upholstery shops, including cleaning and repair
15. Contractor's plants or storage yards
16. Creameries, dairies and livestock feeding yards
17. Distributing plants
18. Draying, freighting or trucking yards or terminals
19. Electric welding and electroplating
20. Equestrian establishments, including stables or riding academies, schools or amusements

21. Feed and fuel yards
22. Flour mills
23. Fruit, vegetable and meat canning, freezing, packing and preserving plants
24. Ice and cold storage plants
25. Laboratories, experimental and the like
26. Laundries, cleaning and dyeing plants
27. Lumber yards
28. Machine shops (except punch presses of over twenty tons rated capacity, drop hammers, and automatic screw machines)
29. Motion picture studios
30. Paint mixing plants (not employing a boiling process)
31. Petroleum products storage, provided that no storage structure shall exceed fifty (50) feet in height
32. Planing mills
33. Poultry and rabbit raising, slaughter or storage
34. Public utilities service yards, electric transmission substations and gas transmission and compressor stations
35. Rubber fabrication or products made from finished rubber
36. Sheet metal shops
37. Storage spaces for transit and transportation equipment
38. Tire rebuilding, recapping and retreading plants
39. Truck repairing and overhauling shops
40. Manufacture of:
    a. batteries
    b. billboards and advertising structures, electric or neon signs
    c. ceramic products
    d. clothing or garments

e. cosmetics, perfumes and toiletries, drugs and pharmaceuticals

f. electronic instruments and devices, radios, televisions and phonographs

g. food products (except the rendering or refining of fats or oils)

h. furniture

i. musical instruments and toys

j. prefabricated buildings

k. shoes

l. soap (cold mix only)

m. textiles

Manufacture, compounding, assembling or treatment of articles or merchandise from the following previously prepared materials: bone, cellophane, canvas, cloth, cork, feathers, felt, fibre, fur, glass, hair, horn, leather, paper, plastics, precious or semi-precious metals or stones, shell, textiles, tobacco, wood, yarns, and paint not employing a boiling process.

C. The accessory buildings and structures necessary to such use located on the same lot or parcel of land.

D. Oil and gas drilling and production shall be permitted by the Planning Commission according to the provisions of Section 7244 of this Chapter.

E. Additional uses may be permitted by the Planning Commission according to the provisions of Section 7281 and Section 7282 of this Chapter.

Section 7142. Building Height. Six (6) stories and not to exceed seventy-five (75) feet.

Section 7143. Front Yard. All buildings shall be located not nearer than forty (40) feet from the centerline of a street, Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the centerline of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback

of fifty-five (55) feet from the centerline of the highway shall be required.

All buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7144. Side Yard. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7145. Rear Yard. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7146. Area Requirements. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7147. Distance Between Buildings On The Same Lot. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

ARTICLE 17

M-3 ZONE

Section 7150. M-3 General Manufacturing Zone. The regulations set forth in this Article shall apply in the M-3 general manufacturing zone unless otherwise provided in this Chapter.

Section 7151. Uses Permitted.

A. Any use permitted in the M-2 zone, provided, however, that no building shall be used as a dwelling except accessory buildings which are incidental to the use of the land.

B. Any of the following uses:

1. Acetylene gas manufacture or storage
2. Alcohol and alcholic beverages manufacture
3. Ammonia, chlorine and bleaching powder manufacture
4. Bag cleaning
5. Blast furnaces
6. Boiler or tank works
7. Brick, tile or terra cotta products manufacture
8. Building materials manufacture

9. Candle factories
10. Celluloid or pyroxylin manufacture
11. Cement and lime manufacturing when the manufacturing plant is equipped with dust collecting equipment capable of collecting at least ninety-seven (97) percent of all particulate matter from kiln gases
12. Chewing tobacco manufacture
13. Coke ovens
14. Cotton gins or oil mills
15. Crematories
16. Creosote treatment or manufacture
17. Disinfectant manufacture
18. Distillation of coal, wood or tar
19. Dye-stuffs manufacture
20. Exterminator or insect poison manufacture
21. Feed mills
22. Forge plants
23. Freight classification yards
24. Iron, steel, brass or cooper foundries or fabrication plants and heavy weight casting
25. Lamp black manufacture
26. Linoleum or oiled products manufacture
27. Ore reduction
28. Paint, oil shellac, turpentine or varnish manufacture
29. Paper or pulp manufacture
30. Petroleum products storage
31. Petroleum refining and reclaiming plants, if located more than 1320 feet from any property classified other than as M-3 zone or U zone.
32. Pickle manufacture
33. Plastic manufacture
34. Potash works

conducted closer than fifty (50) feet to any public street or highway

36. Railroad roundhouses and repair shops
37. Rock, sand and gravel excavating, crushing and distribution, provided such operations are not conducted closer than fifty (50) feet to any public street or highway
38. Rolling mills
39. Rubber or gutta-percha manufacture
40. Sauerkraut manufacture
41. Saw mills
42. Soap manufacture
43. Sodium compounds manufacture
44. Starch manufacture
45. Stove or shoe polish manufacture
46. Tar roofing or waterproofing or other tar products manufacture
47. Wool pulling or scouring

C. Any of the following uses provided that practical technological improvements, subject to the approval of the Planning Commission, are employed for the control of fumes, odors, dust, smoke, gas, noise, vibration or other conditions which are or may be detrimental to the public health, safety, convenience or general welfare of the community:

1. Acid manufacture
2. Ammunition manufacture
3. Except as provided in Subparagraph B-11 hereof, cement, lime, gypsum or plaster of Paris manufacture
4. Chemical manufacture
5. Curing, tanning and storage of raw hides or skins
6. Distillation of bones
7. Drop forge industries manufacturing forgins with power hammers

8. Explosives, manufacture or storage

9. Fat rendering

10. Fertilizer manufacture

11. Garbage, offal or dead animal reduction or dumping

12. Gas manufacture

13. Gelatin or size manufacture

14. Glass manufacture

15. Glucose or dextrine manufacture

16. Glue manufacture

17. Non-mineral oil extraction plants

18. Petroleum refining and reclaiming plants, if located within 1320 feet from any property classified other than as the M-3 zone or U zone

19. Smelting of tin, copper, zinc or iron ores

D. The accessory buildings and structures necessary to such use located on the same lot or parcel of land.

E. Oil and gas drilling and production shall be permitted according to the provisions of Section 7242 of this Ordinance.

F. Additional uses may be permitted by the Planning Commission according to the provisions of Section 7281 and Section 7282 of this Chapter.

Section 7152. Building Height. Thirteen (13) stories and not to exceed one hundred and fifty (150) feet.

Section 7153. Front Yard. All buildings shall be located not nearer than forty (40) feet from the centerline of a street. Provided, however, that along any secondary highway, as designated by the County's Highway Plan, a minimum setback of forty-five (45) feet from the centerline of the highway shall be required, and along any major highway, as designated by the County's Highway Plan, a minimum setback of fifty-five (55) feet from the centerline of the highway shall be required.

All buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7154. Side Yard. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7155. Area Requirements. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7157. Distance Between Buildings On The Same Lot. None, except all buildings used exclusively for dwelling purposes shall comply with the provisions of the R-4 zone.

ARTICLE 18

A-1 ZONE

Section 7160. A-1 Light Agricultural Zone. The regulations set forth in this Article shall apply in the A-1 light agricultural zone unless otherwise provided in this Chapter.

Section 7161. Uses Permitted.

A. Any use permitted in the R-1 zone

B. Any of the following uses:

1. All agricultural uses, including the keeping of poultry and rabbits or similar livestock, provided, however, that not to exceed one horse, hog, mule, cow, goat, sheep or other similar animals shall be permitted for each one-quarter (1/4) acre of area of the parcel of land upon which the same are kept.
2. Accessory agricultural buildings, structures and uses, including farm buildings, housing for agricultural workers, garages and implement shelters, provided no livestock or any building or enclosure used in connection with livestock shall be located nearer than one hundred (100) feet to the front lot line, nor nearer than fifty (50) feet to any existing dwelling on any contiguous property, or to any public park or school.
3. Excavation and quarrying of natural materials, pro-

vided such operations are not conducted closer than one hundred and fifty (150) feet to any public street or highway or to any existing dwelling

4. House or coach trailers
5. Animal hospitals, kennels and veterinaries
6. Equestrian establishments, including stables or riding academies, schools or amusements
7. Churches, libraries, museums, elementary or high schools, golf courses, country clubs, hospitals, sanitariums, public parks, playgrounds, community centers and Grange halls
8. Storage of petroleum products for use on the premises, but not for resale
9. Home occupations
10. Public utility or public service buildings, structures and uses
11. Two (2) signs of not to exceed twelve (12) square feet in area each, advertising the products produced or sold on the premises or identifying the premises or occupants
12. Temporary stands for the sale of agricultural, horticultural or farming products grown or produced on the premises, subject to the following conditions:
    a. That the floor area of such stands does not exceed four hundred (400) square feet
    b. That the stand be located not closer than fifty-five (55) feet from the centerline of any public road, street or highway right-of-way
    c. That the stand is exclusively of wood frame construction and erected in such a manner that said stand can be readily removed by means of skids or some other device
    d. That the owner remove such stand at his own

expense when said stand is not in use for a period of thirty (30) days

13. Accessory buildings, structures and uses, customary and incidental to the above uses.

C. Oil and gas drilling and production shall be permitted according to the provisions of Section 7242 of this Chapter.

D. Additional uses may be permitted by the Planning Commission according to the provisions of Section 7281 and Section 7282 of this Chapter.

Section 7162. Building Height, Front, Side and Rear Yards, Area Requirements and Distance Between Buildings On The Same Lot. None, except that on parcels or lots of less than ten thousand (10,000) square feet in area, said regulations shall be the same as required in the R-3 zone; and provided that all buildings shall be located not nearer than sixty (60) feet from the center line of any public street or highway.

ARTICLE 19

A-2 ZONE

Section 7170. A-2 General Agricultural Zone. The regulations set forth in this Article shall apply in the A-2 general agricultural zone unless otherwise provided in this Chapter.

Section 7171. Uses Permitted.

A. Any use permitted in the A-1 zone.

B. All agricultural and grazing uses, including cattle feed yards, dairies and animal sales yards.

C. Oil and gas drilling and production shall be permitted according to the provisions of Section 7242 of this Chapter.

D. Additional uses may be permitted by the Planning Commission according to the provisions of Section 7281 and Section 7282 of this Chapter.

Section 7172. Building Height, Front, Side and Rear Yard, Area Requirements and Distance Between Buildings On The Same Lot. None, except that on parcels or lots of less than ten thousand (10,000) square

feet in area, said regulations shall be the same as required in the R-3 zone; and provided that all buildings shall be located not nearer than sixty (60) feet from the centerline of any public street or highway.

ARTICLE 20

R-F ZONE

Section 7180. R-F Recreational-Forestry Zone. The regulations set forth in this Article shall apply in the R-F recreational-forestry zone unless otherwise provided in this Chapter.

Section 7181. Uses Permitted.

A. Any use permitted in the R-1 zone.

B. Any of the following uses:

1. Forest industries and production of forest products
2. Grazing and other agricultural uses except feed lots, provided that no clearing operation or spoilation of forested areas is involved in connection with such uses.
3. Hunting and fishing cabins
4. Harvesting of any wild crop such as berries, fruits, seeds, ferns, moss and hay.
5. Nurseries and greenhouses but not including any salesrooms or other buildings used for the sale of the products produced
6. Public utility or public service buildings, structures and uses
7. Public and private parks, playgrounds, campgrounds, clubs, golf courses, museums, libraries, churches, schools, forest stations and community centers
8. Recreational camps and resorts
9. Riding stables and boat liveries
10. Development of natural resources including mines, quarries and gravel pits but excluding the drilling for or producing of oil, gas or other hydrocarbon substances

11. Directional signs of not to exceed six (6) square feet in area, but not including commercial advertising

C. Oil and gas drilling and production shall be permitted by the Planning Commission according to the provisions of Section 7244 of this Chapter.

D. Additional uses may be permitted by the Planning Commission according to the provisions of Section 7281 and Section 7282 of this Chapter.

Section 7182. Building Height, Front, Side and Rear Yards, Area Requirements and Distance Between Building On the Same Lot. None, except that all buildings shall be located not nearer than sixty (60) feet from the centerline of any public street or highway; and parcels containing less than ten thousand (10,000) square feet in area shall be subject to the requirements of the R-1 zone.

ARTICLE 21

U ZONE

Section 7190. U Unclassified Zone. The regulations set forth in this Article shall apply in the U Unclassified Zone. All provisions of this Chapter inconsistent with this Article 21 shall be inapplicable to the U Unclassified Zone.

Section 7191. Uses Permitted. Notwithstanding any other provision in this Chapter to the contrary, all uses not otherwise prohibited by law are permitted in the U zone.

Section 7192. Building Height, Front, Side and Rear Yards, Area Requirements and Distance Between Buildings On The Same Lot. None.

ARTICLE 22

P ZONE

Section 7200. P Automobile Parking Zone. Land classified in a P zone may also be classified in either an A, E or R Zone and the regulations set forth in this Article shall apply in the P automobile parking zone unless otherwise provided in this Chapter.

Section 7201. Uses Permitted.

A. Any use permitted in the A, E, or R Zone in which the land is classified and when so used subject to all of the provisions contained in the sections defining said zone.

B. Open air, temporary parking of transient automobiles, except trucks of over fifteen hundred (1500) pounds capacity. All such parking areas shall be surfaced with a bituminous surface treatment or other surfacing of a higher type, and adequate drainage shall be provided. Where such parking area abuts property classified for R or E uses, it shall be separated therefrom by a solid masonry wall six (6) feet in height, provided said wall, from the front property line to a depth equal to the required front yard on the abutting R or E classified property, shall be four (4) feet in height. Where such parking area abuts a street, it shall be separated therefrom by an ornamental fence, wall or compact eugenia or other evergreen hedge having a height of not less than two (2) feet and maintained at a height of not more than four (4) feet. Such fence, wall or hedge shall be maintained in good condition.

Each entrance and exit to a parking lot shall be constructed and maintained so that any vehicle entering or leaving the parking lot shall be clearly visible at a distance of not less than ten (10) feet to a person approaching such entrance or exit on any pedestrian walk or foot path. Exits from parking lots shall be clearly posted with "Stop" signs and it shall be unlawful for a motorist to fail to stop at such sign before leaving the parking lot. Appropriate bumper guards, entrance and exit signs, and directional signs shall be maintained where needed. Any lights used to illuminate such parking area shall be so arranged as to reflect the light away from adjoining premises and streets.

ARTICLE 23

D ZONE

Section 7210. D Architectural Design Zone. Land classified in a D zone shall also be classified in another zone and the regulations set forth in this Article shall also apply in the D architectural design

zone unless otherwise provided in this Chapter.

Section 7211. Architectural Standards. In order that buildings, structures, signs and landscaping will be in harmony with other structures and improvements in the area, and not of obnoxious, undesirable or unsightly appearance, the following items may be considered in approving plans of proposed improvements in the architectural design zone.

1. The height, bulk and area of buildings
2. The setback distances from all property lines
3. The colors and materials on the exterior
4. The type and pitch of roofs
5. The size and spacing of windows, doors and other openings
6. The size, type and location of signs
7. Towers, chimneys, roof structures, flagpoles, radio and television masts
8. Plot plan, landscaping and automobile parking areas
9. The relation to the existing buildings and structures in the general vicinity and area
10. Lighting of buildings, signs and grounds.

Section 7212. Procedure. Plans of the exterior architectural design and appearance of all buildings and structures, plot plans, landscape plans, advertising sign plans, parking area plans and building setback plans shall be subject to the approval of the Planning Commission or its designated representative in order that the proposed buildings, structures, signs and landscaping will be in harmony with other structures and improvements in the area, and not of obnoxious, undesirable or unsightly appearance.

In the event it is determined that such proposed structures are inharmonious or unsightly in appearance, the Planning Commission, or its designated representative, shall confer with the applicant in an endeavor to have the plans changed so that the structures will be harmonious and attractive in appearance. In case the applicant is not satisfied with the action of the Planning Commission or its designated

representative, he may, within thirty (30) days after such action, appeal in writing to the Board of Supervisors. Said Board of Supervisors shall hold a public hearing on said appeal and shall render its decision thereon within thirty (30) days after the filing thereof. Upon approval by the Board of Supervisors, the building permit shall be issued provided all other requirements of law have been complied with.

Section 7213. Application. The provisions of the D Architectural Design Zone shall be applicable only in the vicinity of civic centers, public parks, and public buildings and grounds as provided in Section 65800(d) of the Government Code (Conservation and Planning Law), provided, however, that it may be applied elsewhere if requested by the owner or owners of property involved.

ARTICLE 24

H ZONE

Section 7220. H Airport Approach Height Zone. Land classified in an H zone shall also be classified in another zone and the additional regulations set forth in this Article shall apply in the H airport approach height zone unless otherwise provided in this Chapter.

Section 7221. Airport Zoning Commission. The Planning Commission is hereby appointed as the Airport Zoning Commission of the County of Kern with all the powers and duties specified by the Airport Approaches Zoning Law of the State of California, Chapter 1741, Statutes of 1953, now included in Sections 50485 to 50485.14, inclusive, of the Government Code, or any amendments thereto.

Section 7222. Procedure. No building or structure, including all super-structures and appurtenances, shall be erected, moved, altered or reconstructed, nor shall any plant or tree be allowed to grow in such a manner, so that the height thereof will constitute a hazard to the safe landing or take-off of aircraft using the airport in the district subject to these regulations. The height limit thus imposed shall be determined in each case by the Planning Commission and shall be governed by and not more restrictive than those imposed by Civil

Aeronautics Administration Technical Standard Order N18, "Criteria for Determining Obstructions to Air Navigation," dated April 26, 1950, as amended. A copy of said Technical Standard Order N18, with amendments, shall be on file in the office of the Planning Commission. In no event shall the provisions of this Section prevent the erection or maintenance of a building, structure or tree, no part of which exceeds thirty-five (35) feet in height. Permits issued for buildings and structures in areas subject to Airport Approach zones shall specify the height limitations of such buildings or structures as set forth in this Section.

The proceedings for classifying any land in the H Airport Approach Height Zone shall comply with the provisions of said Airport Approaches Zoning Law.

ARTICLE 25

B ZONE

Section 7230. B Buffer Zone. Land classified in a B Zone may also be classified in another zone, except in the C and M zones, and the regulations set forth in this Article shall apply in the B buffer zone unless otherwise provided in this Chapter.

Section 7231. Uses Permitted.

A. Any use permitted in the other respective zone in which the land is classified and with which the B zone is combined, provided, however, as follows:

1. No outdoor advertising sign or outdoor advertising structure shall be placed and/or maintained in any B zone, provided, however, that there may be displayed on the premises occupied by any permitted business use which is located in any B zone outdoor advertising signs and outdoor advertising structures for the advertising only of such business; and the total area for all outdoor advertising signs and outdoor advertising structures in the aggregate displayed by or for any one place of business shall not exceed

the equivalent of one (1) square foot for each one (1) foot of frontage actually occupied by such business, including the widths of driveways directly appurtenant thereto.

2. No junk, salvage or auto wrecking yard shall be established in any B zone unless the same is completely enclosed within a building or within a fence approved by the Planning Commission.

B. The following additional uses, if not permitted in the other zone, may be permitted in a B zone upon the granting of a conditional use permit:

1. Automobile parking areas
2. Automobile service stations
3. Directional or informational signs of a public or quasi-public nature
4. Drug stores
5. Garages, public, including repairing and servicing
6. Grocery, fruit and vegetable stores
7. Hotels, apartment houses and multiple residences
8. Motels, auto courts and tourist courts
9. Meat markets or delicatessen stores
10. Professional offices
11. Restaurants, tea rooms and cafes

Section 7232. Building Height, Front, Side and Rear Yards, Area Requirements and Distance Between Buildings On The Same Lot. None, except that on parcels or lots of less than ten thousand (10,000) square feet in area, said regulations shall be the same as required in the R-3 zone; and provided that all buildings, except temporary stands, shall be located not nearer than ninety (90) feet from the centerline of any public street or highway.

ARTICLE 26

OIL AND GAS PRODUCTION

Section 7240. Oil and Gas Production. It hereby is declared to be the purpose and objective of Article 26 of the Land Use Zoning Ordinance of the County of Kern to establish reasonable limitations, safeguards and controls with respect to the future drilling for, development and production of oil, gas and other hydrocarbon substances within the unincorporated territory of the County of Kern.

Such limitations, safeguards and controls are deemed necessary in the public interest to insure practices which will permit the economic recovery of the maximum amount of oil, gas and other hydrocarbon substances but which will also take into consideration the surface uses of land as such uses are indicated by the value and character of the existing improvements in or near localities where oil and gas operations are conducted, the desirability of the area for residential or other uses, and other factors relating to the public health, comfort, safety and general welfare.

It is recognized that in regulating the surface uses of land for the development of such natural resources it is in the public interest that such regulations be of a character designed to impose the minimum burdens consistent with the maximum enjoyment of each use.

Section 7241. Oil Drilling Permitted In Specific Zones. Notwithstanding the provisions of any other part of this Chapter, oil wells or well holes for the exploration for, development and production of oil, gas and other hydrocarbon substances may be drilled, operated and maintained, together with the installation and use of such equipment, structures and facilities as are necessary or convenient for such purposes, including but not limited to the initial separation of oil, gas and water, and for the storage, handling, recycling and transportation of such oil, gas and water to and from the premises in the unincorporated territory of the County of Kern, and the owner or operator thereof shall not be required to obtain any permit or variance as a condition precedent therefor, except as in this Article hereinafter

provided. However, variance may be granted to the provisions of this Article 26 according to the provisions of Article 29 of this Chapter.

Section 7242. Unrestricted Drilling. In the U Unclassified Zone, M-3 General Manufacturing Zone, A-2 General Agricultural Zone and A-1 Light Agricultural Zone the following conditions shall apply.

No review or permit shall be required for the drilling of any well hole for the exploration for, development and production of oil, gas and other hydrocarbon substances, or the installation of equipment, structures and facilities incidental thereto provided that all drilling installations and operations shall conform to State law and to fire and safety ordinances or regulations of the County of Kern in force and effect and applicable, provided, further, that drilling shall not be commenced within one hundred (100) feet of any residence then in existence without the written consent of the owner thereof.

Section 7243. Drilling By Conditional Use Permit. In the R-1 One Family Dwelling Zone, R-2 Two Family Dwelling Zone, R-3 Limited Multiple Family Dwelling Zone, R-4 Multiple Family Dwelling Zone, R-S Suburban Residential Zone, E-1 Estate Zone, E-2 Estate Zone, E-3 Estate Zone, C-O Professional Office Zone, C-1 Limited Commercial Zone and C-2 Commercial Zone the following conditions shall apply.

No person, firm or corporation shall conduct the drilling of any well hole or holes for the exploration for, development and production of oil, gas and other hydrocarbon substances, or install any equipment, structures and facilities incidental thereto, in or upon lands within the zones above specified in Section 7243, without first having applied for and obtained, by payment of the fee hereinafter provided, a conditional use permit from the Planning Commission so to do. No plant for the refining of petroleum products from such operation shall be permitted hereunder. The procedure for filing of applications, investigation, notices, public hearings, findings and appeal shall be the same as herein provided for variances, in Sections 7274, 7276, 7277, 7278 and 7279 of this Chapter, except that the

Planning Commission may waive public hearing if all the owners of surface rights within three hundred (300) feet of the proposed site consent in writing. Such permit shall provide that all drilling and producing operations shall conform to conditions No. 1 to No. 10, inclusive, as hereinafter set forth, and one or more of conditions No. 11 to No. 15, inclusive, if applicable and determined as hereinafter set forth, except that upon request of the applicant, at or subsequent to the time the permit is issued, the Planning Commission, by specific action in each instance, may waive any one or more of such conditions if it finds that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity thereof:

1. That no oil or gas well shall be drilled within one hundred (100) feet of any public highway or within one hundred and fifty (150) feet of any residence constructed prior to the commencement of such drilling, without the written consent of the owner thereof.

2. That all drilling and producing operations shall conform to all applicable fire and safety regulations.

3. That no signs, other than directional and warning signs and those required for identification of the well shall be constructed, erected, maintained or placed on the premises or any part thereof except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

4. That suitable and adequate sanitary toilet and washing facilities, approved by the Kern County Health Department, shall be installed and maintained in a clean and sanitary condition at all times.

5. That proven technological improvements generally accepted and used in drilling and production methods shall be adopted as they may become from time to time available if capable of reducing factors of nuisance and annoyance.

6. That the derrick, all boilers and all other drilling equipment used pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well,

shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derrick, boilers and drilling equipment are to be used, within a reasonable time limit determined by the Planning Commission, for the drilling of another well or wells on the premises.

7. That after any well has been placed on production no earthen sumps shall be used for the storage of petroleum.

8. That within ninety (90) days after any well has been placed on production or after its abandonment earthen sumps used in drilling or production or both, unless such sumps are to be used, within a reasonable time limit determined by the Planning Commission, for the drilling of another well or wells, shall be filled and the drilling site restored as nearly as practicable to a uniform grade.

9. That any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Planning Commission may approve the use of a standard type of derrick.

10. That prior to the drilling, redrilling or deepening of any well, the permittee shall file with the Board of Supervisors a satisfactory corporate surety bond in favor of the County of Kern in the sum of Five Hundred Dollars ($500) per well or Twenty-five Hundred Dollars ($2500) for five or more wells, executed by such permittee as principal and by an authorized surety company as surety, conditioned that the principal named in the bond shall faithfully comply with all the provisions of this section in drilling, redrilling, or deepening any well or wells covered by the bond, and shall secure the County of Kern against all losses, charges and expenses incurred by it to obtain such compliance by the principal named in the bond.

The following additional conditions No. 11 to No. 15, inclusive, may be added by the Planning Commission if deemed necessary or desirable to protect the public health, safety, comfort, convenience

and general welfare.

11. That all oil or gas produced shall be carried away by pipelines or, if produced into and shipped from tanks located on the premises, such tanks shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping and, insofar as practicable, screen such tanks from public view.

12. That, except in case of emergency, no materials, equipment, tools or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of 8:00 A.M. and 8:00 P.M. of any day.

13. That adequate fire fighting apparatus and supplies, approved by the County Fire Department, shall be maintained on the drilling site at all times during drilling and production operations.

14. That pumping wells shall be operated by electric motors or muffled internal combustion engines, and the height of all pumping units shall be not more than twenty (20) feet. All permanent equipment shall be painted and kept in neat condition. All producing operations shall be as free from noise as possible with modern oil operations.

15. That the drilling site shall be fenced or landscaped as prescribed by the Planning Commission.

If a producing well is not secured upon land subject to said permit within twelve (12) months from the date of issuance of said permit, or within any extended period thereof, the permit shall expire and the premises shall be restored to their original condition as nearly as practicable so to do. No permit shall expire, however, while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. For the purposes hereof, continuous operations are operations suspended not more than thirty (30) consecutive days. If at the expiration of said twelve (12) months period the permittee has not completed his drilling program on the lands covered by such permit, the Planning Commission may, upon a written

request of permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

Section 7244. Drilling By Counter Permit. In the M-1 Limited Manufacturing Zone, M-2 Light Manufacturing Zone and the R-F Recreational-Forestry Zone the following conditions shall apply.

No person, firm or corporation shall drill any well hole for the exploration for, development and production of oil, gas and other hydrocarbon substances, or install any equipment, structures and facilities incidental thereto without first having applied for and obtained, by payment of the fee hereinafter provided, an oil well counter permit from an authorized employee of the Planning Commission. Said permit shall provide that all drilling and producing operations shall conform to conditions No. 1 to No. 10, inclusive, as specified in Section 7243 except that upon request of the applicant, at or subsequent to the time the permit is issued, the Planning Commission, by specific action in each instance, may waive any one or more of such conditions if it finds that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity thereof. No plant for the refining of petroleum products from such operation shall be permitted hereunder.

Section 7245. Filing Fee For Oil Well Drilling. No fee shall be collected for unrestricted drilling under the provisions of Section 7242.

The County shall charge and collect the following fees for the purpose of defraying the expenditures incidental to the proceedings described in this Article 26.

A. A fee of Thirty-five Dollars ($35.00) shall be collected for each Conditional Use Permit granted under the provisions of Section 7243. An additional fee of Thirty-five Dollars ($35.00) shall be paid by the permittee for each well (after the first well) drilled upon lands covered by a Conditional Use Permit.

B. A fee of Five Dollars ($5.00) shall be collected for each Counter Permit issued under the provisions of Section 7244. An additional fee of Five Dollars ($5.00) shall be paid by the permittee

for each additional well (after the first well) drilled upon lands covered by a Counter Permit.

ARTICLE 27

GENERAL PROVISIONS

Section 7250. General Provisions. The regulations specified in this Chapter shall be subject to the following interpretations and exceptions.

Section 7251. Less Restrictive Uses Prohibited. The express enumeration and authorization in this Chapter of a particular class of building, structure, premises or use in a designated zone shall be deemed a prohibition of such building, structure, premises or use in all zones of more restrictive classification, except as otherwise specified.

Section 7252. Additional Permitted Uses. Uses other than those specifically mentioned in this Chapter as uses permitted in each of the zones may be permitted therein, provided such uses are similar to those mentioned and are in the opinion of the Board of Supervisors, as evidenced by a resolution in writing, after a report and recommendation by the Planning Commission, not more obnoxious or detrimental to the welfare of the community than the permitted uses specifically mentioned in the respective zones.

Section 7253. Additional Excluded Uses. Uses other than those specifically mentioned in this Chapter as uses excluded from any zone may be excluded therefrom provided such uses are in the opinion of the Board of Supervisors, as evidenced by a resolution in writing, after a report and recommendation by the Planning Commission, not less obnoxious or detrimental to the welfare of the community than the excluded uses specifically mentioned in any zone.

Section 7254. Non-Conforming Buildings and Uses. The following regulations shall apply to all non-conforming buildings and structures or parts thereof and uses existing at the effective date of this Chapter, provided however, that these regulations shall not apply in the U-Zone.

A. Any such non-conforming building or structure may be continued and maintained provided there is no physical change other than necessary maintenance and repair in such building or structure except as permitted in other sections of this Chapter.

B. Any such non-conforming use may be maintained and continued provided there is no increase or enlargement of the area, space or volume occupied or devoted to such non-conforming use, except as otherwise provided in this Chapter.

C. Any part of a building, structure or land occupied by such a non-conforming use which is changed to or replaced by a use conforming to the provisions of this Chapter shall not thereafter be used or occupied by a non-conforming use.

D. Any part of a building, structure or land occupied by such a non-conforming use, which use is abandoned, shall not again be used or occupied for a non-conforming use. Any part of a building, structure or land occupied by such a non-conforming use, which use shall have ceased for a period of one (1) year or more, shall not again be used or occupied for a non-conforming use.

E. If no structural alterations are made, a non-conforming use of a building may be changed to another non-conforming use of a more restrictive classification.

F. Every non-conforming use of land (where no main building is involved) existing at the time this Chapter becomes effective shall be discontinued within three (3) years from the effective date of this Chapter, except that this provision shall not apply to public utility structures of companies under the jurisdiction of the Public Utilities Commission of the State of California.

G. Any sign, billboard, commercial advertising structure or statuary which is lawfully existing and maintained at the time this Chapter becomes effective may be continued, although such use does not conform with the provisions hereof; provided, however, that no structural alterations are made thereto, and provided further that all such non-conforming signs, billboards, commercial advertising

structures or statuary and their supporting members, shall be completely removed from the premises not later than three (3) years from the effective date of this Chapter.

H. Anything in this Chapter to the contrary notwithstanding, land which is being used, or heretofore has been used, for the drilling for, production of or handling of oil, gas and other hydrocarbons, may continue in such use regardless of the land use zone in which it is located, and such use shall not be considered a non-conforming use in said zone, provided that this exception to the non-conforming use provisions of this Chapter shall not apply to oil wells, oil well structures, appurtenances or equipment which have been abandoned and the use thereof discontinued for a period of twelve (12) successive months.

Section 7255. Subsequent Non-Conformance. The foregoing provisions of Section 7254 shall also apply to buildings, structures, land or uses which hereafter become non-conforming due to any reclassifications of zones under this Chapter or any subsequent change in the regulations of this Chapter, provided, however, that where a period of years is specified in said Section for the removal of non-conforming buildings, structures or uses, said period shall be computed from the date of such reclassification or change.

Section 7256. Building Under Construction. Any building or structure for which a building permit has been issued prior to the effective date of this Chapter may be completed and used in accordance with the plans, specifications and permits on which said building permit was granted, if construction is commenced within sixty (60) days after the issuance of said permit and diligently prosecuted to completion.

Section 7257. Reconstruction of Damaged Non-Conforming Building. Nothing in this Chapter shall prevent the reconstruction, repairing or rebuilding and continued use of any non-conforming building or structure partially damaged by fire, collapse, explosion or acts of God, subsequent to the effective date of this Chapter, wherein the

expense of such reconstruction does not exceed one hundred and fifty (150) percent of the assessed value of the building or structure at the time such damage occurred. All such reconstruction shall be performed under one building permit, started within a period of one (1) year from date of damage and diligently prosecuted to completion.

Section 7258. Non-Conforming Uses Resulting from Amendments. The provisions of this Chapter shall apply to uses which become non-conforming by reason of any amendments to this Chapter, as of the effective date of such amendment.

Section 7259. Modernization. Nothing in Article 27 or otherwise in this Chapter shall be construed or applied so as to prevent the expansion, modernization, replacement, reconstruction, repair, or rebuilding and continued use of public utility buildings, structures, equipment and facilities where there is no change of use or increase in area of the land so used.

Section 7259.1. Location of Dwelling. Except where otherwise provided for in this Chapter, every dwelling shall face or have frontage upon a street or permanent means of access to a street by way of a public or private easement or passageway other than an alley.

Section 7259.2. Height of Buildings. No penthouse or roof structures for the housing of elevators, stairways, tanks, ventilating fans or similar equipment, towers, steeples, roof signs or other structures shall exceed the height limit provided in this Chapter. Radio and television masts, flagpoles, chimneys and smokestacks may extend not more than forty-five (45) feet above the height limit provided in this Chapter, provided that the same may be safely erected and maintained at such height in view of the surrounding conditions and circumstances.

Section 7259.3. Dwelling and Other Occupancies. Where a dwelling is located, placed or erected above another type of use in zones other than R-1, R-2, R-3, R-4, R-S, E-1, E-2 or E-3 zones, the rear and side yards for the floors occupied for dwelling purposes shall comply with the provisions of the R-4 zone.

Section 7259.4. Accessory Buildings. The following regulations shall apply to the location of accessory buildings unless otherwise provided in this Chapter:

A. No detached accessory buildings in the R-1, R-2, R-3, R-4, R-S, E-1, E-2 or E-3 zones may exceed two (2) stories, or thirty-five (35) feet in height.

B. No detached accessory buildings in the R-1, R-2, R-3, R-4, R-S, E-1, E-2 or E-3 zones shall be located at a distance less than sixty (60) percent of the depth of the lot from the front property line, or ninety (90) feet, whichever is less.

C. On a corner lot no detached accessory buildings in the R-1, R-2, R-3, R-4, R-S, E-1, E-2 or E-3 zones shall be located at a distance less than ten (10) feet from the side street line.

D. No accessory buildings in the R-1, R-2, R-3, R-4, R-S, E-1, E-2 or E-3 zones, if two (2) stories in height, shall be located nearer than five (5) feet to any interior property line.

E. No accessory buildings on the rear twenty-five (25) feet of a reversed corner lot in the R-1, R-2, R-3, R-4, R-S, E-1, E-2 or E-3 zones shall be located nearer to the side lot line on the street side of such reversed corner lot than the front yard depth required on the key lot in the rear.

F. A private garage of not to exceed six hundred (600) square feet may be a part of the main building if the garage and the main building have a common wall of not less than five (5) feet in length, or if not more than four (4) feet from the main building and connected thereto by a roof of not less than five (5) feet in width.

G. One detached accessory building for use as a private garage may be permitted to occupy the required front yard of an interior lot in the R-1, R-2, R-3, R-4, R-S, E-1, E-2 and E-3 zones, when the slope of the front half of such lot is greater than one (1) foot rise or fall in a horizontal distance of four (4) feet from the established street elevation at the front property line, provided, however, that no portion of any such building shall be less than five (5) feet from

the side or front line of the lot and further provided that no such building shall exceed ten (10) feet in height.

Section 7259.5. Additional Dwelling Units. Notwithstanding any other provisions of this Chapter, where a lot in the R-1 zone has an area of twelve thousand (12,000) square feet or more and with adequate provisions for ingress and egress, a conditional use permit may be granted by the Planning Commission for the construction of additional one-family dwellings and allowable accessory buildings; however, the minimum site area shall be six thousand (6,000) square feet of lot area per each one-family dwelling. Notwithstanding any other provisions of this Chapter, where a lot in the R-2 zone has an area of nine thousand (9,000) square feet or more and with adequate provisions for ingress and egress, a conditional use permit may be granted for the construction of additional family dwelling units and allowable accessory buildings, however, the minimum site area shall be three thousand (3,000) square feet of lot area per each family dwelling unit.

The procedure for filing of applications, filing fees, investigation, notices, public hearings and findings shall be the same as herein provided for variances.

Section 7259.6. Through Lots. On through lots, either line separating such lot from a public thoroughfare may be designated by the owner as the front lot line. In such cases, the minimum rear yard shall be the average of the yards on lots next adjoining. If such lots next adjoining are undeveloped, the minimum rear yard shall conform to the front yard setback for the zone in which the property is located.

Section 7259.7. Yard Encroachments. Where yards are required in this Chapter, they shall be not less in depth or width than the minimum dimension specified for any part, and they shall be at every point open and unobstructed from the ground upward, except as follows:

A. Cornices, canopies, eaves, or other similar architectural features not providing additional floor space within the building may extend into a required front, side or rear yard not to exceed three (3) feet.

B. Open, unenclosed, uncovered porches, platforms or landing places which do not extend above the level of the first floor of the building, may extend into any front, side, or rear yard not more than six (6) feet; provided, however, that an open work railing, not more than thirty (30) inches in height, may be installed or constructed on any such porch, platform or landing place.

C. Detached accessory buildings may occupy front, side and rear yards except as provided in Section 7259.4 of this Chapter.

Section 7259.8. Fences, Walls and Hedges.

A. In the R-1, R-2, R-3, R-4, R-S, E-1, E-2 and E-3 zones no fence, wall or hedge located in the rear or side yards shall exceed a height of six (6) feet.

B. In the R-1, R-2, R-3, R-4, R-S, E-1, E-2 and E-3 zones no fence, wall or hedge located in the required front yard shall exceed a height of four (4) feet.

C. In the R-1, R-2, R-3, R-4, R-S, E-1, E-2 and E-3 zones no fence, wall or hedge located within twenty-five (25) feet of the rear line of a reversed corner lot between the street and the established setback line on the key lot, to the rear, shall exceed a height of four (4) feet.

D. In the R-1, R-2, R-3, R-4, R-S, E-1, E-2 and E-3 zones no barbed wire shall be used or maintained in or about the construction of a fence, wall or hedge along the front, side or rear lines of any lot, or within three (3) feet of said lines, and no sharp wire or points shall project at the top of any fence or wall less than six (6) feet in height.

Section 7259.9. Storage in Yards. No portion of any required front yard, or side yard on the street side of a corner lot, shall be used for the permanent storage of motor vehicles, trailers, airplanes, boats, parts of any of the foregoing, or building materials (except building materials for use on the premises stored thereon during the time a valid permit is in effect for construction on the premises). Permanent storage, as used in this section, means the presence for a

period of forty-eight (48) or more consecutive hours in the required front or side yard.

Section 7259.10. Public Utility Uses. The provisions of this Chapter shall not be construed to apply to the construction, installation, operation and maintenance of public utility distribution and transmission lines, towers and poles and underground facilities for providing gas, water, electricity or telephone and telegraph services by public utility companies under the jurisdiction of the Public Utilities Commission of the State of California; provided, however, before any right-of-way for transmission lines is acquired, the proposed route shall be submitted to the Planning Director for review and recommendation.

ARTICLE 28

AUTOMOBILE PARKING REQUIREMENTS

Section 7260. Automobile Parking Requirements. For each dwelling, multiple dwelling, business or industrial establishment or other structure hereafter erected, there shall be provided and maintained off-street parking facilities to accommodate the motor vehicles used by the occupants, customers, clientele and employees of such dwelling, multiple dwelling, business or industrial establishment or structure. Each required parking space shall be not less than eight (8) feet wide and twenty (20) feet long, and in addition there shall be adequate space for ingress and egress. The number of parking spaces for each type of use shall be not less than that stated in the following.

Section 7261. One-Family, Two-Family and Multiple Dwellings. For every dwelling, multiple dwelling or other structure erected or intended to be used as a dwelling, there shall be provided on the same lot or parcel of land one (1) parking space for each dwelling unit.

Section 7262. Rooming Houses, Lodging Houses, Clubs, Fraternity Houses, and Dormitories. For each two (2) guest rooms there shall be provided one (1) parking space. Each such parking space shall be on the same lot or parcel of land or contiguous thereto.

Section 7263. Auto Courts, Tourist Courts, Hotels and Motels. One (1) parking space shall be provided for each living or sleeping

unit on the same lot or parcel of land or contiguous thereto, except that parking space for hotels shall be on the same lot or within five hundred (500) feet of the building.

Section 7264. Hospitals, Sanitariums, Convalescent Homes and Homes For the Aged. One (1) parking space shall be provided for each one thousand (1,000) square feet of floor space or fraction thereof on the same lot or parcel of land or contiguous thereto.

Section 7265. Auditoriums. For church, high school, college or university auditoriums and for theatres, general auditoriums and other similar places of assembly one (1) parking space shall be provided for every five (5) seats provided in such building. A seat shall mean eighteen (18) lineal inches of seating space when seats are arranged in rows of pews. For auditoriums with no permanent seats, a seat shall mean seven (7) square feet of floor area. Each such parking space shall be on the same lot or within five hundred (500) feet of the building.

Section 7266. Amusements. For stadiums, arenas and fairs one (1) parking space shall be provided for each four (4) seats of eighteen (18) lineal inches each.

For dance halls one (1) parking space shall be provided for each one hundred (100) square feet of floor area or fraction thereof.

For bowling alleys four (4) parking spaces shall be provided for each alley.

Each such parking space shall be on the same lot or within five hundred (500) feet of the building or amusement area.

Section 7267. Commercial and Industrial Buildings. For all office, commercial and industrial buildings one (1) parking space shall be provided for each five hundred (500) square feet of floor space or fraction thereof.

Each such parking space shall be on the same lot or within five hundred (500) feet of the building.

Section 7268. Loading Space. On the same premises with every building, structure or part thereof erected or occupied for manufac-

turing, storage, warehouse, goods display, department store, wholesale or retail market, hotel, restaurant, hospital, laundry, dry cleaning plant, or other uses similarly involving the receipt or distribution of vehicles carrying materials or merchandise, there shall be provided and maintained on the lot adequate space for standing, loading and unloading services in order to avoid undue interference with the public use of the streets or alleys. Required loading space may be included within the required parking space adjacent to a building.

Section 7269. Miscellaneous Provisions. Nothing in this Chapter shall prohibit the collective use of space for off-street parking, provided such collectively used space is equal to the sum of the requirements of each individual establishment participating in such collective use.

When the required off-street parking space is provided on a separate lot from the main building, there shall be recorded in the office of the County Recorder of Kern County, California, a covenant by the owner or owners of said lot for the benefit of the County of Kern to the effect that such owner or owners will continue to maintain such parking space so long as said building is maintained.

Neither a required side yard abutting a street, nor a front yard, shall be used for off-street parking, which provision shall not apply in the P Zone.

All off-street automobile parking areas including automobile sales lots, service stations and other drive-in establishments shall be surfaced with a bituminous surface treatment or other surfacing of a higher type.

The conditions for fences, walls, hedge, planting, driveways, bumper guards, lighting, setback and drainage shall be as provided for in Section 7201.

ARTICLE 29

VARIANCES, MODIFICATIONS AND ZONE CHANGES

Section 7270. Variance, Modifications and Zone Changes. The following regulations shall apply to the granting of variances, modifications and zone changes.

Section 7271. Variances. The Planning Commission, upon its own motion may, or upon the verified application of any interested person shall, in specific cases, initiate proceedings for the granting or denial, as the case may be, of a variance from the provisions of this Chapter. The Planning Commission may grant said variance only when the following circumstances are found to apply:

A. That the variance granted shall be subject to such conditions as will assure that the adjustment thereby authorized shall not constitute a grant of special privilege inconsistent with the limitations upon other properties in the vicinity and zone in which the subject property is situated.

B. That special circumstances exist which are applicable to the subject property, including size, shape, topography, location or surroundings, wherein the strict application of the zoning ordinance in question is found to deprive the subject property of privileges enjoyed by other properties in the vicinity and under identical zone classification.

All acts of the Planning Commission and Board of Supervisors under the provisions of this section shall be construed as administrative acts performed for the purpose of assuring that the intent and purpose of this Chapter shall apply in special cases, as provided in this section, and shall not be construed as amendments to the provisions of this Chapter or map.

Section 7272. Information Required. Applications for variances shall be accompanied by:

A. A plot plan and description of the property involved, showing the location of all existing and proposed buildings. Additional plans and descriptions of the proposed use of the property with ground

plans and elevations for all proposed buildings may be required at the discretion of the Planning Commission.

B. A reference to the provisions of the Chapter from which said property is sought to be excepted.

Section 7273. Amendments and Changes of Zone Boundaries. Whenever the public necessity, convenience, general welfare of good zoning practices justify such action, the Planning Commission upon its own motion, or upon the verified application of any interested person, may initiate proceedings to amend, supplement or change the zones, regulations or districts established by this Chapter.

With the exception of amendments changing property from one zone to another, or changing the boundaries of any zone, amendments may be made or new zoning maps adopted in the same manner as this Chapter was adopted.

Section 7274. Filing of Applications. Applications for variances, modifications and changes of zone shall be made in writing to the Planning Commission in such form as is approved by the Planning Commission. The Planning Commission may provide forms for such purposes and may prescribe the type of information to be provided thereon. No petition shall be received unless it complies with such requirements.

Applications filed pursuant to this Chapter shall be numbered consecutively in the order of their filing and shall become a part of the permanent official records of the Planning Commission, and there shall be attached thereto copies of all notices and actions pertaining thereto.

Section 7275. Filing Fees. Before accepting any application for filing, the County shall charge and collect the following fees for the purpose of defraying the expenditures incidental to the proceedings prescribed herein:

A. Change of Zone. For each application for a change of zone a fee of Thirty-five Dollars ($35.00) for the first lot or portion thereof, plus One Dollar ($1.00) for each additional lot or

portion thereof.

B. Variance. For each application for a variance a fee of Twenty-five Dollars ($25.00) for the first lot or portion thereof, plus One Dollar ($1.00) for each additional lot or portion thereof.

C. Modification. For each application for a modification, where no public hearing is required, a fee of Two Dollars ($2.00) for the first lot or portion thereof, plus One Dollar ($1.00) for each additional lot or portion thereof, except as hereinafter provided. Where a public hearing is required, the fees shall be the same as for a variance.

D. Appeal. For each appeal to the Planning Commission or Board of Supervisors from any order, requirement, decision or determination of the Planning Commission or Modification Committee in the administration or enforcement of the provisions of this Chapter, a fee of Two Dollars ($2.00) for the first lot or portion thereof, plus One Dollar ($1.00) for each additional lot or portion thereof.

Section 7276. Investigation. The Planning Commission shall cause to be made by its own members, or members of its staff, such investigation of facts bearing upon such application as will serve to provide all necessary information to assure that the action on each such application is consistent with the intent and purposes of this Chapter and with previous amendments or variances.

Section 7277. Notices. Following the receipt in proper form of any application filed under the provisions of this Article with the exception of an application filed pursuant to the provisions of Section 7273, the Secretary of the Planning Commission shall fix a time and place of public hearing thereon. Upon receipt in proper form of any application filed pursuant to the provisions of Section 7273, the Secretary of the Planning Commission, when directed to do so by the Planning Commission, shall fix a time and place of public hearing thereon.

Not less than ten (10) days before the date of any public hearing fixed by the Secretary of the Planning Commission as herein provided, the date of such public hearing, notice of the date, time,

place of hearing and location of the property and the nature of the request shall be given by any two of the following methods, the publishing and mailing methods to be used unless otherwise directed by the Planning Commission:

A. By publishing once in a newspaper of general circulation in the County.

B. By mailing a notice, postage prepaid, to the applicant, to each member of the Planning Commission, and to the owners of all property within three hundred feet of the exterior boundaries of the property involved, using for this purpose the last known name and address of such owners as shown upon the last assessment roll of the County.

C. By posting notices not more than three hundred (300) feet apart along each and every street upon which the property involved abuts, for a distance of not less than three hundred (300) feet in each direction from the exterior limits of such property.

Section 7278. Public Hearing. Public hearings as provided for in this Chapter and by State law shall be held before the Planning Commission at the time and place for which public notice has been given as hereinbefore required. The Planning Commission may establish its own rules for the conduct of such hearings. A summary of all pertinent testimony offered at a public hearing, together with the names and addresses of all persons testifying, shall be recorded and made a part of the permanent files of the case. Any such hearing may be continued provided that, prior to the adjournment or recess thereof, the Presiding Officer at such hearing shall announce the time and place to which such hearing will be continued.

Section 7279. Findings. Within thirty-five (35) days after the conclusion of a public hearing, the Planning Commission shall render its decision on the matter so heard. The failure of the Planning Commission to render such decision within thirty-five (35) days after the conclusion of the hearing may be deemed to constitute a denial, but in no case shall be deemed to constitute an approval.

The Planning Commission shall announce and record its actions by formal resolution, and such resolution shall recite the findings of the Planning Commission upon which it bases its decision.

A. Variance, Modifications and Conditional Use Permits.

Within five (5) days after final decision by the Planning Commission on an application for a variance, modification or conditional use permit, notices of the decision in the matter shall be mailed to the applicant at the address shown upon the application, the County Clerk, the members of the Board of Supervisors, the owners of the adjoining property and persons requesting said notice.

The granting, either with or without conditions, or the denial of such application by the Planning Commission shall be final unless within fifteen (15) days after the decision by the Planning Commission, or ten (10) days after the mailing of the required notices, whichever date is later, the applicant, or any other person aggrieved, shall appeal therefrom in writing to the Board of Supervisors by presenting such appeal to the County Clerk. At its next regular meeting after the filing of such appeal with the County Clerk, the Board of Supervisors shall set a date for a hearing thereon. The manner of setting the hearing, giving of notice and conducting the hearing shall be the same as hereinbefore prescribed for hearing by the Planning Commission. The decision appealed from shall be affirmed unless reversed by a vote of not less than a majority of all members of the Board of Supervisors.

No permit or license shall be issued for any use involved in an application for a variance, modification or conditional use permit, until same shall have become final by reason of the failure of any person to appeal or by reason of the action of the Board of Supervisors.

If the use authorized by any variance, modification or conditional use permit is, or has been, unused, abandoned, discontinued or has ceased for a period of six (6) months, or the conditions have not been complied with, said variance, modification or conditional use

permit shall become null and void and of no effect unless an extension therefore has been granted by the Planning Commission, upon written petition of the applicant for such extension before the expiration of the above period.

B. Amendments and Changes of Zone Boundaries.

Within ten (10) days after final action by the Planning Commission on an application for amendments or changes of zone boundaries, its recommendations together with the complete records of the case shall be delivered to the Board of Supervisors.

The Board of Supervisors, after receipt of the report and recommendation from the Planning Commission, shall hold a final hearing thereon. The manner of setting the hearing, giving of notice and conducting the hearing shall be the same as hereinbefore prescribed for hearings by the Planning Commission. The recommendation of the Planning Commission shall be approved unless reversed by a vote of not less than a majority of all members of the Board of Supervisors.

No permit or license shall be issued for any use involved in an application for an amendment or change of zone until same shall have become final by the adoption of an ordinance.

C. Notwithstanding any provision in Subsections A and B hereof to the contrary, at the request of the applicant, or any other interested person, the vote of the Board of Supervisors on any application for a variance, modification, conditional use permit or an amendment or change of zone boundaries, shall be deferred by the Board of Supervisors until such time as all members of the said Board of Supervisors are present and have had the opportunity to vote thereon.

Section 7279.1. Modification Committee. There is hereby created a Modification Committee composed of three (3) persons. Said committee shall consist of the Chairman of the Planning Commission, or such regular member of the Planning Commission as the Chairman may from time to time designate; the Building Official of the County of Kern or during his absence, disability or disqualification, his deputy so

designated by him; and the County Counsel or, during his absence, disability or disqualification, his deputy so designated by him.

The Secretary of the Planning Commission shall serve as Secretary of the Modification Committee, and the records of said committee shall at all times be available and subject to review by the Planning Commission. The Chairman of the Modification Committee shall be the Planning Commission member thereof. Said Modification Committee shall meet at the call of the Chairman to consider applications as provided herein and all such meetings shall be open to the public.

Section 7279.2. Authority of Modification Committee. The Modification Committee shall have authority to grant, subject to appeal to the Planning Commission and the Board of Supervisors, under the provisions of this Chapter, the following:

A. Permit the modification of the setback, yard and lot area regulations that may be necessary to secure an appropriate improvement on a lot, to prevent unreasonable hardship, or to promote uniformity of improvement; provided, however, such modification shall not grant a reduction in excess of twenty-five (25) percent of the applicable setback, yard or lot area requirements.

B. Permit the modification of fence, wall and hedge regulations that may be necessary to secure an appropriate improvement on a lot.

The Modification Committee may, at its discretion, refer to the Planning Commission any application for modification for decision by the Planning Commission without further fee to the applicant.

Section 7279.3. Procedure for Modification Committee. The procedure for acting upon applications for modifications by the Modification Committee shall be the same as the procedure for acting upon applications for variances by the Planning Commission, except that no notice of public hearing will be required if the application for such modification is accompanied by the written consent of the owners of all property abutting and of all property directly across

a street from subject property. Appeals from decisions of the Modification Committee shall be made to the Planning Commission. After action on an appeal by the Planning Commission an appeal may be made to the Board of Supervisors in the same manner as an appeal for a variance.

ARTICLE 30

CONDITIONAL USE PERMIT

Section 7280. Conditional Use Permits. The following regulations shall apply to the granting of conditional use permits.

Certain uses may be permitted by the Planning Commission and the Board of Supervisors in zones in which they are not permitted by this Chapter where such uses are deemed essential or desirable to the public convenience or welfare, and are in harmony with the various elements or objectives of the comprehensive general plan. The procedure for filing of applications, filing fees, investigations, notices, public hearings, findings and appeal shall be the same as herein provided for variances, except that the Planning Commission may waive public hearings on an application for conditional use permits for public utility or public service uses or public buildings, when found to be necessary for the public health, safety, convenience or welfare.

Section 7281. Uses Permitted In Any Zone. The following uses may be permitted in any zone upon the granting of a conditional use permit.

1. Airports or aircraft landing fields
2. Cemeteries, columbariums, crematories and mausoleums
3. Churches or other places used exclusively for religious worship
4. City, County, State and Federal enterprises, including buildings, facilities and uses of departments or institutions thereof which are necessary or advantageous to the general welfare of the community
5. Day nurseries and nursery schools
6. Educational institutions including schools, elementary or high

7. Establishments or enterprises involving large assemblages of people or automobiles, including: amusement parks, circuses, carnivals, expositions, fair grounds, open-air theatres, race tracks, recreational and sport centers
8. Hospitals, sanitariums and rest homes
9. Institutions of a philanthropic or eleemosynary nature
10. Large scale neighborhood housing projects having a minimum gross area of twenty (20) acres
11. Libraries, museums and private clubs
12. Natural resources development together with the necessary buildings, apparatus or appurtenances incident thereto, except drilling for or removal of oil, gas or other hydrocarbon substances
13. Parks, playgrounds and community buildings
14. Public utility or public service buildings, structures and uses
15. Radio and television transmitters
16. Real estate tract offices and signs
17. Golf courses and country clubs

Section 7282. Uses Permitted In Specific Zones. The following uses may be permitted in the zones herein indicated upon the granting of a conditional use permit:

1. Advertising sign boards or structures in the C-1 zone
2. Agricultural industries and the processing of agricultural products in the A-2 zone
3. Animal hospitals, kennels and veterinaries in the C-2 zone
4. Apartment hotels in the R-4 zone
5. Automobile trailer courts or camps, house or coach trailers, and public camp grounds in the C-2, M-1, M-2 and B zones

6. Commercial stockyards and animal slaughter in the A-2 and M-3 zones
7. Dairies and livestock feed yards in the A-1 zone
8. Dumps and refuse disposal areas in the A-2 and M-3 zones
9. Dwellings in the M-1, M-2 and M-3 zones
10. Equestrian establishments, including stables, riding academies, schools or amusements, in the C-2 zone
11. Fruit, vegetable and meat packing plants in the A-1 and A-2 zones
12. Hog ranches in the A-2 zone
13. Hotels, inns, motels, house or coach trailers and automobile trailer courts or camps in the R-F zone
14. Junk, salvage or auto wrecking yards in the M-2, M-3 and A-2 zones
15. Mortuaries or funeral parlors in the C-1 and A zones
16. Sewer farms or sewage disposal plants in the A-2 and M-3 zones

ARTICLE 31

ENFORCEMENT AND PENALTY

Section 7290. Enforcement. All departments, officials and public employees of the County of Kern, vested with the duty or authority to issue permits or licenses, shall conform to the provisions of this Chapter and shall issue no permit or license for uses, buildings, or purposes in conflict with the provisions of this Chapter; and any such permit or license issued in conflict with the provisions of this Chapter shall be null and void.

The provisions of this Chapter shall be administered by the Planning Commission, whose inspectors or authorized representatives shall have the right to reasonably enter upon any premises affected by this Chapter for purposes of inspection.

Any building or structure erected or maintained, or any use of property, contrary to the provisions of this Chapter shall be and the same is hereby declared to be unlawful and a public nuisance, and

the District attorney shall immediately commence actions and proceedings for the abatement, removal and enjoinment thereof, in the manner provided by law; and shall take such other steps, and shall apply to any court as may have jurisdiction to grant such relief as will abate or remove such building, structure or use and restrain and enjoin any person, firm or corporation from erecting or maintaining such building or structure, or using any property contrary to the provisions of this Chapter.

This Chapter may also be enforced by injunction issued out of the Superior Court upon the suit of the County or the owner or occupant of any real property affected by such violation or prospective violation. This method of enforcement shall be cumulative and in no way affect the penal provisions hereof.

Nothing in this Section shall be construed to authorize or permit the inspectors or representatives of the Planning Commission or any other County officer or employee to enter any building without the consent of the owner or the person in lawful possession thereof without first securing a search warrant as provided by law.

Section 7291. Penalty. Any person, firm or corporation, whether as principal, agent, employee or otherwise, violating any provision of this Chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punishable by a fine of not more than Five Hundred Dollars ($500.00), or by imprisonment in the County Jail for a period of not more than six (6) months, or by both such fine and imprisonment. Each day that violation of this Chapter continues shall be considered a separate offense.

ARTICLE 32

VALIDITY AND REPEALS

Section 7300. Validity. If any section, subsection, paragraph, sentence, clause or phrase of this Chapter is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Chapter. The Board of Supervisors

hereby declares that it would have passed this Chapter, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid or unconstitutional.

Section 7301. Repeals. Subject to the provisions of Section 7300, all ordinances of the County of Kern inconsistent herewith to the extent of such inconsistency, and no further, are hereby repealed; provided that the foregoing repeal as in this Section provided shall not affect repeal of any provisions of other ordinances which impose greater restrictions or limitations.

The repeal of any of the above mentioned ordinances does not revive any other ordinance or portion thereof repealed by said ordinance.

Such repeals shall not affect or prevent the prosecution or punishment of any person for the violation of any ordinance repealed hereby for an offense committed prior to the repeal.

Ord. 6-4157

KERN COUNTY ZONING ORDINANCE

PART 7, DIVISION 1, CHAPTER 1
OF THE KERN COUNTY ORDINANCE CODE

ORDINANCE NO. G-4157

PLANNING & DEVELOPMENT SERVICES DEPARTMENT
RECEIVED
86 FEB 13 A10:21

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN, STATE OF CALIFORNIA, REPEALING AND ADDING TO PART 7 OF THE KERN COUNTY LAND USE ZONING ORDINANCE RELATING TO CHANGES IN VARIOUS ZONE CLASSIFICATIONS

The following ordinance, consisting of four (4) sections, was duly and regularly passed and adopted by the Board of Supervisors of the County of Kern, State of California, at a regular meeting of the Board of Supervisors held on the 10th day of February, 1986, by the following vote, to wit:

AYES: Ashburn, Austin, Larwood, Harvey, Shell

NOES: None

ABSENT: None

Trice Harvey
Chairman of the Board of Supervisors of the County of Kern, State of California

(SEAL)

ATTEST: SHARON DAWQUIST
Clerk of the Board of Supervisors

By Donna L. Rice, Deputy Clerk

RTE	INFO	ACT		INIT
			DIRECTOR	
			ASSIST DIRECTOR	
			ADMINISTRATION	
			PLAN DEVELOP	
			ENV ANALYSIS	
✓			PLAN IMPLEMENT	
			BUILDING INS'	
			FLOODPLAIN MGT	
			TECANICAL SUPP	
			ACCOUNTING	
			WORD PROCESS	
			LAND DIVISION	
			LIBRARY	
			FILE	

THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN ORDAINS AS FOLLOWS:

Section 1. This ordinance shall take effect and be in full force on and after the 11th day of March, 1986, and shall be published once in all adjudicated newspapers in Kern County, a newspaper of general circulation, published and printed in the County of Kern, State of California, together with the names of the members of the Board of Supervisors voting for and against the same.

Book No. 869067
Ord. No. G-4157

Section 2. Part 7 of the Kern County Zoning Ordinance is hereby repealed except for Article 20.2 which is being amended and renumbered by this ordinance.

Section 3. A new Part 7 of the Kern County Zoning Ordinance is hereby adopted to read as follows:

(See attached text)

Section 4. The following zone designations and classifications in the column below Tabled "Existing Zone" shall hereafter become the corresponding zone designations and classifications reflected in the column below Tabled "New Zone District":

EXISTING ZONE	NEW ZONE DISTRICT
R-1 (One-family Dwelling)	Redesignate R-1 (Low-density Residential)
R-2 (Two-family Dwelling)	Redesignate R-2 (Medium-density Residential)
R-3 (Limited Multiple-family Dwelling)	Redesignate R-3 (High-density Residential)
R-4 (Multiple-family Dwelling)	Rezone to R-3 (High-density Residential)
R-S (Suburban Residential) Freestanding R-S	Rezone to E(1/2) RS (Estate - 1/2 acre, Residential Suburban)
Combining R-S	Redesignate RS (Residential Suburban Combining)
E (10,000-square-foot Estate)	Rezone to E(1/4) (Estate - 1/4 acre)
E-1 (12,000-square-foot Estate)	Rezone to E(1/4) (Estate - 1/4 acre)
E-2 (18,000-square-foot Estate)	Rezone to E(1/2) (Estate - 1/2 acre)
E-3 (24,000-square-foot Estate)	Rezone to E(1/2) (Estate - 1/2 acre)
E-4 (One-acre Estate)	Rezone to E(1) (Estate - 1 acre)
E-5 (2 1/2-acre Estate)	Rezone to E(2 1/2) (Estate - 2 1/2 acres)
E-6 (5-acre Estate)	Rezone to E(5) (Estate - 5 acres)
E-7 (10-acre Estate)	Rezone to E(10) (Estate - 10 acres)
E-8 (20-acre Estate)	Rezone to E(20) (Estate - 20 acres)
C-O (Professional Office)	Redesignate CO (Commercial Office)
C-1 (Neighborhood Commercial)	C-1 (Neighborhood Commercial)
C-2 (Commercial)	Redesignate C-2 (General Commercial)
M-1 (Limited Manufacturing)	Redesignate M-1 (Light Industrial)
M-2 (Light Manufacturing)	Redesignate M-2 (Medium Industrial)
M-3 (General Manufacturing)	Redesignate M-3 (Heavy Industrial)
M-S (Mobilehome Subdivision)	Redesignate MS (Mobilehome Subdivision - 6,000 square feet)
M-S-1 (10,000 square feet)	Rezone to MS(1/4) (Mobilehome Subdivision - 1/4 acre)
M-S-2 (18,000 square feet)	Rezone to MS(1/2) (Mobilehome Subdivision - 1/2 acre)
M-S-3 (24,000 square feet)	Rezone to MS(1/2) (Mobilehome Subdivision - 1/2 acre)
M-S-4 (1 acre)	Rezone to MS(1) (Mobilehome Subdivision - 1 acre)
M-S-5 (2 1/2 acres)	Rezone to MS(2 1/2) (Mobilehome Subdivision - 2 1/2 acres)
M-S-6 (5 acres)	Rezone to MS(5) (Mobilehome Subdivision - 5 acres)
M-S-7 (10 acres)	Rezone to MS(10) (Mobilehome Subdivision - 10 acres)
M-S-8 (20 acres)	Rezone to MS(20) (Mobilehome Subdivision - 20 acres)

A (Exclusive Agricultural)	Redesignate A (Exclusive Agriculture)
M-P (Mobilehome Park)	Redesignate MP (Mobilehome Park)
A-1 (Light Agricultural)	Redesignate A-1 (Limited Agriculture)
A-2 (General Agricultural)	Rezone to A-1 (Limited Agriculture)
R-F (Recreational - Forestry)	Redesignate RF (Recreation-Forestry)
OS (Open Space)	OS (Open Space)
W-E (Wind Energy Overlay)	Redesignate WE (Wind Energy Combining)
NR (Natural Resource)	Rezone to NR(5) (Natural Resource - 5 acres)
NR-5 (5 acres)	Rezone to NR(5) (Natural Resource - 5 acres)
NR-10 (10 acres)	Rezone to NR(10) (Natural Resource - 10 acres)
NR-20 (20 acres)	Rezone to NR(20) (Natural Resource - 20 acres)
NR-40 (40 acres)	Rezone to NR(20) (Natural Resource - 20 acres)
P-E (Petroleum Extraction Overlay)	Redesignate PE (Petroleum Extraction Combining)
D-I (Drilling Island)	Redesignate DI (Drilling Island)
FP-P (Floodplain - Primary)	Redesignate FPP (Floodplain-Primary)
FP-S (Floodplain - Secondary)	Redesignate FPS (Floodplain-Secondary Combining)
MUD (Mudslide)	Eliminate entirely
P (Automobile Parking)	Rezone to P (Interim)
D (Architectural Design)	Redesignate D (Architectural Design Combining)
H (Airport Approach Height)	Redesignate H (Airport Approach Height Combining)
B (Buffer)	Rezone to CH (Highway Commercial)
P-D (Precise Development)	Redesignate PD (Precise Development)
T (Mobilehome)	
Freestanding	Rezone to R-1 (MH)
Combining	Rezone to MH (Mobilehome Combining)
M-H (Mobilehome on Foundation)	Redesignate MH (Mobilehome Combining)

Miscellaneous Combinations

E R-S T	Rezone to E(1/4) (MH)
E-8 R-S FP-P	Rezone to FPP
E-8 R-F	Rezone to E(20)
R-2 T	Rezone to R-2
R-4 T	Rezone to R-3
C-1 T	Rezone to C-1
C-2 T	Rezone to C-2
R-F E-8	Rezone to E(20)

KERN COUNTY ZONING ORDINANCE REVISION

DISPOSITION CHART

In addition to changes to the text of the Zoning Ordinance and to development standards in various zones, the comprehensive Zoning Ordinance revision program involves two other types of changes. The first type involves changes in zoning district designations or zoning district titles. For example (R-1 (One-family Dwelling) is changed to R-1 (Low-density Residential), R-F (Recreational Forestry) is changed to RF (Recreation-Forestry), and W-E (Wind Energy Overlay) is changed to WE (Wind Energy Combining). These are nonsubstantive changes and as the existing zoning maps are revised, the new designations will be substituted for the old.

The second type of changes can only be accomplished through rezonings. For example, R-4 is deleted in the new ordinance and all lands presently zoned R-4 are to be rezoned to R-3, and all E, M-S, and NR zones with lot sizes larger than the minimum are to be rezoned in combination with the Lot Size Combining District (e.g., E-8 becomes E(20)).

The following chart summarizes both types of proposed changes:

EXISTING ZONE	NEW DISTRICT
R-1 (One-family Dwelling)	Redesignate R-1 (Low-density Residential)
R-2 (Two-family Dwelling)	Redesignate R-2 (Medium-density Residential)
R-3 (Limited Multiple-family Dwelling)	Redesignate R-3 (High-density Residential)
R-4 (Multiple-family Dwelling)	Rezone to R-3 (High-density Residential)
R-S (Suburban Residential	
Freestanding R-S	Rezone to E (Estate 1/2 acre) (RS)
Combining R-S	Redesignate RS (Residential Suburban Combining)
E (10,000-square-foot Estate)	E (1/4) (Estate - 1/4 acre)
E-1 (12,000-square-foot Estate)	Rezone to E (1/4) (Estate - 1/4 acre)
E-2 (18,000-square-foot Estate)	Rezone to E (1/2) (Estate - 1/2 acre)
E-3 (24,000-square-foot Estate)	Rezone to E (1/2) (Estate - 1/2 acre)
E-4 (One-acre Estate)	Rezone to E (1) (Estate - 1 acre)
E-5 (2-1/2-acre Estate)	Rezone to E (2 1/2) (Estate - 2 1/2 acres)
E-6 (5-acre Estate)	Rezone to E (5) (Estate - 5 acres)
E-7 (10-acre Estate)	Rezone to E (10) (Estate - 10 acres)
E-8 (20-acre Estate)	Rezone to E (20) (Estate - 20 acres)
C-0 (Professional Office)	Redesignate CO (Commercial Office)
C-1 (Neighborhood Commercial)	C-1 (Neighborhood Commercial)
C-2 (Commercial)	Redesignate C-2 (General Commercial)
M-1 (Limited Manufacturing)	Redesignate M-1 (Light Industrial)
M-2 (Light Manufacturing)	Redesignate M-2 (Medium Industrial)
M-3 (General Manufacturing)	Redesignate M-3 (Heavy Industrial)
M-S (Mobilehome Subdivision)	Redesignate MS (Mobilehome Subdivision - 6,000 square feet)

M-S-1 (10,000 square feet)	Rezone to MS (1/4) (Mobilehome Subdivision - 1/4 acre)
M-S-2 (18,000 square feet)	Rezone to MS (1/2) (Mobilehome Subdivision - 1/2 acre)
M-S-3 (24,000 square feet)	Rezone to MS (1/2) (Mobilehome Subdivision - 1/2 acre)
M-S-4 (One acre)	Rezone to MS (1) (Mobilehome Subdivision - 1 acre)
M-S-5 (2 1/2 acres)	Rezone to MS (2 1/2) (Mobilehome Subdivision - 2 1/2 acres)
M-S-6 (5 acres)	Rezone to MS (5) (Mobilehome Subdivision - 5 acres)
M-S-7 (10 acres)	Rezone to MS (10) (Mobilehome Subdivision - 10 acres)
M-S-8 (20 acres)	Rezone to MS (20) (Mobilehome Subdivision - 20 acres)
A (Exclusive Agricultural)	Redesignate A (Exclusive Agriculture)
M-P (Mobilehome Park)	Redesignate MP (Mobilehome Park)
A-1 (Light Agricultural)	Redesignate A-1 (Limited Agriculture)
A-2 (General Agricultural)	Rezone to A-1 (Limited Agriculture)
R-F (Recreational Forestry)	Redesignate RF (Recreation-Forestry)
OS (Open Space)	OS (Open Space)
W-E (Wind Energy Overlay)	Redesignate WE (Wind Energy Combining)
NR (Natural Resource)	NR (Natural Resource - 5 acres)
NR-5 (5 acres)	Rezone to NR (Natural Resource - 5 acres)
NR-10 (10 acres)	Rezone to NR (Natural Resource - 10 acres)
NR-20 (20 acres)	Rezone to NR (Natural Resource - 20 acres)
NR-40 (40 acres)	Rezone to NR (Natural Resource 20)
P-E (Petroleum Extraction Overlay)	Redesignate PE (Petroleum Extraction Combining)
D-I (Drilling Island)	Redesignate DI (Drilling Island)
FP-P (Floodplain-Primary)	Redesignate FPP (Floodplain-Primary)
FP-S (Floodplain-Secondary)	Redesignate FPS (Floodplain-Secondary Combining)
MUD (Mudslide)	Eliminated entirely
P (Automobile Parking)	Rezone to P (Interim)
D (Architectural Design)	Redesignate D (Architectural Design Combining)
H (Airport Approach Height)	Redesignate H (Airport Approach Height Combining)
B (Buffer)	Rezone to CH (Highway Commercial)
P-D (Precise Development	Redesignate PD (Precise Development)
T (Mobilehome)	
Freestanding	Rezone to R-1 (MH)
Combining	Rezone to MH (Mobilehome Combining)
M-H (Mobilehome on Foundation)	Redesignate MH (Mobilehome Combining)

Miscellaneous Combinations

E R-S T	Rezone to E (1/4) (MH)
E-8 R-S FP-P	Rezone to FPP
E-8 R-F	Rezone to E (20)
R-2 T	Rezone to R-2
R-4 T	Rezone to R-3
C-1 T	Rezone to C-1
C-2 T	Rezone to C-2
R-F E-8	Rezone to E (20)
A-1 B	Rezone to CH
A-2 B	Rezone to CH

KERN COUNTY ZONING ORDINANCE

PART 7, DIVISION 1, CHAPTER 1

TABLE OF CONTENTS

PAGE

AUTHORITY AND PURPOSE

ARTICLE 7000 AUTHORITY, PURPOSES, AND EFFECT OF THE ZONING ORDINANCE . . . 1

ZONING DISTRICTS

ARTICLE 7010 ESTABLISHMENT OF ZONING DISTRICTS 4

Agricultural Districts

ARTICLE 7015 EXCLUSIVE AGRICULTURE (A) DISTRICT 7
ARTICLE 7020 LIMITED AGRICULTURE (A-1) DISTRICT 18

Residential Districts

ARTICLE 7025 ESTATE (E) DISTRICT 30
ARTICLE 7030 LOW-DENSITY RESIDENTIAL (R-1) DISTRICT 39
ARTICLE 7035 MEDIUM-DENSITY RESIDENTIAL (R-2) DISTRICT 47
ARTICLE 7040 HIGH-DENSITY RESIDENTIAL (R-3) DISTRICT 54
ARTICLE 7045 MOBILEHOME SUBDIVISION (MS) DISTRICT 61
ARTICLE 7050 MOBILEHOME PARK (MP) DISTRICT 67

Commercial Districts

ARTICLE 7055 COMMERCIAL OFFICE (CO) DISTRICT 77
ARTICLE 7060 NEIGHBORHOOD COMMERCIAL (C-1) DISTRICT 85
ARTICLE 7065 GENERAL COMMERCIAL (C-2) DISTRICT 95
ARTICLE 7070 HIGHWAY COMMERCIAL (CH) DISTRICT 108

Industrial Districts

ARTICLE 7075 LIGHT INDUSTRIAL (M-1) DISTRICT 116
ARTICLE 7080 MEDIUM INDUSTRIAL (M-2) DISTRICT 130
ARTICLE 7085 HEAVY INDUSTRIAL (M-3) DISTRICT 145

TABLE OF CONTENTS

PAGE

Special Purpose Districts

ARTICLE 7090 RECREATION-FORESTRY (RF) DISTRICT 162
ARTICLE 7095 OPEN SPACE (OS) DISTRICT 169
ARTICLE 7100 NATURAL RESOURCE (NR) DISTRICT 172
ARTICLE 7105 DRILLING ISLAND (DI) DISTRICT 180
ARTICLE 7110 FLOODPLAIN PRIMARY (FPP) DISTRICT 183
ARTICLE 7115 SPECIAL PLANNING (SP) DISTRICT 190

Combining Zone Districts

ARTICLE 7120 LOT SIZE COMBINING DISTRICT 195
ARTICLE 7125 PRECISE DEVELOPMENT (PD) COMBINING DISTRICT 198
ARTICLE 7130 CLUSTER (CL) COMBINING DISTRICT 203
ARTICLE 7135 RESIDENTIAL SUBURBAN (RS) COMBINING DISTRICT 207
ARTICLE 7140 MOBILEHOME FOUNDATION (MH) COMBINING DISTRICT 211
ARTICLE 7145 WIND ENERGY (WE) COMBINING DISTRICT 214
ARTICLE 7150 PETROLEUM EXTRACTION (PE) COMBINING DISTRICT 224
ARTICLE 7155 GEOLOGIC HAZARD (GH) COMBINING DISTRICT 227
ARTICLE 7160 FLOODPLAIN (FP) COMBINING DISTRICT 231
ARTICLE 7165 FLOODPLAIN SECONDARY (FPS) COMBINING DISTRICT 235
ARTICLE 7170 ARCHITECTURAL DESIGN (D) COMBINING DISTRICT 239
ARTICLE 7175 AIRPORT APPROACH HEIGHT (H) COMBINING DISTRICT 243

Interim Districts

ARTICLE 7190 INTERIM DISTRICTS 246

SPECIAL USE AND DEVELOPMENT STANDARDS

ARTICLE 7215 SPECIAL DEVELOPMENT STANDARDS 247
ARTICLE 7220 OFF-STREET PARKING 253
ARTICLE 7225 SIGNS 267
ARTICLE 7230 LANDSCAPING 279
ARTICLE 7235 HILLSIDE DEVELOPMENT 284
ARTICLE 7240 SECONDARY RESIDENTIAL UNITS 290
ARTICLE 7245 DENSITY BONUSES 293
ARTICLE 7250 HOME OCCUPATIONS 297
ARTICLE 7255 LARGE FAMILY DAY-CARE HOMES 301
ARTICLE 7260 OIL AND GAS PRODUCTION 304
ARTICLE 7265 SURFACE MINING OPERATIONS 310

TABLE OF CONTENTS

PAGE

GENERAL PROVISIONS

ARTICLE 7280 DEFINITIONS 319
ARTICLE 7282 INTERPRETATIONS AND MISCELLANEOUS PROVISIONS 359
ARTICLE 7284 PERMIT PROCEDURES 369
ARTICLE 7286 CONDITIONAL USE PERMITS 381
ARTICLE 7288 VARIANCES 384
ARTICLE 7290 ZONE MODIFICATIONS 387
ARTICLE 7292 AMENDMENTS TO THIS CHAPTER 390
ARTICLE 7294 ADMINISTRATION 393
ARTICLE 7296 NONCONFORMING USES, STRUCTURES, AND LOTS 394
ARTICLE 7298 ENFORCEMENT AND PENALTIES 397

APPENDIX

LAND USES MASTER LIST

LIST OF FIGURES

FIGURE		PAGE
220A	EXAMPLE OF 90 DEGREE PARKING	263
220B	EXAMPLE OF 30 DEGREE PARKING	263
220C	EXAMPLE OF 60 DEGREE PARKING	264
220D	EXAMPLE OF 45 DEGREE PARKING	265
220E	PARKING FACILITY ABUTTING A PUBLIC STREET OR ROAD . . .	266
225A	CALCULATION FOR AREA OF WALL SIGN	276
225B	CALCULATION FOR AREA OF POLE SIGN	277
225C	CALCULATION FOR AREA OF MONUMENT SIGN	278
235A	CALCULATION OF AVERAGE NATURAL SLOPE	289
280A	ABUTTING PROPERTY	355
280B	ILLUSTRATION OF LOTS: CORNER, INTERIOR, FLAG, REVERSE CORNER, THROUGH	356
280C	SETBACKS AND LOT LINES	357
280D	LOT LINE REAR	358
282A	FRONT YARD/REAR YARD	367
282B	MAXIMUM FENCE HEIGHT	368

ARTICLE 7000

AUTHORITY, PURPOSES, AND EFFECT OF THE ZONING ORDINANCE

SECTIONS:

7000.01 CITATION
7000.02 PURPOSES OF THE ZONING ORDINANCE
7000.03 APPLICABILITY
7000.04 COMPLIANCE WITH THE ORDINANCE
7000.05 VIOLATIONS OF THE ORDINANCE
7000.06 RELATIONSHIP TO OTHER REGULATIONS AND REQUIREMENTS
7000.07 BUILDINGS UNDER CONSTRUCTION
7000.08 VALIDITY

SECTION 7000.01 CITATION

This chapter shall be known as, and may be cited and referred to as, the "Zoning Ordinance of Kern County."

SECTION 7000.02 PURPOSES OF THE ZONING ORDINANCE

The Zoning Ordinance of Kern County is adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses throughout the unincorporated area of the County. Further, the purposes of this ordinance are to:

A. Provide the economic and social advantages resulting from an orderly planned use of land resources.

B. Encourage and guide development consistent with the Kern County General Plan.

C. Divide Kern County into zoning districts of a number, size, and location deemed necessary to carry out the purposes of the Kern County General Plan and this chapter.

D. Regulate the size and use of lots, yards, and other open spaces.

E. Regulate the use, location, height, bulk, and size of buildings and structures.

F. Regulate the intensity of land use.

G. Regulate the density of population in residential areas.

H. Establish requirements for off-street parking.

I. Regulate signs and billboards.

J. Provide for the enforcement of the regulations of this chapter.

SECTION 7000.03 APPLICABILITY

This chapter shall apply, to the extent permitted by law, to all property in unincorporated Kern County whether owned by private persons, firms, corporations or organizations; by the United States or any of its agencies; by the State of California or any of its agencies or political subdivisions; by any county or city, including the County of Kern; or by any authority or public entity organized under the laws of the State of California. Any governmental agency shall be exempt from the provisions of this chapter only to the extent that such property may not be lawfully regulated by the County of Kern.

SECTION 7000.04 COMPLIANCE WITH THE ORDINANCE

A. It shall be unlawful for any building or structure to be moved, erected, used, altered, enlarged, or rebuilt or for any use to be established or changed that does not strictly conform to the provisions of this chapter.

B. It shall be unlawful for any yard, open space, or land to be used for any purpose not specifically permitted by this chapter.

C. Any use not specifically permitted by the provisions of this chapter is prohibited. All prohibited uses specified at any place within this chapter are examples only and are not to be construed as a complete listing of all prohibited uses.

D. No department, official, or employee of the County of Kern vested with the duty or authority to issue permits or licenses for buildings, structures, or uses subject to the requirements of this chapter shall issue a permit or license in conflict with the provisions of this chapter; any permit or license issued in conflict with any provision of this chapter shall be null and void. Further, no permit or license shall be issued by any department, official, or employee of the County of Kern for any building, structure, or use subject to the requirements of this chapter on a parcel of land where the department, official, or employee is aware that a violation of this chapter exists.

SECTION 7000.05 VIOLATIONS OF THE ORDINANCE

Any person, firm, or corporation using any building, structure, or parcel of land in violation of any provision of this chapter is guilty of a misdemeanor and shall be prosecuted to the fullest extent of the law under Article 7298 of this chapter.

SECTION 7000.06 RELATIONSHIP TO OTHER REGULATIONS AND REQUIREMENTS

The regulations of this chapter and requirements or conditions imposed pursuant to this chapter shall not supercede any other regulations or requirements adopted or imposed by the Kern County Board of Supervisors, the Kern County Fire Department, the Kern County Health Department, the Regional Water Quality Control Board, the Air Pollution Control District, the Kern County Public Works Department, the Kern County Water Agency, or any other local, state, or federal agency that has jurisdiction by law over uses and development authorized by this chapter. All uses and development authorized by this chapter shall comply with all other such regulations and requirements. Where two (2) or more ordinances regulate the same use or activity, the more restrictive ordinance shall apply.

SECTION 7000.07 BUILDINGS UNDER CONSTRUCTION

Any building or structure for which a building permit has been issued prior to the effective date of this chapter may be completed and used in accordance with the plans, specifications, and permits on which said building permit was granted, if construction is commenced within one (1) year after the issuance of said permit and diligently pursued to completion. No extensions of time shall be granted for commencement of construction.

SECTION 7000.08 VALIDITY

If any section, subsection, paragraph, sentence, clause, or phrase of this chapter is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this chapter. The Board of Supervisors hereby declares that it would have passed this chapter, and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any or one or more sections, subsections, sentences, clauses, or phrases be declared invalid or unconstitutional.

ARTICLE 7010

ESTABLISHMENT OF ZONING DISTRICTS

SECTIONS:

7010.01 ESTABLISHMENT OF BASE ZONING DISTRICTS
7010.02 ESTABLISHMENT OF COMBINING ZONING DISTRICTS
7010.03 INTERIM ZONING DISTRICTS
7010.04 ZONING MAPS
7010.05 SPECIAL PLANNING DISTRICTS

SECTION 7010.01 ESTABLISHMENT OF BASE ZONING DISTRICTS

In order to classify, regulate, restrict, and segregate the uses of lands and buildings, to regulate and restrict the height, bulk, and construction of buildings, to regulate the area of yards and other open spaces around buildings, and to regulate intensity of land use and the density of population, the following base zoning districts are hereby established:

Agricultural Districts

A Exclusive Agriculture District
A-1 Limited Agriculture District

Residential Districts

E Estate District
R-1 Low-density Residential District
R-2 Medium-density Residential District
R-3 High-density Residential District
MS Mobilehome Subdivision District
MP Mobilehome Park District

Commercial Districts

CO Commercial Office District
C-1 Neighborhood Commercial District
C-2 General Commercial District
CH Highway Commercial District

Industrial Districts

M-1 Light Industrial District
M-2 Medium Industrial District
M-3 Heavy Industrial District

Special Purpose Districts

RF Recreation-Forestry District
OS Open Space District
NR Natural Resource District
DI Drilling Island District
FPP Floodplain Primary District
SP Special Planning District

Every lot or parcel of land, or portion thereof, in unincorporated Kern County shall be classified in only one of the base zoning districts established by this section.

SECTION 7010.02 ESTABLISHMENT OF COMBINING ZONING DISTRICTS

In order to classify, regulate, restrict, and segregate the uses of lands and buildings, to regulate and restrict the height, bulk and construction of buildings, to regulate the area of yards and other open spaces around buildings, and to regulate intensity of land use and the density of population, the following combining zoning districts are hereby established:

Lot Size Combining District
(PD) Precise Development Combining District
(CL) Cluster Combining District
(RS) Residential Suburban Combining District
(MH) Mobilehome Combining District
(WE) Wind Energy Combining District
(PE) Petroleum Extraction Combining District
(GH) Geologic Hazard Combining District
(FP) Floodplain Combining District
(FPS) Floodplain Secondary Combining District
(D) Architectural Design Combining District
(H) Airport Approach Height Combining District

In addition to being classified in a base zoning district, a lot or parcel of land, or portion thereof, may be classified in one or more combining zoning districts established by this section. When used on official zone maps, combining districts shall be shown in parenthesis.

SECTION 7010.03 INTERIM ZONING DISTRICTS

The Automobile Parking (P) zone classification in effect on the date of adoption of this chapter has been determined by the Board of Supervisors to be no longer necessary to effect the purposes of the Kern County Zoning Ordinance. The P District shall be an interim zone district, and no additional areas shall be so zoned. All development within the P District shall comply with the requirements and standards set out in Article 7220 of this chapter.

SECTION 7010.04 ZONING MAPS

The boundaries of the zoning districts established by this chapter are not included in this chapter but are shown on the Official Zoning Maps maintained by the Kern County Department of Planning and Development Services. The Official Zoning Maps and all notations, references, and other information shown thereon shall be as much a part of this chapter as if the matters and information set forth on such maps were all fully described herein.

SECTION 7010.05 SPECIAL PLANNING DISTRICTS

Special planning districts adopted in accordance with the provisions of Article 7115 of this chapter shall be incorporated as a part of this chapter at Article 7299. Any adopted special planning district shall define the zoning district boundaries and the terms and conditions of development within those boundaries.

ARTICLE 7015

EXCLUSIVE AGRICULTURE (A) DISTRICT

SECTIONS:

7015.01 PURPOSE AND APPLICATION
7015.02 PERMITTED USES
7015.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7015.04 PROHIBITED USES
7015.05 MINIMUM LOT SIZE
7015.06 MINIMUM LOT AREA PER DWELLING UNIT
7015.07 YARDS AND SETBACKS
7015.08 HEIGHT LIMITS
7015.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7015.10 PARKING
7015.11 SIGNS
7015.12 LANDSCAPING
7015.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7015.01 PURPOSE AND APPLICATION

The purpose of the Exclusive Agriculture (A) District is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Uses in the A District are limited primarily to agricultural uses and other activities compatible with agricultural uses.

SECTION 7015.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. AGRICULTURAL USES

Growing and Harvesting Crops

1. Berry crops
2. Bush crops
3. Christmas trees
4. Field crops, dryland
5. Field crops, irrigated
6. Flowers and horticultural specialties, wholesale only
7. Greenhouse, wholesale only

8. Nursery, plant, wholesale only

9. Nut and fruit trees

10. Timber

11. Vegetables

12. Vine crops

Breeding and Raising Animals

13. Bee keeping

14. Beef cattle or livestock grazing

15. Birds, including show or racing pigeons and other small fowl

16. Dairy stock grazing

17. Fish and frogs

18. Hogs, excluding a hog farm or ranch

19. Horses, donkeys, or mules

20. Poultry, including hatching, breeding, butchering, processing or shipping of chickens, turkeys, or other fowl or poultry, including eggs

21. Rabbits or fur-bearing animals

22. Sheep or goats

Agricultural Industries

23. Agricultural services, when incidental and secondary to the primary use of the premises for agriculture

24. Animal products processing, including meat packing, canning, and shipping, when the livestock is produced or grown by the owner of the processing facility on the premises or on land leased, rented, or owned by the owner of the processing facility and within a reasonable distance of the facility

25. Contract harvesting, when incidental and secondary to the primary use of the premises for agriculture

26. Fruit, vegetable, and plant products processing, including cold storage, packing, preserving, canning, and shipping, when the agricultural products are produced or grown by the owner of the processing facility on the premises or on land leased, rented, or

owned by the owner of the processing facility and within a reasonable distance of the facility

27. Honey extraction

B. RESIDENTIAL USES

1. Farm labor housing for on-site employees

2. Mobilehome, occupied by the owner or full-time on-site employee

3. Residential accessory structures

4. Single-family dwelling, occupied by the owner or full-time on-site employee

C. COMMERCIAL USES

General Retail Sales

1. Fruit stand, temporary, pursuant to Section 7015.13.B

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

2. Utility substation

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Cogeneration facility, primarily intended for steam production used for production of oil or gas

2. Explosives storage, temporary

3. Mineral exploration

4. Oil or gas exploration and production pursuant to Article 7260

5. Solar energy electrical generators with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

6. Wind-driven electrical generators for on-site consumption of the electricity

F. MISCELLANEOUS USES

1. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map
2. Flood control facilities
3. Garage or yard sales pursuant to Section 7015.13.D
4. Hunting or fishing club, not involving structures
5. Water storage or groundwater recharge facilities
6. Water system, small
7. Wildlife or nature preserve

SECTION 7015.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to those uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. AGRICULTURAL USES

Breeding and Raising of Animals

1. Beef cattle or livestock feed lot or stock auction or sales yard
2. Hogs, including hog farms and ranches

Agricultural Industries

3. Alcohol distillery
4. Agricultural chemical storage and repackaging
5. Agricultural trucking facilities
6. Brewery
7. Biomass energy conversion
8. Cold storage facility for agricultural products
9. Contract harvesting
10. Cotton gin
11. Creamery

12. Dairy

13. Fertilizer manufacture and storage for agricultural use only

14. Flour mill

15. Fruit, vegetable, and plant products processing, including freezing, packing, preserving, and shipping

16. Glucose processing

17. Grain elevator or storage

18. Oil extraction, nonmineral

19. Tasting room, when accessory to an existing winery or brewery

20. Winery

21. Wool pulling and scouring

B. RESIDENTIAL USES

1. Farm labor housing for contract labor

C. COMMERCIAL USES

General Retail Sales

1. Fruit stands, permanent

D. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Equestrian establishment

2. Guest ranch, when accessory to a commercial ranching operation

3. Park or playground

4. Race track, automobile, bicycle, horse, or motorcycle

5. Shooting range or gun club, outdoor only

E. TRANSPORTATION FACILITIES

1. Airport, private

2. Airport, public use

3. Heliport

F. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Concrete or asphalt batch plant, temporary
2. Dam, small hydro
3. Dam, large hydro
4. Electrical power generating plant
5. Explosives storage, permanent
6. Mining and mineral extraction pursuant to Article 7265
7. Rock, gravel, sand, or soils crushing, processing, or distribution, when accessory to an approved mining operation

H. WASTE FACILITIES

1. Hazardous waste disposal facility
2. Nonhazardous oily waste disposal facility
3. Sanitary landfill
4. Septage disposal site
5. Sewage treatment plant
6. Transfer station, large volume
7. Transfer station, small volume
8. Waste-to-energy facility

I. INSTITUTIONAL USES

1. Cemetery, mausoleum, columbarium, or mortuary
2. Charitable or public service organization
3. Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary
4. Fire or police station
5. Government office or building

6. Water treatment plant

7. Wild animal keeping

8. Zoo

J. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

5. College or university

K. MISCELLANEOUS USES

1. Drainage sump

2. Hunting or fishing club

3. Water system, large

4. Wild animal keeping

SECTION 7015.04 PROHIBITED USES

All other uses not permitted by Sections 7015.02 and 7015.03 are prohibited, including final map subdivisions.

SECTION 7015.05 MINIMUM LOT SIZE

No portion of any lot within the A District shall contain less than twenty (20) gross acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites. In the event the lot is under Williamson Act Contract and designated 8.3 by the General Plan, the minimum area shall be eighty (80) acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites. There shall be no minimum lot size for agricultural industry uses approved in conjunction with a conditional use permit.

SECTION 7015.06 MINIMUM LOT AREA PER DWELLING UNIT

There shall be no more than one principal single-family dwelling per legal lot, except pursuant to Section 7015.02.

SECTION 7015.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easements.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of a building of not less than five (5) feet, except that on the street side of corner lots, buildings shall be set back a minimum of ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7015.08 HEIGHT LIMITS

A. Residential buildings shall not exceed three (3) stories or thirty-five (35) feet in height.

B. There is no height limit on nonresidential structures.

SECTION 7015.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be at least ten (10) feet between any residential buildings.

B. There shall be at least six (6) feet between a residential building and any nonresidential structure, except that pens, coops, stables, barns, corrals, other structures for housing livestock and buildings for processing, packing, or storing agricultural produce shall be at least one hundred (100) feet away from any residential building.

SECTION 7015.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7015.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or for rent, not to exceed eight (8) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary construction signs

C. Temporary political, religious, or civic campaign signs

D. Agricultural signs

E. Agricultural industry signs, when approved in conjunction with a conditional use permit

F. Institutional identification signs, when approved in conjunction with a conditional use permit

G. Off-site directional signs for agricultural product direct marketing facilities pursuant to Section 7015.13.C

SECTION 7015.12 LANDSCAPING

None required.

SECTION 7015.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. Development in the A District shall comply with the interpretations and provisions of Article 7282 of this chapter.

B. Temporary fruit stands for the sale of agricultural, horticultural, or farming products permitted pursuant to Section 7015.02 shall comply with the following standards:

1. The floor area of the fruit stand shall not exceed four hundred (400) square feet.

2. The fruit stand shall not be located closer than fifty-five (55) feet from the centerline of any public road, street, or highway right-of-way.

3. The stand shall be erected in such a manner that it can be readily removed by means of skids or other device.

4. The owner shall remove the stand at his/her own expense when the stand is not in use for a period of thirty (30) days.

5. Customer parking areas shall be treated with a dust binder in a manner to continuously prevent fugitive dust.

C. Off-site directional signs for agricultural product direct marketing facilities subject to the following standards:

1. The direct marketing facility shall be established and operated in accordance with the provisions of this chapter and shall be primarily limited to the sale of unprocessed agricultural commodities grown on the same ranch or farm that provides such sale.

2. The maximum sign area for each sign shall not exceed one hundred and fifty (150) square feet.

3. The number of signs shall be limited to a maximum of nine (9).

4. The minimum spacing between signs shall be six hundred and sixty (660) feet.

5. The signs are for directional purposes only, and the text shall be limited to the producer's name or his brand name, the products available, and directions to the location of the point of sale.

6. Signs may be illuminated only during the actual hours that the facility is open for public sale of products.

7. Sign height shall not exceed twelve (12) feet.

8. Signs are permitted for a temporary, cumulative period of seven (7) months within any calendar year.

9. Any sign permitted in accordance with this section shall not be located more than five (5) miles from the direct marketing facility for which the sign provides directions, unless the facility is located more than five (5) miles from a designated County major highway or State or federal highway. In such cases, a single sign may be located at the nearest designated County major highway or State or federal highway, regardless of the distance from the facility.

10. All signs shall comply with the provisions and regulations of the California Department of Transportation, Outdoor Advertising Branch, when located adjacent to a State or federal highway.

11. Prior to installation of any sign, a plan showing the location and the spacing of each sign shall be submitted to the Director of Planning and Development Services for approval. A copy of said plan shall be retained by the Department of Planning and Development Services for file purposes.

D. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

E. Development in the A District shall also comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7020

LIMITED AGRICULTURE (A-1) DISTRICT

SECTIONS:

7020.01 PURPOSE AND APPLICATION
7020.02 PERMITTED USES
7020.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7020.04 PROHIBITED USES
7020.05 MINIMUM LOT SIZE
7020.06 MINIMUM LOT AREA PER DWELLING UNIT
7020.07 YARDS AND SETBACKS
7020.08 HEIGHT LIMITS
7020.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7020.10 PARKING
7020.11 SIGNS
7020.12 LANDSCAPING
7020.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7020.01 PURPOSE AND APPLICATION

The purpose of the Limited Agriculture (A-1) District is to designate areas suitable for a combination of estate-type residential development, agricultural uses and other compatible uses. Final map residential subdivisions are not allowed in the A-1 District.

SECTION 7020.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. AGRICULTURAL USES

Growing and Harvesting Crops

1. Berry crops
2. Bush crops
3. Christmas trees
4. Field crops, dryland
5. Field crops, irrigated
6. Flowers and horticultural specialties, wholesale only
7. Greenhouse, wholesale only

8. Nursery, plant, wholesale only

9. Nut and fruit trees

10. Timber

11. Vegetables

12. Vine crops

Breeding and Raising Animals

13. Bee keeping

14. Beef cattle or livestock grazing pursuant to Section 7020.13

15. Dairy stock pursuant to Section 7020.13

16. Fish and frogs

17. Hogs pursuant to Section 7020.13

18. Horses, donkeys, and mules pursuant to Section 7020.13

19. Poultry, for the domestic use of the resident/occupant only (not including poultry ranches)

20. Rabbits and fur-bearing animals

21. Sheep and goats pursuant to Section 7020.13

B. RESIDENTIAL USES

1. Mobilehome or recreational vehicle, temporary, during construction of a single-family home pursuant to Section 7020.13

2. Residential accessory structures

3. Single-family dwelling

C. COMMERCIAL USES

General Retail Sales

1. Fruit stand, temporary, pursuant to Section 7020.13

D. UTILITY AND COMMUNICATION FACILITIES

1. Transmission lines, towers, poles, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Cogeneration facility, primarily intended for steam production, used for production of oil and gas

2. Mineral exploration

3. Oil or gas exploration and production pursuant to Article 7260

4. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

5. Wind-driven electrical generator for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

F. MISCELLANEOUS USES

1. Day-care home, large family, pursuant to Article 7255

2. Day-care home, small family

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Garage or yards sales pursuant to Section 7020.13.F

5. Home occupation pursuant to Article 7250

6. Water system, small

7. Wildlife or nature preserve

SECTION 7020.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Farm labor housing for on-site farm employees

2. Mobilehome

3. Secondary residential unit pursuant to Article 7240

B. AGRICULTURAL USES

1. Poultry, including hatching, breeding, butchering, processing or shipping of chickens, turkeys, or other fowl or poultry, including eggs.

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Circus or carnival, temporary
2. Country club
3. Equestrian establishment
4. Fishing or fly casting pond
5. Golf course
6. Golf driving range
7. Park or playground.
8. Race track, automobile, bicycle, horse, or motorcycle

D. COMMERCIAL USES

General Retail Sales

1. Fruit stand, permanent

E. TRANSPORTATION FACILITIES

1. Airport, private
2. Airport, public
3. Heliport

F. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Concrete or asphalt batch plant, temporary
2. Electrical power generating plant, excluding nuclear or coal powered
3. Mining and mineral extraction pursuant to Section 7265

4. Solar energy electrical generators, commercial

5. Wind-driven electrical generators, commercial

H. WASTE FACILITIES

1. Community septic disposal system

2. Septage disposal site

3. Sewage treatment plant

4. Transfer station, small volume

5. Waste-to-energy facility

I. INSTITUTIONAL USES

1. Auditorium, public

2. Cemetery, mausoleum, columbarium, or mortuary

3. Charitable or public service organization

4. Church

5. Club or lodge

6. Community or senior citizens center

7. Crematory in conjunction with a cemetery, mausoleum, columbarium, or mortuary

8. Hospital

9. Museum

10. Public agency or public utility buildings and facilities

11. Sanitarium

12. Water treatment plant

13. Zoo

J. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

5. College or university

K. MISCELLANEOUS USES

1. Day-care center

2. Drainage sump

3. Flood control facilities

4. Kennel

5. Revival, temporary

6. Water storage or groundwater recharge facilities

7. Water system, large

8. Wild animal keeping

SECTION 7020.04 PROHIBITED USES

All other uses not expressly permitted by Sections 7020.02 and 7020.03 are prohibited, including final tract map residential subdivisions.

SECTION 7020.05 MINIMUM LOT SIZE

No portion of any lot within the A-1 District shall contain less than two and one-half (2 1/2) gross acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7020.06 MINIMUM LOT AREA PER DWELLING UNIT

There shall be no more than one principal single-family dwelling per legal lot.

SECTION 7020.07 YARDS AND SETBACKS

A. **Front Yard.** The front yard minimum setback for all buildings shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easements.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of any building of not less than five (5) feet, except that on the street side of corner lots, buildings shall be set back a minimum of ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line. However, within the rear twenty-five (25) feet of all reverse corner lots, there shall be a minimum side yard of twenty-five (25) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7020.08 HEIGHT LIMITS

A. Residential buildings shall not exceed three (3) stories or thirty-five (35) feet in height.

B. Radio and television antennae, chimneys, and other similar structures shall not exceed eighty (80) feet in height.

SECTION 7020.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be at least ten (10) feet between residential buildings.

B. There shall be at least six (6) feet between a residential building and a nonresidential structure, except that pens, coops, stables, barns, corrals, and other structures for housing livestock and buildings for processing, packing, or storage of agricultural produce shall be at least one hundred (100) feet away from any residential building.

SECTION 7020.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7020.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed eight (8) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary construction signs

C. Temporary political, religious, or civic campaign signs

D. Agricultural signs

E. Institutional identification signs, when approved in conjunction with a conditional use permit

F. Off-site directional signs for agricultural product direct marketing facilities pursuant to Section 7013.E

SECTION 7020.12 LANDSCAPING

None required.

SECTION 7020.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. The breeding and raising of livestock permitted pursuant to Section 7020.02 shall be limited to one horse, donkey, mule, cow, dairy stock, goat, hog, sheep, or other similar animal per one-quarter (1/4) acre of lot area.

B. Temporary fruit stands for the sale of agricultural, horticultural, or farming products permitted pursuant to Section 7020.02 shall comply with the following standards:

1. The floor area of the fruit stand shall not exceed four hundred (400) square feet.

2. The fruit stand shall not be located closer than fifty-five (55) feet from the centerline of any public road, street, or highway right-of-way.

3. The stand shall be erected in such a manner that it can be readily removed by means of skids or other device.

4. The owner shall remove the stand at his/her own expense when the stand is not in use for a period of thirty (30) days.

5. Customer parking areas shall be treated with a dust binder in a manner to continuously prevent fugitive dust.

C. The breeding and raising of livestock, in greater numbers than allowed by Section 7020.13.A, by minors in conjunction with a student-oriented fair project sponsored by a bonafide agricultural organization shall be permitted upon application to and approval by the Director of Planning

and Development Services of a Temporary Animal Permit in accordance with the procedures set out in Section 7284.02 of this chapter.

1. Application Contents:

   An application for a Temporary Animal Permit shall include the following:

   a. The name and address of the applicant

   b. The name(s) and address(es) of the property owner(s)

   c. Assessor's parcel number(s)

   d. Legal description of the subject property

   e. Name of the organization sponsoring the applicant

   f. A plot plan showing the location of proposed pens, coops, or areas for the breeding and raising of animals in relation to existing residence(s) and other buildings and structures within one hundred (100) feet of pens, coops, or areas housing livestock

   g. The signature of each owner of the real property abutting the subject lot consenting to the granting of the Temporary Animal Permit

2. Development Standards and Conditions:

   The breeding and raising of animals on a temporary basis shall comply with the following standards and conditions:

   a. Applicant shall be sponsored by a bonafide organization, such as, but not limited to, Future Farmers of America, 4-H Club, Cow-Belles, or Junior Farmers.

   b. The increase in animal density shall not exceed the density allowed by Section 7013.A by more that fifty (50) percent. In any case, however, at least two (2), but no more than six (6), additional animals shall be allowed.

   c. The Temporary Animal Permit shall be effective for a maximum period of six (6) months from the effective date of the permit. No more than one (1) such permit shall be approved for any lot within a one- (1-) year period.

   d. The written consent of each abutting property owner consenting to the granting of the Temporary Animal Permit must be obtained.

e. The applicant shall allow inspection of animal maintenance facilities by the Kern County Department of Planning and Development Services (Building Inspection Division), and the Kern County Health Department.

f. The Director of Planning and Development Services may revoke the Temporary Animal Permit at any time for noncompliance with Section 7020.13.C.2 or upon receipt of a recommendation for revocation from the Kern County Health Department.

g. Each additional animal authorized by the Temporary Animal Permit over the allowable animal density specified by Section 7020.13.A shall be removed upon expiration of the permit.

D. A mobilehome or recreational vehicle permitted as a temporary dwelling pursuant to Section 7020.02 shall comply with the following standards:

1. Building permits for construction of the conventional single-family residence shall be obtained prior to or concurrently with the installation permit for the mobilehome.

2. The mobilehome shall be removed from the premises or the recreational vehicle shall be removed from the premises or placed in dead storage if:

a. Six (6) months have passed since the mobilehome or recreational vehicle was installed.

b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.

c. The building permit has lapsed due to lack of activity.

3. One (1) extension of time for a period not to exceed six (6) months may be granted by the Director of Planning and Development Services upon written request of the property owner. The extension of time may only be approved subject to the following conditions:

a. An active building permit is on file with the Kern County Department of Planning and Development Services (Building Inspection Division).

b. The construction of the conventional dwelling unit on the site has progressed to a stage of inspection and approval of the framing, rough electrical, rough mechanical, and rough and top-out of plumbing of the dwelling.

4. Any mobilehome or recreational vehicle permitted as a temporary dwelling in excess of a six (6) month period of time pursuant to Section 7020.13.D.3 shall be removed or placed in dead storage if:

a. The extension of time has expired.

b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.

c. The building permit has lapsed due to lack of activity.

E. Off-site directional signs for agricultural product direct marketing facilities subject to the following standards:

1. The direct marketing facility shall be established and operated in accordance with the provisions of this chapter and shall be primarily limited to the sale of unprocessed agricultural commodities grown on the same ranch or farm that provides such sale.

2. The maximum sign area for each sign shall not exceed one hundred and fifty (150) square feet.

3. The number of signs shall be limited to a maximum of nine (9).

4. The minimum spacing between signs shall be six hundred and sixty (660) feet.

5. The signs are for directional purposes only, and the text shall be limited to the producer's name or his brand name, the products available, and directions to the location of the point of sale.

6. Signs may be illuminated only during the actual hours that the facility is open for public sale of products.

7. Sign height shall not exceed twelve (12) feet.

8. Signs are permitted for a temporary, cumulative period of seven (7) months within any calendar year.

9. Any sign permitted in accordance with this section shall not be located more than five (5) miles from the direct marketing facility for which the sign provides directions, unless the facility is located more than five (5) miles from a designated County major highway or State or federal highway. In such cases, a single sign may be located at the nearest designated County major highway or State or federal highway, regardless of the distance from the facility.

10. All signs shall comply with the provisions and regulations of the California Department of Transportation, Outdoor Advertising Branch, when located adjacent to a State or federal highway.

11. Prior to installation of any sign, a plan showing the location and the spacing of each sign shall be submitted to the Director of Planning and Development Services for approval. A copy of said plan shall be retained by the Department of Planning and Development Services for file purposes.

F. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

G. Development in the A-1 District shall also comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7025

ESTATE (E) DISTRICT

SECTIONS:

7025.01 PURPOSE AND APPLICATION
7025.02 PERMITTED USES
7025.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7025.04 PROHIBITED USES
7025.05 MINIMUM LOT SIZE
7025.06 MINIMUM LOT AREA PER DWELLING UNIT
7025.07 YARDS AND SETBACKS
7025.08 HEIGHT LIMITS
7025.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7025.10 PARKING
7025.11 SIGNS
7025.12 LANDSCAPING
7025.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7025.01 PURPOSE AND APPLICATION

The purpose of the Estate (E) District is to designate areas suitable for larger lot residential living environments. Uses are limited to those typical of and compatible with quiet residential neighborhoods. The minimum lot size shall be one-quarter (1/4) acre (10,890 square feet) unless the E District is combined with the Lot Size Combining District (7120) where a larger minimum lot size is specified. The minimum lot size may be reduced when any E District is combined with the Cluster (CL) Combining District (7130).

SECTION 7025.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. AGRICULTURAL USES

1. Breeding and raising animals pursuant to Section 7025.13

2. Growing of agricultural crops for domestic use of the resident/occupant

B. RESIDENTIAL USES

1. Mobilehome or recreational vehicle, temporary, during construction of a single-family dwelling pursuant to Section 7025.13

2. Residential accessory structures

3. Single-family dwelling

C. UTILITY AND COMMUNICATION FACILITIES

1. Transmission lines, towers, poles, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

D. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

E. MISCELLANEOUS USES

1. Day-care home, large family, pursuant to Article 7255

2. Day-care home, small family

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Garage or yard sales pursuant to Section 7025.13.C

5. Home occupation pursuant to Article 7250

6. Water system, small

SECTION 7025.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. AGRICULTURAL USES

1. Birds, including show or racing pigeons and other small fowl in excess of twelve (12), raised for noncommercial purposes

B. RESIDENTIAL USES

1. Additional single-family dwellings, subject to the density limit set by Section 7025.06

2. Community care facility

3. Mobilehome

4. Retirement or rest home

5. Secondary residential unit pursuant to Article 7240

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Community recreational facilities

2. Country club

3. Golf course

4. Golf driving range

5. Park or playground

6. Race track, automobile, bicycle, horse, or motorcycle

7. Recreational vehicle park

8. Sports arena, indoor

9. Sports arena, outdoor, excluding flea market or swap meet

10. Swimming pool, public

11. Tennis or swim club

D. COMMERCIAL USES

Offices

1. Temporary on-site real estate tract sales

E. SERVICES

1. Ambulance

F. TRANSPORTATION FACILITIES

1. Airport, private

2. Airport, public use

3. Heliport

G. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

2. Utility substation not specifically exempted by State Law

H. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Mineral exploration
2. Mining and mineral extraction pursuant to Article 7265
3. Oil or gas exploration and production pursuant to Article 7260
4. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity
5. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

I. WASTE FACILITIES

1. Sewage treatment plant

J. INSTITUTIONAL USES

1. Cemetery, mausoleum, columbarium, or mortuary
2. Charitable or public service organization
3. Church
4. Club or lodge
5. Community or senior citizens center
6. Crematory in conjunction with a cemetery, mausoleum, columbarium, or mortuary
7. Library
8. Museum
9. Sanitarium
10. Water treatment plant

K. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool
2. Elementary School
3. Junior high school

4. Senior high school

5. College or university

L. MISCELLANEOUS USES

1. Day-care center

2. Community septic disposal system

3. Drainage sump

4. Flood control facilities

5. Water storage or groundwater recharge facilities

6. Water system, large

SECTION 7025.04 PROHIBITED USES

All other uses not permitted by Sections 7025.02 and 7025.03 are prohibited.

SECTION 7025.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the E District shall contain less than one-quarter (1/4) acre (10,890 net square feet) or as specified by the Lot Size Combining District, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7025.06 MINIMUM LOT AREA PER DWELLING UNIT

Except as otherwise provided in Article 7130, there shall be no more than one dwelling unit per minimum lot size specified by the Lot Size Combining District with which the E District is combined.

SECTION 7025.07 YARDS AND SETBACKS

A. **Front Yard.** Except as otherwise provided in Section 7282.07, the front-yard minimum setback for all buildings shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easements.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of any building of not less than five (5) feet, except that on the street side of corner lots, buildings shall be set back a minimum of ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line. However, within the rear twenty-five (25) feet of all reverse corner lots, there shall be a minimum side yard of twenty-five (25) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7025.08 HEIGHT LIMITS

A. Residential buildings shall not exceed three (3) stories or thirty-five (35) feet.

B. Detached accessory structures shall not exceed two (2) stories or thirty-five (35) feet.

C. Radio and television antennae, chimneys, and other similar structures shall not exceed eighty (80) feet.

SECTION 7025.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be a minimum distance of ten (10) feet between residential buildings.

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, or other structures for housing animals shall be at least thirty (30) feet away from any residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution.

SECTION 7025.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7025.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed six (6) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision signs

D. Temporary construction signs

E. Temporary political, religious, and civic campaign signs

F. Institutional identification signs, when approved in conjunction with a conditional use permit

SECTION 7025.12 LANDSCAPING

None required.

SECTION 7025.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. The breeding and raising of animals permitted pursuant to Section 7025.02 shall be limited to poultry, rabbits and birds for domestic or hobby purposes, or similar small fowl and animals raised for food, scientific, or fur-bearing purposes, provided not more than twelve (12) of any one or combination of such animals may be maintained on a single lot.

B. A mobilehome or recreational vehicle permitted as a temporary dwelling pursuant to Section 7025.02 shall comply with the following standards:

1. Building permits for construction of the conventional single-family residence shall be obtained prior to or concurrently with the installation permit for the mobilehome.

2. The mobilehome shall be removed from the premises or the recreational vehicle shall be removed from the premises or placed in dead storage if:

   a. Six (6) months has passed since the mobilehome or recreational vehicle was installed.

   b. Seven (7) days has passed since the conventional dwelling unit was approved for occupancy.

   c. The building permit has lapsed due to lack of activity.

3. One (1) extension of time for a period not to exceed six (6) months may be granted by the Director of Planning and Development Services upon written request of the property owner. The extension of time may only be approved subject to the following conditions:

   a. An active building permit is on file with the Kern County Department of Planning and Development Services (Building Inspection Division).

   b. The construction of the conventional dwelling unit on the site has progressed to a stage of inspection and approval of the framing, rough electrical, rough mechanical, and rough and top-out of plumbing of the dwelling.

4. Any mobilehome or recreational vehicle permitted as a temporary dwelling in excess of a six (6) month period of time pursuant to Section 7025.13.B.3 shall be removed or placed in dead storage if:

   a. The extension of time has expired.

   b. Seven (7) days has passed since the conventional dwelling unit was approved for occupancy.

   c. The building permit has lapsed due to lack of activity.

C. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

D. Development in the E District shall also comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7030

LOW-DENSITY RESIDENTIAL (R-1) DISTRICT

SECTIONS:

7030.01 PURPOSE AND APPLICATION
7030.02 PERMITTED USES
7030.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7030.04 PROHIBITED USES
7030.05 MINIMUM LOT SIZE
7030.06 MINIMUM LOT AREA PER DWELLING UNIT
7030.07 YARDS AND SETBACKS
7030.08 HEIGHT LIMITS
7030.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7030.10 PARKING
7030.11 SIGNS
7030.12 LANDSCAPING
7030.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7030.01 PURPOSE AND APPLICATION

The purpose of the Low-density Residential (R-1) District is to designate areas which will be suitable for traditional smaller lot, single-family homes and compatible uses. Maximum density is limited to ten (10) dwelling units per net acre. Typically, the R-1 District will be characterized by the typical single-family subdivision. However, innovative low-intensity projects are allowed in combination with the Cluster (CL) Combining District.

SECTION 7030.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. AGRICULTURAL USES

1. Breeding and raising animals pursuant to Section 7030.13

2. Growing of agricultural crops for domestic use of resident/occupant

B. RESIDENTIAL USES

1. Condominium pursuant to Section 7130

2. Mobilehome or recreational vehicle, temporary, during construction of a single-family dwelling pursuant to Section 7030.13

3. Residential accessory structures

4. Single-family dwelling, one per legal lot only

C. RECREATIONAL, ENTERTAINMENT, AND TOURIST FACILITIES

1. Community recreational facilities

D. UTILITY AND COMMUNICATION FACILITIES

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

F. MISCELLANEOUS USES

1. Day-care home, large family, pursuant to Article 7255

2. Day-care home, small family

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Garage or yard sales pursuant to Section 7030.13.C

5. Home occupation pursuant to Article 7250

6. Water system, small

SECTION 7030.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Additional single-family dwellings, not to exceed a density of one (1) dwelling unit per four thousand three hundred fifty-six (4,356) square feet
2. Community care facility
3. Mobilehome
4. Retirement or rest home
5. Secondary residential unit pursuant to Article 7240

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Country club
2. Golf course
3. Golf driving range
4. Park or playground
5. Swimming pool, public
6. Tennis or swim club

C. COMMERCIAL USES

Offices

1. Temporary on-site real estate tract sales

Services

2. Ambulance

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator
2. Utility substation

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Mineral exploration
2. Mining and mineral extraction pursuant to Article 7265
3. Oil or gas exploration and production pursuant to Article 7260

4. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

5. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

F. WASTE FACILITIES

1. Sewage treatment plant

G. INSTITUTIONAL USES

1. Cemetery, mausoleum, columbarium, or mortuary

2. Charitable or public service organization

3. Church

4. Club or lodge

5. Community or senior citizens center

6. Crematory in conjunction with a cemetery, mausoleum, columbarium, or mortuary

7. Library

8. Museum

9. Public agency or public utility buildings and facilities

10. Sanitarium

11. Water treatment plant

H. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

5. College or university

I. **MISCELLANEOUS USES**

1. Day-care center
2. Community septic disposal system
3. Drainage sump
4. Flood control facilities
5. Water storage or groundwater recharge facilities
6. Water system, large

SECTION 7030.04 PROHIBITED USES

All other uses not permitted by Sections 7030.02 and 7030.03 are prohibited.

SECTION 7030.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the R-1 District shall contain less than six thousand (6,000) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7030.06 MINIMUM LOT AREA PER DWELLING UNIT

Except as otherwise provided in Section 7030.03 and Article 7130, there shall be no more than one (1) dwelling unit per legal lot.

SECTION 7030.07 YARDS AND SETBACKS

A. **Front Yard.** Except as otherwise provided in Section 7282.07, the front-yard minimum setback for all buildings shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easements.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of any building of not less than five (5) feet, except that on the street side of corner lots, buildings shall be set back a minimum of ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line. However, within the rear twenty-five (25) feet of all reverse corner lots, there shall be a minimum side yard of twenty-five (25) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7030.08 HEIGHT LIMITS

A. Residential buildings shall not exceed three (3) stories or thirty-five (35) feet.

B. Detached accessory structures shall not exceed two (2) stories or thirty-five (35) feet.

C. Radio and television antennae, chimneys, and other similar structures shall not exceed eighty (80) feet.

SECTION 7030.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be a minimum distance of ten (10) feet between residential buildings.

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, or other structures for housing animals shall be at least thirty (30) feet away from any residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution.

SECTION 7030.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7030.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed six (6) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision signs

D. Temporary construction signs

E. Temporary political, religious, and civic campaign signs

F. Institutional identification signs, approved in conjunction with a conditional use permit

SECTION 7030.12 LANDSCAPING

None required.

SECTION 7030.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. The breeding and raising of animals permitted pursuant to Section 7030.02 shall be limited to poultry, rabbits and birds for domestic or hobby purposes, or similar small fowl and animals raised for food, scientific, or fur-bearing purposes, provided not more than twelve (12) of any one or combination of such animals may be maintained on a single lot.

B. A mobilehome or recreational vehicle permitted as a temporary dwelling pursuant to Section 7030.02 shall comply with the following standards:

1. Building permits for construction of the conventional single-family residence shall be obtained prior to or concurrently with the installation permit for the mobilehome.

2. The mobilehome shall be removed from the premises or the recreational vehicle shall be removed from the premises or placed in dead storage if:

   a. Six (6) months have passed since the mobilehome or recreational vehicle was installed.

   b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.

   c. The building permit has lapsed due to lack of activity.

3. One (1) extension of time for a period not to exceed six (6) months may be granted by the Director of Planning and Development Services upon written request of the property owner. The extension of time may only be approved subject to the following conditions:

a. An active building permit is on file with the Kern County Department of Planning and Development Services (Building Inspection Division).

b. The construction of the conventional dwelling unit on the site has progressed to a stage of inspection and approval of the framing, rough electrical, rough mechanical, and rough and top-out of plumbing of the dwelling.

4. Any mobilehome or recreational vehicle permitted as a temporary dwelling in excess of a six (6) month period of time pursuant to Section 7030.13.B.3 shall be removed or placed in dead storage if:

a. The extension of time has expired.

b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.

c. The building permit has lapsed due to lack of activity.

C. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

D. Development in the R-1 District shall also comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7035

MEDIUM-DENSITY RESIDENTIAL (R-2) DISTRICT

SECTIONS:

7035.01 PURPOSE AND APPLICATION
7035.02 PERMITTED USES
7035.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7035.04 PROHIBITED USES
7035.05 MINIMUM LOT SIZE
7035.06 MINIMUM LOT AREA PER DWELLING UNIT
7035.07 YARDS AND SETBACKS
7035.08 HEIGHT LIMITS
7035.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7035.10 PARKING
7035.11 SIGNS
7035.12 LANDSCAPING
7035.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7035.01 PURPOSE AND APPLICATION

The purpose of the Medium-density Residential (R-2) District is to designate areas for single-family, duplex, and other medium-density, multi-family residential uses. The maximum density allowed is sixteen (16) dwelling units per net acre. While single-family houses and duplexes typify this district, other innovative housing techniques, including clustering and zero lot line developments, are permitted in combination with the Cluster (CL) Combining District.

SECTION 7035.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Apartment
2. Condominium
3. Duplex
4. Quadruplex
5. Residential accessory structures
6. Single-family dwelling
7. Triplex

B. RECREATIONAL, ENTERTAINMENT, AND TOURIST FACILITIES

1. Community recreational facilities

C. UTILITY AND COMMUNICATION FACILITIES

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission, pursuant to Section 7282.04

D. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

E. MISCELLANEOUS USES

1. Construction trailer, temporary, during construction activity only

2. Day-care center for on-site care of children

3. Day-care home, large family, pursuant to Article 7255

4. Day-care home, small family, when located within a detached single-family dwelling

5. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

6. Garage or yard sales pursuant to Section 7035.13.B

7. Home occupation pursuant to Article 7250

8. Water system, small

SECTION 7035.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards set out in Article 7215 and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Community care facility
2. Mobilehome
3. Retirement or rest home

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Country club
2. Golf course
3. Golf driving range
4. Park or playground
5. Swimming pool, public
6. Tennis or swim club

C. COMMERCIAL USES

Offices

1. Temporary on-site real estate tract sales

Services

2. Ambulance

D. TRANSPORTATION FACILITIES

1. Auto parking garage or lot, when located within five hundred (500) feet of the business or businesses it is intended to serve

E. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator
2. Utility substation

F. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Mineral exploration
2. Mining and mineral extraction pursuant to Article 7265
3. Oil or gas exploration and production pursuant to Article 7260

4. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

5. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

G. WASTE FACILITIES

1. Sewage treatment plant

H. INSTITUTIONAL

1. Cemetery, mausoleum, columbarium, or mortuary

2. Charitable or public service organization

3. Church

4. Club or lodge

5. Community or senior citizens center

6. Crematory in conjunction with a cemetery, mausoleum, columbarium, or mortuary

7. Library

8. Museum

9. Public agency or public utility buildings and facilities

10. Sanitarium

11. Water treatment plant

I. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

5. College or university

J. **MISCELLANEOUS USES**

1. Day-care center
2. Drainage sump
3. Community septic disposal system
4. Flood control facilities
5. Water storage or groundwater recharge facilities
6. Water system, large

SECTION 7035.04 PROHIBITED USES

All other uses not permitted by Sections 7035.02 and 7035.03 are prohibited.

SECTION 7035.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the R-2 District shall contain less than six thousand (6,000) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7035.06 MINIMUM LOT AREA PER DWELLING UNIT

Except as otherwise provided in Article 7130, there shall be a minimum of two thousand seven hundred twenty-two (2,722) net square feet of lot area per dwelling unit.

SECTION 7035.07 YARDS AND SETBACKS

A. **Front Yard.** Except as otherwise provided in Section 7282.07, the front-yard minimum setback for all buildings shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easement.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of any building of not less than five (5) feet, except that on the street side of corner lots, buildings shall be set back a minimum of ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line. However, within the rear twenty-five (25) feet of all reverse corner lots, there shall be a minimum side yard of twenty-five (25) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7035.08 HEIGHT LIMITS

A. Residential buildings shall not exceed three (3) stories or thirty-five (35) feet.

B. Detached accessory structures shall not exceed two (2) stories or thirty-five (35) feet.

C. Radio and television antennae, chimneys, and other similar structures shall not exceed eighty (80) feet.

SECTION 7035.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be a minimum of ten (10) feet between residential buildings.

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings.

SECTION 7035.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7035.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed six (6) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision identification signs

D. Temporary construction signs

E. Temporary political, religious, and civic campaign signs

F. Institutional identification signs, approved in conjunction with a conditional use permit

SECTION 7035.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7035.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the R-2 District shall comply with the minimum standards set out in Article 7215 of this chapter except for one (1) single-family dwelling.

B. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

C. Development in the R-2 District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7040

HIGH-DENSITY RESIDENTIAL (R-3) DISTRICT

SECTIONS:

7040.01 PURPOSE AND APPLICATION
7040.02 PERMITTED USES
7040.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7040.04 PROHIBITED USES
7040.05 MINIMUM LOT SIZE
7040.06 MINIMUM LOT AREA PER DWELLING UNIT
7040.07 YARDS AND SETBACKS
7040.08 HEIGHT LIMITS
7040.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7040.10 PARKING
7040.11 SIGNS
7040.12 LANDSCAPING
7040.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7040.01 PURPOSE AND APPLICATION

The purpose of the High-density Residential (R-3) District is to designate areas appropriate for a variety of medium- to high-density residential living environments, including apartments, townhouses, and condominiums. The maximum allowable density is twenty-nine (29) dwelling units per net acre. The R-3 District may only be applied to those urban areas of the County which have adequate utility, street, and public facility capacity.

SECTION 7040.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Apartment
2. Condominium
3. Duplex
4. Quadruplex
5. Residential accessory structures
6. Single-family dwelling

7. Townhouse

8. Triplex

B. RECREATIONAL, ENTERTAINMENT, AND TOURIST FACILITIES

1. Community recreation facilities

C. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, pipelines and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission, pursuant to Section 7282.04

D. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

E. MISCELLANEOUS USES

1. Construction trailer, temporary, during construction activity only

2. Day-care center for on-site care of children

3. Day-care home, large family, pursuant to Article 7255

4. Day-care home, small family, when located within a detached single-family dwelling

5. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

6. Garage or yard sales pursuant to Section 7040.13.B

7. Home occupation pursuant to Article 7250

8. Water system, small

SECTION 7040.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all those determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards

set out in Article 7215 and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Boarding or rooming house
2. Community care facility
3. Fraternity or sorority house
4. Mobilehome
5. Retirement or rest home
6. Residential hotel

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Country club
2. Golf course
3. Golf driving range
4. Park or playground
5. Swimming pool, public
6. Tennis or swim club

C. COMMERCIAL USES

Offices

1. Temporary on-site real estate tract sales

Services

2. Ambulance

D. TRANSPORTATION FACILITIES

1. Auto parking garage or lot, when located within five hundred (500) feet of the business or businesses it is intended to serve

E. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator
2. Utility substation

F. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Mineral exploration
2. Mining and mineral extraction pursuant to Article 7265
3. Oil or gas exploration and production pursuant to Article 7260
4. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity
5. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

G. WASTE FACILITIES

1. Community septic disposal system
2. Sewage treatment plant

H. INSTITUTIONAL USES

1. Cemetery, mausoleum, columbarium, or mortuary
2. Charitable or public service organization
3. Church
4. Club or lodge
5. Community center or senior citizens center
6. Crematory in conjunction with a cemetery, mausoleum, columbarium, or mortuary
7. Library
8. Museum
9. Public agency or public utility buildings and facilities
10. Sanitarium
11. Water treatment plant

I. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool
2. Elementary school

3. Junior high school

4. Senior high school

5. College or university

J. **MISCELLANEOUS USES**

1. Day-care center

2. Drainage sump

3. Flood control facilities

4. Water storage or groundwater recharge facilities

5. Water system, large

SECTION 7040.04 PROHIBITED USES

All other uses not permitted by Sections 7040.02 and 7040.03 are prohibited.

SECTION 7040.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the R-3 District shall contain less than six thousand (6,000) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7040.06 MINIMUM LOT AREA PER DWELLING UNIT

Except as otherwise provided in Article 7130, there shall be a minimum of one thousand five hundred (1,500) net square feet of lot area per dwelling unit.

SECTION 7040.07 YARDS AND SETBACKS

A. **Front Yard.** Except as otherwise provided in Section 7282.07, the front-yard minimum setback for all buildings shall be as follows:

Forty-five (45) feet from the legal centerline of any existing or proposed public or private local street or access easement.

Sixty (60) feet from the legal centerline of any existing or proposed secondary highway.

Seventy (70) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than fifteen (15) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of any building of not less than five (5) feet, except that on the street side of corner lots, buildings shall be set back a minimum of ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line. However, within the rear twenty-five (25) feet of all reverse corner lots, there shall be a minimum side yard of fifteen (15) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7040.08 HEIGHT LIMITS

Buildings and structures shall not exceed four (4) stories or forty-five (45) feet.

SECTION 7040.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be a minimum distance of ten (10) feet between residential buildings.

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings.

SECTION 7040.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Section 7220 of this chapter.

SECTION 7040.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed eight (8) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision signs

D. Temporary construction signs

E. Temporary political, religious, and civic campaign signs

F. Institutional identification signs, approved in conjunction with a conditional use permit

SECTION 7040.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7040.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development, except for one (1) single family dwelling, in the R-3 District shall comply with the minimum standards set out in Article 7215 of this chapter.

B. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

C. Development in the R-3 District shall also comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7045

MOBILEHOME SUBDIVISION (MS) DISTRICT

SECTIONS:

7045.01 PURPOSE AND APPLICATION
7045.02 PERMITTED USES
7045.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7045.04 PROHIBITED USES
7045.05 MINIMUM LOT SIZE
7045.06 MINIMUM LOT AREA PER DWELLING UNIT
7045.07 YARDS AND SETBACKS
7045.08 HEIGHT LIMITS
7045.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7045.10 PARKING
7045.11 SIGNS
7045.12 LANDSCAPING
7045.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7045.01 PURPOSE AND APPLICATION

The purpose of the Mobilehome Subdivision (MS) District is to designate areas suitable for mobilehome residential living environments and to restrict development within these areas to final map subdivisions in accordance with the Kern County Subdivision Ordinance. Uses are limited to those typical of and compatible with residential neighborhoods. The minimum lot size shall be six thousand (6,000) square feet unless the MS District is combined with the Lot Size Combining District (Article 7120) where a larger minimum lot size is specified. The minimum lot size may be reduced when any MS District is combined with the Cluster (CL) Combining District (Article 7130). All mobilehomes shall have permanent foundation systems or shall be recessed in the ground so that no portion of the undercarriage is visible. Recessing is not permitted when the mobilehome is connected to liquified petroleum gas (LPG).

SECTION 7045.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. AGRICULTURAL USES

1. Growing of agricultural crops for domestic use of the resident/occupant

2. Breeding and raising of animals pursuant to Section 7045.13.C

B. RESIDENTIAL USES

1. Mobilehome

2. Residential accessory structures, upon installation of mobilehome

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Community recreational facilities

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

F. MISCELLANEOUS USES

1. Day-care home, large family, pursuant to Article 7255

2. Day-care home, small family

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Garage or yard sales pursuant to Section 7045.13.D

5. Home occupation pursuant to Article 7250

6. Water system, small

SECTION 7045.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Community care facility

B. COMMERCIAL USES

Offices

1. Temporary on-site real estate tract sales

C. UTILITY AND COMMUNICATIONS FACILITIES

1. Utility substation

D. INSTITUTIONAL USES

1. Public agency or utility buildings or facilities

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Oil or gas exploration and production pursuant to Article 7260

2. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

F. MISCELLANEOUS USES

1. Drainage sump

2. Flood control facilities

3. Water storage or groundwater recharge facilities

4. Water system, large

G. WASTE FACILITIES

1. Community septic disposal system

2. Sewage treatment plant

3. Water treatment plant

SECTION 7045.04 PROHIBITED USES

All other uses not permitted by Sections 7045.02 and 7045.03 are prohibited, including dwellings other than mobilehomes.

SECTION 7045.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the MS District shall contain less than six thousand (6,000) net square feet

or as otherwise specified by the Lot Size Combining District, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7045.06 MINIMUM LOT AREA PER DWELLING UNIT

There shall be no more than one dwelling unit per legal lot.

SECTION 7045.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easement.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of a main building of not less than five (5) feet on one side and not less than ten (10) feet on the other side, except that on the street side of corner lots, buildings shall be set back a minimum of ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line. However, within the rear twenty-five (25) feet of all reverse corner lots, there shall be a minimum side yard of twenty-five (25) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7045.08 HEIGHT LIMITS

A. Buildings and structures shall not exceed two (2) stories or twenty-five (25) feet.

B. Radio and television antennae, chimneys, and other similar structures shall not exceed eighty (80) feet.

SECTION 7045.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be a minimum of ten (10) feet between residential buildings.

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, or other structures for housing animals shall be at least thirty (30) feet away from any residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution.

SECTION 7045.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7045.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed six (6) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision identification signs

D. Temporary construction signs

E. Temporary political, religious, and civic campaigns

F. Institutional identification signs, approved in conjunction with a conditional use permit

SECTION 7045.12 LANDSCAPING

None required.

SECTION 7045.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. No development shall be permitted within the MS District prior to recordation of a final map subdivision in accordance with the Kern County Subdivision Ordinance.

B. Each mobilehome shall have a permanent foundation system or be recessed in the ground so that no portion of the undercarriage is visible. A mobilehome shall not be recessed if connected to liquified petroleum gas (LPG). If the foundation system used results in exposed areas between the foundation and the mobilehome, then aluminum skirting shall be installed and maintained in place around the base of the mobilehome at all times. Skirting of equal material durability and design may be approved by the Director of Planning and Development Services.

C. The breeding and raising of animals permitted pursuant to Section 7045.02 shall be limited to poultry, rabbits and birds for domestic or hobby purposes, or similar small fowl and animals raised for food, scientific, or fur-bearing purposes, provided not more than twelve (12) of any one or combination of such animals may be maintained on a single lot.

D. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

E. Development in the MS District shall also comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7050

MOBILEHOME PARK (MP) DISTRICT

SECTIONS:

7050.01 PURPOSE AND APPLICATION
7050.02 PERMITTED USES
7050.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7050.04 PROHIBITED USES
7050.05 MINIMUM LOT SIZE
7050.06 MINIMUM LOT AREA PER DWELLING UNIT
7050.07 YARDS AND SETBACKS
7050.08 HEIGHT LIMITS
7050.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7050.10 PARKING
7050.11 SIGNS
7050.12 LANDSCAPING
7050.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7050.01 PURPOSE AND APPLICATION

The purpose of the Mobilehome Park (MP) District is to designate areas for medium-density mobilehome living areas. Uses are limited to mobilehome parks with spaces, mobilehomes available for rent, accessory uses, and recreational vehicle parks. Maximum density is regulated by the applicable General Plan land use category. Foundations for mobilehomes in mobilehome parks are permitted but not required.

SECTION 7050.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters

2. Mobilehome

3. Mobilehome park, including accessory laundry and storage facilities

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Community recreational facilities

2. Recreational vehicle park, as an accessory use provided that the mobilehome park abuts and gains entrance from a major highway as designated on the Kern County Circulation Plan, and further provided that the area of such recreational vehicle park does not exceed twenty-five (25) percent of the combined area of the mobilehome park and recreational vehicle park

C. **MISCELLANEOUS USES**

1. Day-care center for on-site care of children

2. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

3. Water system, small

SECTION 7050.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

A. **MISCELLANEOUS USES**

1. Drainage sump

2. Garage or yards sales pursuant to Section 7050.13.E

3. Water system, large

4. Water treatment plant

SECTION 7050.04 PROHIBITED USES

All other uses not expressly permitted by Sections 7050.02 and 7050.03 are prohibited, including home occupations and commercial uses.

SECTION 7050.05 MINIMUM LOT SIZE

None.

SECTION 7050.06 MINIMUM LOT AREA PER DWELLING UNIT

None, except that overall project density shall comply with the density and intensity standards of the applicable General Plan land use category.

SECTION 7050.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for mobilehome parks measured from the exterior boundary of the park shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of a mobilehome park, measured from the exterior boundary of the park, of not less than five (5) feet, except that on the street side of a corner lot, the mobilehome park shall be set back in accordance with the front-yard setback requirements.

C. **Rear Yard.** There shall be a rear yard measured from the exterior boundary of the park of not less than five (5) feet for a mobilehome park, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7050.08 HEIGHT LIMITS

A. Mobilehomes and accessory structures thereto shall not exceed two (2) stories or twenty-five (25) feet.

B. Community recreational facilities shall not exceed two (2) stories or thirty-five (35) feet.

C. Radio and television antennae, chimneys, and other similar structures shall not exceed eighty (80) feet.

SECTION 7050.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. The minimum distance between mobilehomes within a mobilehome park shall be as follows:

1. Ten (10) feet from side to side

2. Eight (8) feet from side to rear

3. Six (6) feet from rear to rear

B. There shall be a minimum distance of ten (10) feet between each building other than a mobilehome or mobilehome accessory structures.

C. There shall be a minimum distance of ten (10) feet between a mobilehome and a building, excepting mobilehome accessory structures.

SECTION 7050.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7050.11 SIGNS

The following types of signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the mobilehome for sale or rent, not to exceed six (6) square feet each, excluding the area of any vertical and/or horizontal support members

B. Permanent subdivision identification signs

C. Temporary construction signs

D. Temporary political, religious, or civic campaign signs.

SECTION 7050.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7050.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

No use shall be established, no development shall occur, and no building or grading permit shall be issued for any use or development in the MP District until an application for site development plan review has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter.

A. Application Contents:

An application for site development plan review shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A site development plan, drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

a. Topography and proposed grading

b. Proposed private access drives and parking areas

c. Location of all mobilehome pads

d. Location of all permanent buildings and structures

e. Park, open space, and recreation areas

f. Proposed landscaping

g. North arrow

6. Elevations of all permanent common buildings

7. Phasing or development schedule

8. A detailed description of facility improvements, including:

a. Curb, gutter, sidewalks, and street widths

b. Water supply system

c. Sewage collection and disposal system

d. Public utilities

e. Fencing

9. Any reports, approvals, or requirements specified as mitigation measures by any environmental document for implementation of this district for specific parcels and a plan for compliance with the recommendations contained in such reports.

B. Development Standards and Conditions:

Development within the MP District shall comply with the following minimum standards:

1. Consistency with the General Plan

All development shall be consistent with the goals and policies of the General Plan and with the uses and density/intensity standards of the applicable General Plan land use category.

2. Access, Access Drives, and Parking

a. All access drives within a mobilehome park shall be not less than twenty-five (25) feet in width.

b. Guest parking shall be distributed throughout the mobilehome park as required by Article 7220.

c. All vehicular parking areas and drives shall be surfaced and graded in accordance with the requirements for local streets as contained in the Kern County Subdivision Ordinance.

d. All mobilehome spaces shall have frontage on internal private drives. No mobilehome space shall have direct access to a public street or public alley.

e. All mobilehome park sites shall have access from an abutting improved and dedicated County street or highway.

3. Public Street and Highway Dedications and Improvements

a. Street and highway dedications adjacent to mobilehome parks may be required by the Director of Planning and Development Services in accordance with the following standards:

(1) If the park is adjacent to a major highway, as shown on the Kern County Circulation Plan, the owner shall dedicate or make an irrevocable offer of dedication of all property lying within fifty-five (55) feet of the centerline of such highway for public highway purposes, at no cost to the County.

(2) If the park is adjacent to a secondary highway, as shown on the Kern County Circulation Plan, the owner shall dedicate or make an irrevocable offer of dedication of all property lying within forty-five (45) feet of the centerline of such highway for public highway purposes, at no cost to the County.

(3) If the park lies adjacent to the projected alignment of a planned local street which is necessary for circulation within the general area or neighborhood, the owner shall dedicate or make an irrevocable offer of dedication of all that property lying within thirty (30) feet of the centerline of such street for public street purposes, at no cost to the County.

(4) If the park is adjacent to an adopted Specific Plan or Official Plan Line, the owner shall dedicate or make an irrevocable offer of dedication of all property lying within the specified right-of-way line for public highway purposes, at no cost to the County.

b. Improvements may be required by the Director of Planning and Development Services, at no cost to the County, in accordance with the following standards:

(1) **Bakersfield Designated Urban Area.** In conformity with Type A Subdivision Standards, including installation of curb, gutter, sidewalk, and concrete driveway approach.

(2) **All Other Designated Urban Areas.** In conformity with Type B Subdivision Standards.

c. Required street and highway improvements shall include any necessary tie to existing pavement and shall be under permit of the County or the State Division of Highways, as appropriate.

4. Recreational Areas and Facilities

a. If a mobilehome park contains ten (10) or more mobilehome spaces, or if a mobilehome park combined with a recreational vehicle park as a secondary use contains a combination of ten (10) or more mobilehome spaces and recreational vehicle spaces, an open area of land devoted to and landscaped for recreational use shall be provided within the park.

b. Such recreational area shall be no less than five thousand (5,000) square feet, plus an additional one hundred (100) square feet for each space in excess of twenty-five (25) spaces.

c. Required recreational areas may be divided into more than one location, provided no single location contains less than one thousand (1,000) square feet.

d. No building or mobilehome shall occupy a required recreational area, excepting buildings and structures necessary or used and devoted to recreational uses, such as recreation buildings, swimming pools, swimming pool accessory buildings, saunas, playgrounds with or without equipment, picnic areas, or other improved open space areas.

e. No required front yard, side yard, or rear yard of the park, or any mobilehome space, recreational vehicle space, or storage area may be counted toward the requirement for recreational space.

f. The required recreational space shall be accessible to all occupants of the park and shall not be used for any other purpose than recreational use of the occupants of the park, except that such space may be used for any subsurface sewage effluent absorption facilities where approved by the Kern County Health Department.

5. Enclosures

   a. Each mobilehome park shall be completely enclosed within a fence, hedge, or combination thereof, subject to the approval of the Director of Planning and Development Services as to design and materials.

   b. Such enclosure may have driveway or pedestrian way openings, subject to approval by the Director of Planning and Development Services.

   c. Within any required front yard, a required enclosure shall be four (4) feet in height.

   d. Within any other portion of the park, a required enclosure shall be six (6) feet in height.

   e. When deemed necessary by the Director of Planning and Development Services, in order to maintain standards compatible with existing development of adjacent properties, specific types of fences may be required to be constructed.

6. Utility Installation

   a. All public utility transmission lines located within the park shall be placed underground.

   b. Utility connections to each mobilehome space shall be placed underground.

7. Drainage

   a. A drainage system shall be installed prior to occupancy of the park and shall be continuously maintained in accordance with a plan approved by the Director of Planning and Development Services.

   b. The plan shall include, but is not limited to, the following provisions:

      (1) All drainage originating on the park site shall be contained on the same site, unless a plan for acceptance of such drainage to off-site sumps has been approved by the Kern County Department of Planning and Development Services.

      (2) The method for transporting off-site drainage through a mobilehome park shall be in accordance with the criteria for the 100-year flood.

(3) In the event that any drainage sump area located within the park has a water holding capacity of more than eighteen (18) inches in depth, the area shall be completely enclosed within a chain link fence, six (6) feet in height with vertical redwood slats.

8. Water Distribution and Sewage Disposal Systems

a. A water distribution system shall be installed prior to occupancy of the park and shall be continuously maintained, in accordance with a plan approved by the Kern County Health Department and the Kern County Fire Department.

b. A sewage disposal system shall be installed prior to occupancy of the park and shall be continuously maintained, in accordance with a plan approved by the Kern County Health Department and the Regional Water Quality Control Board.

C. School Facilities Fee Requirement:

Thirty (30) days from the effective date hereof, the approval of any mobilehome park under this article is conditioned upon the payment of any fees or the dedication of any land required by standards established under the Kern County School Facilities Ordinance (commencing with Section 5890 of the Kern County Ordinance Code) which may be in effect with respect to the school district or any attendance area thereof in which such mobilehome park is located at the time final approval under this article is issued. Payment of any fees or the dedication of any land so required shall be completed by the owner of any such mobilehome park prior to issuance of a permit to construct, reconstruct, expand, or operate such mobilehome park as specified in the approval.

D. State Permit Requirements:

The mobilehome park operator shall secure necessary building permits and an operating license from the State of California.

E. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

F. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7055

COMMERCIAL OFFICE (CO) DISTRICT

SECTIONS:

7055.01 PURPOSE AND APPLICATION
7055.02 PERMITTED USES
7055.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7055.04 PROHIBITED USES
7055.05 MINIMUM LOT SIZE
7055.06 MINIMUM LOT AREA PER DWELLING UNIT
7055.07 YARDS AND SETBACKS
7055.08 HEIGHT LIMITS
7055.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7055.10 PARKING
7055.11 SIGNS
7055.12 LANDSCAPING
7055.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7055.01 PURPOSE AND APPLICATION

The purpose of the Commercial Office (CO) District is to designate areas suitable for business and professional offices. The CO District may serve as a buffer between retail commercial and residential areas. The CO District may also be combined with the Cluster (CL) Combining District to achieve innovative, creative office or commercial development. Uses in the CO District are limited to low-intensity commercial activities and generally higher-density residential developments.

SECTION 7055.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters

B. COMMERCIAL USES

Offices

1. Business or professional
2. Real estate
3. Research and development

General Retail Sales

4. Art gallery

Services

5. Artist studio

6. Interior decorator, provided there is no on-site sale of merchandise

7. Laboratory, medical, dental, optical, or biological

8. Photography studio

9. Telegraph

10. Ticket agency

11. Travel agency

C. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

D. INSTITUTIONAL USES

1. Church

2. Community or senior citizens center

3. Government office or building for administrative purposes

4. Library

5. Museum, indoor only

E. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

Specialized Schools

5. Art, craft, or music school

6. Business or trade school, provided that all instruction is conducted within a building and that there is no outside storage of materials or supplies associated with the school

7. Dance school

8. Driving school

9. Martial arts school

10. Swim school

F. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

G. MISCELLANEOUS USES

1. Construction trailer, temporary, during construction activity only

2. Day-care center

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Studio, radio, television, or broadcasting

5. Water system, small

SECTION 7055.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards set out in Article 7215 and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Apartment
2. Boarding or rooming house
3. Community care facility
4. Condominium
5. Duplex
6. Fraternity or sorority house
7. Quadruplex
8. Retirement or rest home
9. Residential hotel
10. Residential accessory structures
11. Single-family dwelling
12. Townhouse
13. Triplex

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Circus or carnival, temporary
2. Health club, indoor only
3. Park or playground
4. Swimming pool, public, indoor only
5. Tennis club, indoor only

C. COMMERCIAL USES

Services

1. Ambulance
2. Financial institution, including bank, savings and loan, or credit union

D. **TRANSPORTATION FACILITIES**

1. Auto parking garage or lot
2. Heliport

E. **UTILITY AND COMMUNICATIONS FACILITIES**

1. Radio, television, or commercial communications transmitter, receiver, or translator
2. Utility substation

F. **INSTITUTIONAL USES**

1. Cemetery, mausoleum, columbarium, or mortuary
2. Charitable or public service organization
3. Club or lodge
4. Convalescent hospital
5. Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary
6. Fire or police station
7. Hospital
8. Labor union hall
9. Post office
10. Public agency or utility buildings and facilities
11. Sanitarium

G. **WASTE FACILITIES**

1. Community septic disposal system
2. Sewage treatment plant

H. **RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES**

1. Oil and gas exploration and production pursuant to Article 7260
2. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

3. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

I. **MISCELLANEOUS USES**

1. Commercial coach, when incidental to a permitted use
2. Drainage sump
3. Flood control facilities
4. Off-site advertising sign
5. Water storage or groundwater recharge facility
6. Water system, large
7. Water treatment plant

SECTION 7055.04 PROHIBITED USES

All other uses not permitted by Sections 7055.02 and 7055.03 are prohibited.

SECTION 7055.05 MINIMUM LOT SIZE

Except where otherwise provided in Article 7130, no portion of any lot within the CO District shall contain less than seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7055.06 MINIMUM LOT AREA PER DWELLING UNIT

There shall be a minimum of one thousand five hundred (1,500) square feet of lot area per dwelling unit when dwellings are permitted with a conditional use permit.

SECTION 7055.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Forty (40) feet from the legal centerline of any existing or proposed public or private local street and access easement.

Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

In no case shall the buildings be located in the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** None required.

C. **Rear Yard.** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required where a public alley exists adjacent to the rear property line. The Director of Planning and Development Services may reduce rear yard requirements in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief.

D. **Yards and Setbacks for Residential Development.** Yards and setbacks for residential developments shall be the same as those specified in Section 7040.07.

SECTION 7055.08 HEIGHT LIMITS

Buildings and structures shall not exceed four (4) stories or forty-five (45) feet.

SECTION 7055.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. None required for nonresidential buildings.

B. There shall be a minimum distance of ten (10) feet between residential buildings.

C. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings.

SECTION 7055.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7055.11 SIGNS

The following types of signs are permitted in accordance with Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed eight (8) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision identification signs, when approved in conjunction with a conditional use permit

D. Temporary construction signs

E. Temporary political, religious, or civic campaign signs

F. Institutional identification signs

G. Signs attached to buildings (on site only)

H. Monument signs, not to exceed twenty-four (24) square feet in area each (on site only)

The maximum permitted area for all signs shall not exceed two (2) square feet for each lineal foot of street frontage.

SECTION 7055.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7055.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the CO District shall comply with the minimum requirements set out in Article 7215 of this chapter.

B. Development in the CO District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7060

NEIGHBORHOOD COMMERCIAL (C-1) DISTRICT

SECTIONS:

7060.01 PURPOSE AND APPLICATION
7060.02 PERMITTED USES
7060.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7060.04 PROHIBITED USES
7060.05 MINIMUM LOT SIZE
7060.06 MINIMUM LOT AREA PER DWELLING UNIT
7060.07 YARDS AND SETBACKS
7060.08 HEIGHT LIMITS
7060.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7060.10 PARKING
7060.11 SIGNS
7060.12 LANDSCAPING
7060.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7060.01 PURPOSE AND APPLICATION

The purpose of the Neighborhood Commercial (C-1) District is to designate areas for low-intensity commercial activities oriented to serving nearby residential areas. The C-1 District may also be combined with the Cluster (CL) Combining District to achieve innovative, creative office or commercial developments. Uses in the C-1 District typically include small retail, service-oriented commercial activities, including small shopping centers. The C-1 District generally will be located on major or secondary highways.

SECTION 7060.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Health club
2. Tennis or swim club, indoor only

C. COMMERCIAL USES

Offices

1. Business or professional
2. Financial institution, including bank, savings and loan, or credit union
3. Real estate
4. Research and development

General Retail Sales

5. Appliances, including service and repair, provided there is no outside storage
6. Art gallery
7. Auto parts and accessories
8. Bicycle, including rental and service
9. Bookstore, general
10. Christmas tree, temporary
11. Clothing and apparel
12. Drugs and pharmaceuticals
13. Fireworks stand, temporary
14. Florist
15. Gift and card
16. Hardware, general, excluding lumber sales, and outside storage of materials
17. Ice vending machine
18. Lawnmower, including repair, when located entirely within a building
19. Locksmith or key and lock shop
20. Newspaper or magazine stand
21. Shoes

22. Stationary and office supply

23. Tobacco

24. Variety

Food and Beverage Retail Sales

25. Bakery, small

26. Convenience market

27. Drive-in food market or dairy

28. Foodstore

29. Specialized, including meat, vegetables, health foods, or candy

Eating and Drinking Establishments

30. Bar, tavern, or cocktail lounge

31. Ice cream parlor

32. Restaurant, cafe, or coffee shop

33. Restaurant, fast-food

Services

34. Artist studio

35. Auto service station, small

36. Bath house, including sauna, spa, turkish, steam, or tanning

37. Barber or beauty shop

38. Clinic, medical or physical therapy, out-patient only

39. Interior decorator

40. Laboratory, medical, dental, optical, or biological

41. Laundromat, self-service

42. Laundry, drop off and pick up only

43. Photography studio

44. Shoe shine stand

45. Shoe repair

46. Tailor or dressmaker

47. Taxidermist

48. Telegraph

49. Ticket agency

50. Travel agency

51. Veterinary, household pets only, provided there are no outside kennels

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

2. Utility substation

E. INSTITUTIONAL USES

1. Charitable or public service organization

2. Church

3. Community or senior citizens center

4. Government office or building

5. Library

6. Museum, indoor only

F. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

Specialized Schools

5. Art, craft, or music school

6. Business or trade school, provided that all instruction is conducted within a building and that there is no outside storage of materials or supplies associated with the school

7. Dance school

8. Driving school

9. Martial arts school

10. Swim school

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

H. MISCELLANEOUS USES

1. Day-care center

2. Construction trailer, temporary, during construction activities only

3. Studio, radio, television, broadcasting

4. Water system, small

SECTION 7060.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with standards set out in Article 7215 and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Apartment

2. Boarding or rooming house

3. Community care facility

4. Condominium

5. Duplex

6. Fraternity or sorority house

7. Quadruplex

8. Retirement or rest home

9. Residential hotel

10. Residential accessory structures

11. Single-family dwelling

12. Townhouse

13. Triplex

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Circus or carnival, temporary

2. Miniature golf course

3. Movie theater, drive-in

4. Movie theater, walk-in

5. Park or playground

6. Pool or billiard parlor

7. Swimming pool, public (outdoor only)

8. Tennis club, outdoor only

9. Theater, live

10. Video games arcade

C. COMMERCIAL USES

General Retail Sales

1. Antiques, with no outside storage

2. Nursery, plant

Services

3. Ambulance
4. Auto wash, self-service
5. Printing, lithography or blue-printing
6. Veterinary, including veterinary hospital

D. TRANSPORTATION FACILITIES

1. Auto parking garage or lot
2. Heliport

E. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

F. INSTITUTIONAL USES

1. Cemetery, mausoleum, columbarium, or mortuary
2. Charitable or public service organization
3. Club or lodge
4. Convalescent hospital
5. Crematory, in conjunction with a cemetery, mausoleum, columbarium, or mortuary
6. Fire or police station
7. Hospital
8. Labor union hall
9. Post office
10. Public agency or public utility buildings or facilities
11. Sanitarium

G. WASTE FACILITIES

1. Community septic disposal system
2. Sewage treatment plant

H. **RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES**

1. Oil or gas exploration and production pursuant to Article 7260

2. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

3. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

I. **MISCELLANEOUS USES**

1. Commercial coach, when incidental to a permitted use

2. Drainage sump

3. Flood control facilities

4. Off-site advertising sign

5. Water storage or groundwater recharge facilities

6. Water system, large

7. Water treatment plant

SECTION 7060.04 PROHIBITED USES

All other uses not permitted by Sections 7060.02 and 7060.03 are prohibited.

SECTION 7060.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the C-1 District shall contain less than seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7060.06 MINIMUM LOT AREA PER DWELLING UNIT

There shall be a minimum of one thousand five hundred (1,500) square feet of lot area per dwelling unit when dwellings are permitted with a conditional use permit.

SECTION 7060.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Forty (40) feet from the legal centerline of any existing or proposed public or private local street and access easements.

Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

In no case shall buildings be located in the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** None required.

C. **Rear Yard.** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. The Director of Planning and Development Services may reduce rear yard requirements in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief.

D. **Yards and Setbacks for Residential Developments.** Yards and setbacks for residential developments shall be the same as those specified in Section 7040.07 of this chapter.

SECTION 7060.08 HEIGHT LIMITS

Buildings and structures shall not exceed four (4) stories or forty-five (45) feet.

SECTION 7060.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. None required for nonresidential buildings.

B. There shall be a minimum distance of ten (10) feet between residential buildings.

C. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings.

SECTION 7060.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7060.11 SIGNS

The following signs are permitted in accordance with Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed eight (8) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision identification signs, when approved in conjunction with a conditional use permit

D. Temporary construction signs

E. Temporary political, religious, or civic campaign signs

F. Institutional signs

G. Signs attached to buildings (on-site identification only)

H. Monument signs, not to exceed forty-eight (48) square feet each (on-site identification only)

I. Pole signs, not to exceed two hundred (200) square feet in area each (on-site identification only)

J. Off-site advertising signs, when approved by conditional use permit

The maximum permitted area of all signs shall not exceed three (3) square feet for each lineal foot of street frontage.

SECTION 7060.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7060.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the C-1 District shall comply with the minimum standards set out in Article 7215 of this chapter.

B. Development in the C-1 District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7065

GENERAL COMMERCIAL (C-2) DISTRICT

SECTIONS:

7065.01 PURPOSE AND APPLICATION
7065.02 PERMITTED USES
7065.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7065.04 PROHIBITED USES
7065.05 MINIMUM LOT SIZE
7065.06 MINIMUM LOT AREA PER DWELLING UNIT
7065.07 YARDS AND SETBACKS
7065.08 HEIGHT LIMITS
7065.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7065.10 PARKING
7065.11 SIGNS
7065.12 LANDSCAPING
7065.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7065.01 PURPOSE AND APPLICATION

The purpose of the General Commercial (C-2) District is to designate areas for the widest range of retail commercial activities, including regional shopping centers and heavy commercial uses. The C-2 District may also be combined with the Cluster (CL) Combining District to achieve innovative, creative office or commercial development. The C-2 District should be located on major highways.

SECTION 7065.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters
2. Retirement or rest home

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Bingo parlor
2. Bowling alley
3. Card room
4. Circus or carnival, temporary, not to exceed four (4) days

5. Dance hall, ballroom, or discotheque

6. Golf driving range

7. Health club

8. Hotel or motel

9. Miniature golf course

10. Movie theater, walk-in

11. Pool or billiard parlor

12. Skating rink, roller or ice

13. Tennis or swim club

14. Theater, live

15. Video games arcade

C. COMMERCIAL USES

Offices

1. Business or professional

2. Financial, including bank, savings and loan, or credit union

3. Real estate

4. Research and development

General Retail Sales

5. Antiques, provided there is no outside display

6. Appliances, including service and repair, provided there is no outside storage

7. Art gallery

8. Auto leasing

9. Auto, new

10. Auto, used

11. Auto parts and accessories

12. Auto tire, including service

13. Bicycle, including rental and service

14. Boat, including service and parts when incidental to sales

15. Bookstore, general

16. Christmas tree, temporary

17. Clothing and apparel

18. Computer, including service and repair

19. Department store

20. Drugs and pharmaceuticals

21. Electric appliances, including service and repair

22. Electric equipment, including service and repair

23. Feed, provided there is no outside storage

24. Fireworks stand, temporary

25. Floor covering, drapery, or upholstery

26. Florist

27. Furniture

28. Gardening and landscaping supply, provided there is no outside storage

29. Gift and card

30. Gun, including repair

31. Hardware, general, including lumber sales, provided there is no outside storage of materials

32. Hobby supplies

33. Home or office furnishings

34. Jewelry and watches

35. Ice vending machine

36. Lapidary

37. Lawnmower, including repair, when located entirely within a building

38. Leather goods and luggage

39. Locksmith or key and lock shop

40. Military surplus, provided there is no outside storage

41. Mobilehome, including rental and service

42. Motorcycles, including service and repair

43. Musical instruments (including repair)

44. Newspaper or magazine stand

45. Nursery, plant

46. Office machines and equipment

47. Paint and wallpaper

48. Pawn shop

49. Pet store

50. Photographic supply or camera

51. Plumbing supply, provided there is no outside storage

52. Pottery

53. Recreational vehicles, including service

54. Shoes

55. Sporting goods and athletic equipment

56. Stationary and office supply

57. Tobacco

58. Toys

59. Truck, including rental

60. Used clothing and household goods, provided there is no outside storage

61. Variety

Food and Beverage Retail Sales

62. Bakery

63. Catering

64. Convenience market

65. Drive-in food market or dairy

66. Farmers' market

67. Food store

68. Liquor store

69. Specialized, including meat, vegetables, health foods, or candy

Eating and Drinking Establishments

70. Bar, tavern, or cocktail lounge

71. Ice cream parlor

72. Restaurant, cafe, or coffee shop

73. Restaurant, fast-food

Services

74. Ambulance

75. Appliance repair

76. Artist studio

77. Auto service or repair

78. Auto service station

79. Auto wash

80. Auto wash, self-service

81. Bath house, including sauna, spa, turkish, steam, or tanning

82. Barber or beauty shop

83. Carpet cleaning

84. Clinic, medical or physical therapy, out-patient only

85. Equipment, small, rental

86. Furniture cleaning, refinishing or upholstery

87. Interior decorator

88. Janitorial service

89. Laboratory, medical, dental, optical, or biological

90. Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials

91. Laundromat, self-service

92. Laundry, drop off and pick up only

93. Mini-warehouse, for storage of personal household goods, provided there is no outside storage

94. Mortuary or funeral parlor

95. Pest control, administrative offices only

96. Pet grooming

97. Photography studio

98. Picture framing

99. Printing, lithography, or blue-printing

100. Shoe shine stand

101. Shoe repair

102. Tailor or dressmaker

103. Taxidermist

104. Telegraph

105. Ticket agency

106. Travel agency

107. Truck fueling station, without repair facilities

108. Veterinary, household pets only, provided there are no outside kennels

109. Wedding chapel

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, pipelines and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

2. Utility substation

E. INSTITUTIONAL USES

1. Auditorium, public

2. Charitable or public service organization

3. Church

4. Club or lodge

5. Convalescent hospital

6. Government office or building

7. Hospital

8. Labor union hall

9. Library

10. Museum, indoor only

11. Public agency or utility buildings and facilities

12. Sanitarium

F. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

Specialized Schools

5. Art, craft, or music school

6. Business or trade school, provided that all instruction is conducted within a building and that there is no outside storage of materials or supplies associated with the school

7. Dance school

8. Driving school

9. Martial arts school

10. Swim school

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

H. MISCELLANEOUS USES

1. Construction trailer, temporary, during construction activity only

2. Day-care center

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Off-site advertising sign

5. Revival, temporary, not to exceed fourteen (14) days

6. Studio, radio, television, recording, or movie

7. Water system, small

SECTION 7065.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards set out in Article 7215 and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. **RESIDENTIAL USES**

1. Boarding or rooming house
2. Community care facility
3. Fraternity or sorority house
4. Residential accessory structures
5. Residential hotel

B. **RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES**

1. Amusement park
2. Circus or carnival
3. Equestrian establishment
4. Movie theater, adult
5. Movie theater, drive-in
6. Park or playground
7. Race track, automobile, motorcycle, or horse
8. Recreational vehicle park
9. Shooting range or gun club
10. Sports arena, indoor
11. Sports arena, outdoor
12. Swimming pool, public

C. **COMMERCIAL USES**

General Retail Sales

1. Bookstore, adult
2. Fruit stand, temporary

Services

3. Auto body repair and painting
4. Veterinary, including veterinary hospital

D. INDUSTRIAL USES

1. Contractor's storage yard, when accessory and incidental to a contractor's business office and wholly enclosed within a solid screening fence as approved by the Director of Planning and Development Services

2. Photographic processing plant or wholesale supply

E. TRANSPORTATION FACILITIES

1. Airport, private

2. Airport, public use

3. Auto parking garage or lot

4. Bus depot

5. Heliport

6. Taxi depot, including service and storage

F. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

G. WASTE FACILITIES

1. Community septic disposal system

2. Sewage treatment plant

H. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Oil or gas exploration and production pursuant to Article 7260

2. Solar energy electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

3. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

I. INSTITUTIONAL USES

1. Cemetery, mausoleum, columbarium, or mortuary

2. Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary

3. Zoo

J. **EDUCATIONAL INSTITUTIONS AND SCHOOLS**

1. College or university

K. **MISCELLANEOUS USES**

1. Commercial coach, temporary, when incidental to a permitted use
2. Drainage sump
3. Flea market or swap meet
4. Flood control facilities
5. Massage parlor
6. Water storage or groundwater recharge facilities
7. Water system, large
8. Water treatment plant

SECTION 7065.04 PROHIBITED USES

All other uses not permitted by Sections 7065.02 and 7065.03 are prohibited.

SECTION 7065.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the C-2 District shall contain less than seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7065.06 MINIMUM LOT AREA PER DWELLING UNIT

There shall be a minimum of one thousand five hundred (1,500) square feet of lot area per dwelling unit when dwellings are permitted with a conditional use permit.

SECTION 7065.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Forty (40) feet from the legal centerline of any existing or proposed public or private local street and access easements.

Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

In no case shall buildings be located in the right-of-way established by any Official of Specific Plan Line.

B. **Side Yard.** None required.

C. **Rear Yard** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. Rear yard requirements may be reduced in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief and Director of Planning and Development Services.

D. **Yards and Setbacks for Residential Developments.** Yards and setbacks for residential developments shall be the same as those specified in Section 7040.07 of this chapter.

SECTION 7065.08 HEIGHT LIMITS

Buildings and structures shall not exceed six (6) stories or seventy-five (75) feet, unless the building is set back from each street, alley, and lot line at least one (1) foot for each three (3) feet of height above six (6) stories or seventy-five (75) feet. No building shall exceed ten (10) stories or one hundred and thirty-five (135) feet.

SECTION 7065.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. None required for nonresidential buildings.

B. There shall be a minimum distance of ten (10) feet between residential buildings.

C. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings.

SECTION 7065.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7065.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed twelve (12) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision identification signs, when approved in conjunction with a conditional use permit

D. Temporary construction signs

E. Temporary political, religious, or civic campaign signs

F. Institutional signs

G. Signs attached to buildings

H. Monument signs, not to exceed forty-eight (48) square feet in area each

I. Pole signs, not to exceed two hundred (200) square feet in area each

J. Off-site advertising signs

The maximum permitted area of all signs shall not exceed three (3) square feet for each lineal foot of street frontage.

SECTION 7065.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7065.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the C-2 District shall comply with the minimum standards set out in Article 7215 of this chapter.

B. Development in the C-2 District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7070

HIGHWAY COMMERCIAL (CH) DISTRICT

SECTIONS:

7070.01 PURPOSE AND APPLICATION
7070.02 PERMITTED USES
7070.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7070.04 PROHIBITED USES
7070.05 MINIMUM LOT SIZE
7070.06 MINIMUM LOT AREA PER DWELLING UNIT
7070.07 YARDS AND SETBACKS
7070.08 HEIGHT LIMITS
7070.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7070.10 PARKING
7070.11 SIGNS
7070.12 LANDSCAPING
7070.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7070.01 PURPOSE AND APPLICATION

The purpose of the Highway Commercial (CH) District is to designate areas for uses and services normally associated with the traveling public. The CH District shall be located adjacent to or in close proximity to major highways. The CH District may be combined with the Cluster (CL) Combining District to achieve innovative, creative commercial development. The CH District is intended to promote a unified grouping of travel-oriented uses such as gas stations, restaurants, and motels. It is also intended to permit limited urban type uses in rural areas adjacent to highways with a minimum of encroachment on surrounding agricultural activities.

SECTION 7070.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Health club
2. Hotel or motel
3. Movie theater, walk-in
4. Tennis and swim club

C. COMMERCIAL USES

Offices

1. Real estate

General Retail Sales

2. Auto, new
3. Auto tire, including service
4. Auto, used, when accessory to new auto sales
5. Drugs and pharmaceuticals
6. Gift and card
7. Ice vending machine
8. Variety

Food and Beverage Retail Sales

9. Convenience market
10. Drive-in food market or dairy
11. Food store
12. Liquor store
13. Specialized, including meat, vegetables, health food, or candy

Eating and Drinking Establishments

14. Bar, tavern, or cocktail lounge
15. Restaurant, cafe, or coffee shop
16. Restaurant, fast-food

Services

17. Ambulance
18. Auto rental
19. Auto service or repair
20. Auto service station, small

21. Auto service station, large

22. Auto towing

23. Auto wash

24. Auto wash, self-service

25. Telegraph

26. Travel agency

27. Truck fueling station, without repair facilities

D. TRANSPORTATION FACILITIES

1. Auto parking garage or lot

E. INSTITUTIONAL USES

1. Church

2. Fire or police station

3. Public agency or utility buildings and facilities

F. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

2. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

G. UTILITY AND COMMUNICATION FACILITY

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

H. MISCELLANEOUS USES

1. Construction trailer, temporary, during construction activity only

2. Day-care center

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Off-site advertising sign

5. Water system, small

SECTION 7070.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards set out in Article 7215 and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Amusement park

2. Campground

3. Circus or carnival

4. Golf course

5. Miniature golf course

6. Movie theater, drive-in

7. Race track, automobile, motorcycle, or horse

8. Recreational vehicle park

9. Sports arena, indoor

10. Sports arena, outdoor

B. COMMERCIAL USES

General Retail Sales

1. Bicycle, including rental, service, and repair

2. Locksmith or key and lock shop

3. Mobilehomes, including rental and service

4. Motorcycles, including service and repair

5. Photographic supply or camera

6. Recreational vehicles, including service

7. Ticket agency

Food and Beverage Retail Sales

8. Fruit stand, temporary

Services

9. Barber or beauty shop

10. Equipment, heavy, and truck or trailer rental

11. Shoe shine stand

12. Truck fueling station, with minor repair, but excluding engine or transmission repair

C. TRANSPORTATION FACILITIES

1. Airport

2. Bus depot

3. Heliport

4. Railroad station

5. Taxi depot, including service and storage

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Communications equipment building

2. Radio, television, or commercial communications transmitter, receiver, or translator

3. Utility substation

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Oil or gas exploration and production

2. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

3. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

F. **WASTE FACILITIES**

1. Community septic disposal system
2. Sewage treatment plant
3. Transfer station, small

G. **INSTITUTIONAL USES**

1. Auditorium, public

H. **EDUCATIONAL INSTITUTIONS AND SCHOOLS**

General

1. College or university

I. **MISCELLANEOUS**

1. Commercial coach, temporary, when incidental to a permitted use
2. Drainage sump
3. Water system, large
4. Water treatment plant

SECTION 7070.04 PROHIBITED USES

All other uses not permitted by Sections 7070.02 and 7070.03 are prohibited.

SECTION 7070.05 MINIMUM LOT SIZE

Except as otherwise provided in Article 7130, no portion of any lot within the CH District shall contain less than seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7070.06 MINIMUM LOT AREA PER DWELLING UNIT

None. Dwelling units are not permitted, except as accessory to a permitted use.

SECTION 7070.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Forty (40) feet from the legal centerline of any existing or proposed public or private local street.

Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

In no case shall buildings be located in the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** None required.

C. **Rear Yard.** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. Rear yard requirements may be reduced in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief and Director of Planning and Development Services.

SECTION 7070.08 HEIGHT LIMITS

Buildings and structures shall not exceed three (3) stories or thirty-five (35) feet.

SECTION 7070.09 MINIMUM DISTANCE BETWEEN STRUCTURES

None required.

SECTION 7070.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7070.11 SIGNS

The following signs are permitted in accordance with Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed twelve (12) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary construction signs

C. Temporary political, religious, or civic campaign signs

D. Institutional identification signs

E. Wall signs attached to buildings

F. Monument signs, not to exceed forty-eight (48) square feet each

G. Pole signs, not to exceed two hundred (200) square feet in area each

H. Off-site advertising signs

The maximum permitted area of all signs shall not exceed three (3) square feet for each lineal foot of street frontage.

SECTION 7070.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7070.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the CH District shall comply with the minimum standards set out in Article 7215 of this chapter.

B. Development in the CH District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7075

LIGHT INDUSTRIAL (M-1) DISTRICT

SECTIONS:

7075.01 PURPOSE AND APPLICATION
7075.02 PERMITTED USES
7075.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7075.04 PROHIBITED USES
7075.05 MINIMUM LOT SIZE
7075.06 MINIMUM LOT AREA PER DWELLING UNIT
7075.07 YARDS AND SETBACKS
7075.08 HEIGHT LIMITS
7075.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7075.10 PARKING
7075.11 SIGNS
7075.12 LANDSCAPING
7075.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7075.01 PURPOSE AND APPLICATION

The purpose of the Light Industrial (M-1) District is to designate areas for wholesale commercial, storage, trucking, assembly-type manufacturing, and other similar industrial uses. Processing or fabrication will be limited to activities conducted within a building that does not emit fumes, odor, dust, smoke, or gas beyond the confines of the building within which the activities occur or produce significant levels of noise or vibration.

SECTION 7075.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters, including a mobilehome

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Bingo parlor
2. Bowling alley
3. Card room
4. Circus or carnival, temporary, not to exceed four (4) days
5. Dance hall, ballroom, or discotheque

6. Golf driving range
7. Health club
8. Hotel or motel
9. Miniature golf
10. Movie theater, walk-in
11. Pool or billiard parlor
12. Skating rink, roller or ice
13. Tennis, swim or athletic club
14. Theater, live
15. Video games arcade

C. COMMERCIAL USES

Offices

1. Business or professional
2. Financial institution, including bank, savings and loan, or credit union
3. Real estate
4. Research and development

General Retail Sales

5. Antiques
6. Appliances, including service and repair
7. Art gallery
8. Auto leasing
9. Auto, new
10. Auto, used
11. Auto parts and accessories
12. Auto tire, including service
13. Bicycle, including rental and service

14. Boat, including service and parts
15. Bookstore, adult
16. Bookstore, general
17. Christmas tree, temporary
18. Clothing and apparel
19. Computer, including service and repair
20. Department store
21. Drugs and pharmaceuticals
22. Electric appliances, including service and repair
23. Electric equipment, including service and repair
24. Feed
25. Fireworks stand, temporary
26. Floor covering, drapery, or upholstery
27. Florist
28. Furniture
29. Gardening and landscaping supply
30. Gift and card
31. Gun, including repair
32. Hardware, general, including lumber sales
33. Hobby supplies
34. Home or office furnishings
35. Jewelry and watches
36. Ice vending machine
37. Lapidary
38. Lawnmower, including repair
39. Leather goods and luggage

40. Locksmith or key and lock shop
41. Military surplus
42. Mobilehomes, including rental and service
43. Motorcycles, including rental and repair
44. Musical instruments, including repair
45. Newspaper or magazine stand
46. Nursery, plant
47. Office machines and equipment
48. Paint and wallpaper
49. Pawn shop
50. Pet store
51. Photographic supply or camera
52. Plumbing supply
53. Pottery
54. Recreational vehicles, including service
55. Shoes
56. Sporting goods and athletic equipment
57. Stationary and office supply
58. Tobacco
59. Toys
60. Truck, including rental
61. Used clothing and household goods
62. Variety

Food and Beverage Retail Sales

63. Bakery
64. Catering

65. Convenience market

66. Drive-in food market or dairy

67. Farmers market

68. Food store

69. Liquor store

70. Specialized, including meat, vegetables, health foods, or candy

Eating and Drinking Establishments

71. Bar, tavern, or cocktail lounge

72. Ice cream parlor

73. Restaurant, cafe, or coffee shop

74. Restaurant, fast-food

Services

75. Ambulance

76. Appliance repair

77. Artist studio

78. Auto body repair and painting

79. Auto rental

80. Auto service or repair

81. Auto service station

82. Auto tire repair

83. Auto towing

84. Auto wash

85. Auto wash, self-service

86. Bath house, including sauna, spa, turkish, steam, or tanning

87. Barber or beauty shop

88. Carpet cleaning

89. Clinic, medical or physical therapy, out-patient only

90. Equipment, small, rental

91. Equipment, heavy, or truck or trailer rental

92. Furniture cleaning, refinishing or upholstery

93. Interior decorator

94. Janitorial service

95. Laboratory, medical, dental, optical, or biological

96. Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials

97. Laundromat, self-service

98. Laundry, drop off and pick up only

99. Mini-warehouse

100. Mortuary or funeral parlor

101. Pest control, administrative offices only

102. Pet grooming

103. Photography studio

104. Picture framing

105. Printing, lithography, or blue-printing

106. Shoe shine stand

107. Shoe repair

108. Tailor or dressmaker

109. Taxidermist

110. Telegraph

111. Ticket agency

112. Travel agency

113. Truck fueling station, with minor repair, but excluding engine or transmission repair

114. Veterinary, including veterinary hospital

115. Wedding chapel

D. INDUSTRIAL USES

Industrial Manufacturing or Assembly

1. Electronic equipment, assembly only
2. Plastics, assembly only

Industrial Storage

3. Automobile
4. Bottled gas
5. Cargo containers
6. Chemical storage when accessory to a permitted use
7. Cold storage
8. Contractor's storage yard
9. Draying or freight
10. Equipment and building material
11. Feed and fuel, including wood yards
12. Lumber
13. Moving and storage, yards or warehouse
14. Petroleum
15. Recreational vehicle
16. Truck and heavy equipment
17. Warehouse

Other Industrial Uses

18. Assaying
19. Billboard sign fabrication and storage
20. Photographic processing plant and/or wholesale supply

21. Sheet metal shop

22. Tire retreading

23. Welding or blacksmith, when conducted within an enclosed building

24. Wholesale distribution

E. TRANSPORTATION FACILITIES

1. Auto parking garage or lot

2. Bus depot, including service and storage

3. Taxi depot, including service and storage

F. UTILITY AND COMMUNICATIONS FACILITIES

1. Microwave relay station

2. Public utility buildings and service yards

3. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

4. Utility substation

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Mineral exploration

2. Oil or gas exploration and production pursuant to Section 7260.03

3. Production water injection wells for the purpose of disposing of production wastewater produced within the same oilfield in which the injection well is located pursuant to Section 7260.03

4. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

5. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

H. INSTITUTIONAL USES

1. Auditorium, public
2. Charitable or public service organization
3. Church
4. Club or lodge
5. Fire or police station
6. Government office or building
7. Labor union hall
8. Library
9. Museum, indoor only
10. Post office

I. EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

1. Preschool
2. Elementary school
3. Junior high school
4. Senior high school

Specialized Schools

5. Art, craft, or music school
6. Business or trade school
7. Dance school
8. Driving school
9. Martial arts school
10. Swim school

J. MISCELLANEOUS USES

1. Commercial coach, when incidental to a permitted use
2. Construction trailer, temporary, during construction activities only
3. Day-care center
4. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map
5. Kennel
6. Off-site advertising sign
7. Revival, temporary (not to exceed 14 days)
8. Studio, radio, television, recording, or movie
9. Water system, small

SECTION 7075.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are all permitted in accordance with the requirements of Article 7215 of this chapter subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Amusement park
2. Circus or carnival
3. Equestrian establishment
4. Movie theater, adult
5. Movie theater, drive-in
6. Park or playground
7. Race track, automobile, bicycle, horse, or motorcycle
8. Recreational vehicle park
9. Shooting range or gun club
10. Sports arena, indoor

11. Sports arena, outdoor

12. Swimming pool, public

B. INDUSTRIAL USES

Industrial Manufacturing or Assembly

1. Prefabricated buildings and structures

2. Mobilehomes

Other Industrial Uses

3. Asphaltic concrete batch plant

4. Bakery, large

5. Concrete batch plant

6. Newspaper, magazine, or book printing

7. Well drilling service

8. Welding or blacksmith

C. INDUSTRIAL STORAGE

1. Chemical storage as main use

D. TRANSPORTATION FACILITIES

1. Airport, private

2. Airport, public use

3. Heliport

4. Railroad station

E. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

F. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Electric power generating plant

2. Mining and mineral extraction pursuant to Article 7265

4. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

5. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

G. **WASTE FACILITIES**

1. Community septic disposal system

2. Septage disposal site

3. Sewage treatment plant

4. Transfer station, large or small

5. Waste-to-energy facility

H. **INSTITUTIONAL USES**

1. Cemetery, mausoleum, columbarium, or mortuary

2. Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary

3. Zoo

I. **MISCELLANEOUS USES**

1. Drainage sump

2. Flea market or swap meet

3. Flood control facilities

4. Massage parlor

5. Water storage or groundwater recharge facilities

6. Water system, large

7. Water treatment plant

SECTION 7075.04 PROHIBITED USES

All other uses not permitted by Sections 7075.02 and 7075.03 are prohibited.

SECTION 7075.05 MINIMUM LOT SIZE

None.

SECTION 7075.06 MINIMUM LOT AREA PER DWELLING UNIT

None. Dwelling units are not permitted, except as accessory to a permitted use.

SECTION 7075.07 YARDS AND SETBACKS

A. **Front Yard,** The front-yard minimum setback for all buildings shall be as follows:

Forty (40) feet from the legal centerline of any existing or proposed public or private local street or access easements.

Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

In no case shall buildings be located in the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** None required.

C. **Rear Yard.** None required.

SECTION 7075.08 HEIGHT LIMITS

Buildings and structures shall not exceed six (6) stories or seventy-five (75) feet.

SECTION 7075.09 MINIMUM DISTANCE BETWEEN STRUCTURES

None required.

SECTION 7075.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7075.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed twelve (12) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Temporary construction signs

D. Temporary political, religious, or civic campaign signs

E. Institutional identification signs

F. Signs attached to buildings

G. Monument signs, not to exceed one hundred (100) square feet each

H. Pole signs, not to exceed two hundred (200) square feet each

I. Off-site advertising signs

The maximum permitted area of all signs shall not exceed three (3) square feet for each lineal foot of street frontage.

SECTION 7075.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7075.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. Outdoor industrial storage yards shall be completely enclosed by a solid screening fence not less than six (6) feet in height. The design and materials proposed shall be approved by the Director of Planning and Development Services.

B. All development in the M-1 District shall comply with the minimum standards set out in Article 7215 of this chapter.

C. Development in the M-1 District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7080

MEDIUM INDUSTRIAL (M-2) DISTRICT

SECTIONS:

7080.01 PURPOSE AND APPLICATION
7080.02 PERMITTED USES
7080.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7080.04 PROHIBITED USES
7080.05 MINIMUM LOT SIZE
7080.06 MINIMUM LOT AREA PER DWELLING UNIT
7080.07 YARDS AND SETBACKS
7080.08 HEIGHT LIMITS
7080.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7080.10 PARKING
7080.11 SIGNS
7080.12 LANDSCAPING
7080.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7080.01 PURPOSE AND APPLICATION

The purpose of the Medium Industrial (M-2) District is to designate areas for general manufacturing, processing, and assembly activities. Uses may not produce fumes, odor, dust, smoke, gas, or vibrations extending beyond zoning district boundaries.

SECTION 7080.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards and procedures of Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters, including a mobilehome

B. AGRICULTURAL USES

Agricultural Industries

1. Animal products processing, limited to the slaughter, processing, or shipping of poultry and rabbits
2. Brewery
3. Cannery
4. Cotton compress

5. Cotton gin

6. Creamery

7. Flour mill

8. Fruit, vegetable, and plant products processing, including packing, canning, preserving, and shipping

9. Glucose processing

10. Grain elevator or storage

11. Honey extraction

12. Lumber drying kiln

13. Oil extraction, nonmineral

14. Saw or planing mill

15. Winery

C. **RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES**

1. Bingo parlor

2. Bowling alley

3. Card room

4. Circus or carnival, temporary, not to exceed four (4) days

5. Dance hall, ballroom, or discotheque

6. Golf driving range

7. Health club

8. Hotel or motel

9. Miniature golf

10. Movie theater, walk-in

11. Pool or billiard parlor

12. Skating rink, roller or ice

13. Tennis, swim, or athletic club

14. Theater, live

15. Video games arcade

D. COMMERCIAL USES

Offices

1. Business or professional
2. Financial institutions, including bank, savings and loan, or credit union
3. Real estate
4. Research and development

General Retail Sales

5. Antiques
6. Appliances, including service and repair
7. Art gallery
8. Auto leasing
9. Auto, new
10. Auto, used
11. Auto parts and accessories
12. Auto tire, including service
13. Bicycle, including rental and service
14. Boat, including service and parts
15. Bookstore, adult
16. Bookstore, general
17. Christmas tree, temporary
18. Clothing and apparel
19. Computer, including service and repair
20. Department store
21. Drugs and pharmaceuticals
22. Electric appliances, including service and repair

23. Electric equipment, including service and repair
24. Feed
25. Fireworks stand, temporary
26. Floor covering, drapery, or upholstery
27. Florist
28. Furniture
29. Gardening and landscaping supply
30. Gift and card
31. Gun, including repair
32. Hardware, general, including lumber sales
33. Hobby supplies
34. Home or office furnishings
35. Jewelry and watches
36. Ice vending machine
37. Lapidary
38. Lawnmower, including repair
39. Leather goods and luggage
40. Locksmith or key and lock shop
41. Military surplus
42. Mobilehome, including rental and service
43. Motorcycles, including rental and repair
44. Musical instruments, including repair
45. Newspaper or magazine stand
46. Nursery, plant
47. Office machines and equipment
48. Paint and wallpaper

49. Pawn shop

50. Pet store

51. Photographic supply or camera

52. Plumbing supply

53. Pottery

54. Recreational vehicles, including service

55. Shoes

56. Sporting goods and athletic equipment

57. Stationary and office supply

58. Tobacco

59. Toys

60. Truck, including rental

61. Used clothing and household goods

62. Variety

Food and Beverage Retail Sales

63. Bakery

64. Catering

65. Convenience market

66. Drive-in food market or dairy

67. Farmers' market

68. Food store

69. Liquor store

70. Specialized, including meat, vegetables, health food, or candy

Eating and Drinking Establishments

71. Bar, tavern, or cocktail lounge

72. Ice cream parlor

73. Restaurant, cafe, or coffee shop

74. Restaurant, fast-food

Services

75. Ambulance

76. Artist studio

77. Auto rental

78. Auto service or repair, including body and paint shop

79. Auto service station

80. Auto tire repair

81. Auto towing

82. Auto wash

83. Auto wash, self-service

84. Bath house, including sauna, spa, turkish, steam, or tanning

85. Barber or beauty shop

86. Carpet cleaning

87. Clinic, medical or physical therapy, out-patient only

88. Equipment, small, rental

89. Equipment, heavy, or truck or trailer rental

90. Furniture cleaning, refinishing, or upholstery

91. Interior decorator

92. Janitorial service

93. Laboratory, medical, dental, optical, or biological

94. Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials

95. Laundromat, self-service

96. Laundry, dry cleaning and dying plants

97. Mini-warehouse

98. Mortuary or funeral parlor

99. Pest control

100. Pet grooming

101. Photography studio

102. Picture framing

103. Printing, lithography, or blue-printing

104. Shoe shine stand

105. Shoe repair

106. Tailor or dressmaker

107. Taxidermist

108. Telegraph

109. Ticket agency

110. Travel agency

111. Truck fueling station

112. Truck service and repair

113. Veterinary, including veterinary hospital

114. Wedding chapel

E. INDUSTRIAL USES

Industrial Manufacturing or Assembly

1. Aircraft, assembly, when conducted wholly within a building

2. Auto/truck, assembly, when conducted wholly within a building

3. Batteries

4. Building material

5. Cabinet shop

6. Carpet and mattress

7. Ceramics

8. Chemical blending, not including manufacture
9. Clothing, garments, or shoes
10. Concrete blocks
11. Cosmetics, perfumes, or toiletries
12. Drugs and pharmaceuticals
13. Electronic equipment
14. Furniture
15. Ice
16. Mobilehome, modular home, or recreational vehicle
17. Musical instruments
18. Neon signs
19. Paint mixing, not employing a boiling process
20. Paper or pulp
21. Plastics, assembly only
22. Prefabricated buildings and structures
23. Soap, cold mix only
24. Textiles
25. Toy manufacturing and assembly
26. Trusses

Industrial Storage

27. Automobile
28. Bottled gas
29. Cargo containers
30. Chemical storage, when accessory to a permitted use
31. Cold storage
32. Contractor's storage yard

33. Draying or freight

34. Equipment and building materials

35. Feed and fuel, including wood yards

36. Lumber

37. Moving and storage

38. Petroleum

39. Recreational vehicle

40. Truck and heavy equipment

41. Warehouse

Other Industrial Uses

42. Assaying

43. Bakery

44. Beverage bottling works

45. Billboard sign fabrication and storage

46. Boat building and major repair

47. Concrete batch plant

48. Electroplating, when conducted wholly within an enclosed building

49. Machine shop

50. Metal extrusion

51. Newspaper, magazine, or book printing

52. Oil field service yard

53. Photographic processing plant or wholesale supply

54. Sandblasting, if incidental to another permitted use and conducted wholly within an enclosed building

55. Sheet metal shop

56. Tire retreading

57. Well drilling service

58. Welding or blacksmith

59. Wholesale distribution

F. TRANSPORTATION FACILITIES

1. Auto parking garage or lot

2. Bus depot, including service and storage

3. Railroad station

4. Railroad freight classification or switching yard

5. Taxi depot, including service and storage

G. UTILITY AND COMMUNICATIONS FACILITIES

1. Microwave relay station

2. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

3. Utility substation

H. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Cogeneration facility

2. Mineral exploration

3. Oil or gas exploration and production pursuant to Article 7260

4. Electrical power generating plant, excluding nuclear or coal

5. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

6. Wind-driven electrical generator for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

I. INSTITUTIONAL USES

1. Auditorium, public

2. Charitable or public service organization

3. Church

4. Fire or police station

5. Government office or building

6. Library

7. Museum, indoor only

8. Public agency or public utility buildings and facilities

J. MISCELLANEOUS USES

1. Commercial coach, when incidental to a permitted use

2. Construction trailer, temporary, during construction activity only

3. Day-care center

4. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

5. Kennel

6. Revival, temporary, not to exceed fourteen (14) days

7. Studio, radio, television, recording, or movie

8. Water system, small

SECTION 7080.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are all permitted in accordance with the requirements of Article 7215 of this chapter and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. AGRICULTURAL USES

Breeding and Raising Animals

1. Beef cattle or livestock feed lot, stockyard, auction, or sales yard

Agricultural Industries

2. Alcohol distillery

3. Animal products processing, including slaughter, meat packing, canning, processing, and shipping

4. Tanning, curing, or storing animal hides

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Circus or carnival

2. Race track, automobile, bicycle, horse, or motorcycle

C. INDUSTRIAL USES

Industrial Manufacturing or Assembly

1. Oil refining

Industrial Storage

2. Chemical storage as a main use

3. Explosives, permanent

4. Log storage

5. Minerals and ore storage and loading

6. Salvage or junk yard

Other Industrial Uses

7. Metal, glass, or paper recycling facility

D. TRANSPORTATION FACILITIES

1. Airport, private

2. Airport, public use

3. Heliport

E. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

F. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Asphalt batch plant

2. Mining and mineral extraction pursuant to Article 7265

3. Ore reduction

4. Potash manufacture

5. Wind generators, commercial

G. WASTE FACILITIES

1. Community septic disposal system

2. Sanitary landfill

3. Septage disposal site

4. Sewage treatment plant

5. Transfer station, large or small

6. Waste-to-energy facility

H. INSTITUTIONAL USES

1. Cemetery, mausoleum, or columbarium

2. Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary

3. Public agency or public utility buildings and facilities

I. MISCELLANEOUS

1. Drainage sump

2. Flea market or swap meet

3. Flood control facilities

4. Water storage and groundwater recharge facilities

5. Water system, large

6. Water treatment plant

SECTION 7080.04 PROHIBITED USES

All other uses not permitted by Sections 7080.02 and 7080.03 are prohibited.

SECTION 7080.05 MINIMUM LOT SIZE

None.

SECTION 7080.06 MINIMUM LOT AREA PER DWELLING UNIT

None. Dwellings are not permitted, except as accessory to a permitted use.

SECTION 7080.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Forty (40) feet from the legal centerline of any existing or proposed public or private local street or access easements.

Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

In no case shall buildings be located in the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** None required.

C. **Rear Yard.** None required.

SECTION 7080.08 HEIGHT LIMITS

Buildings and structures shall not exceed six (6) stories or seventy-five (75) feet.

SECTION 7080.09 MINIMUM DISTANCE BETWEEN STRUCTURES

None required.

SECTION 7080.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7080.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed twelve (12) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Temporary construction signs

D. Temporary political, religious, or civic campaign signs

E. Institutional identification signs

F. Signs attached to buildings

G. Monument signs, not to exceed one hundred (100) square feet each

H. Pole signs, not to exceed two hundred (200) square feet in area each

I. Off-site advertising signs

The maximum permitted area of all signs shall not exceed three (3) square feet for each lineal foot of street frontage.

SECTION 7080.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7080.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the M-2 District shall comply with the minimum standards set out in Article 7215 of this chapter.

B. Development in the M-2 District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7085

HEAVY INDUSTRIAL (M-3) DISTRICT

SECTIONS:

7085.01 PURPOSE AND APPLICATION
7085.02 PERMITTED USES
7085.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7085.04 PROHIBITED USES
7085.05 MINIMUM LOT SIZE
7085.06 MINIMUM LOT AREA PER DWELLING UNIT
7085.07 YARDS AND SETBACKS
7085.08 HEIGHT LIMITS
7085.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7085.10 PARKING
7085.11 SIGNS
7085.12 LANDSCAPING
7085.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7085.01 PURPOSE AND APPLICATION

The purpose of the Heavy Industrial (M-3) District is to designate areas suitable for heavy manufacturing and industrial uses which have the greatest potential for producing undesirable or adverse by-products, including traffic, noise, odors, dust, and vibrations. The M-3 District should be located in places substantially removed from residential areas.

SECTION 7085.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted in accordance with the standards and procedures set out in Article 7215 of this chapter:

A. RESIDENTIAL USES

1. Manager, caretaker, or proprietor quarters, including a mobilehome

B. AGRICULTURAL USES

Agricultural Industries

1. Alcohol distillery
2. Animal products processing, including slaughter
3. Brewery
4. Cannery

5. Cotton compress

6. Cotton gin

7. Creamery

8. Dead animal and fat rendering

9. Flour mill

10. Fruit, vegetable, and plant products processing, including packing, canning, preserving, and shipping

11. Garbage or offal reduction

12. Glucose processing

13. Grain elevator or storage

14. Honey extraction

15. Lumber drying kiln

16. Oil extraction, nonmineral

17. Saw or planing mill

18. Tanning, curing, or storing animal hides

19. Tobacco processing

20. Winery

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Bingo parlor

2. Bowling alley

3. Card room

4. Circus or carnival, temporary, not to exceed four (4) days

5. Dance hall, ballroom, or discotheque

6. Golf driving range

7. Health club

8. Hotel or motel

9. Miniature golf

10. Movie theater, walk-in
11. Pool or billiard parlor
12. Skating rink, roller or ice
13. Tennis, swim, or athletic club
14. Theater, live
15. Video games arcade

D. COMMERCIAL USES

Offices

1. Business or professional
2. Financial institution, including bank, savings and loan, or credit union
3. Real estate
4. Research and development

General Retail Sales

5. Antiques
6. Appliances, including service and repair
7. Art gallery
8. Auto leasing
9. Auto, new
10. Auto, used
11. Auto parts and accessories
12. Auto tire, including service
13. Bicycle, including rental and service
14. Boat, including service and parts
15. Bookstore, adult
16. Bookstore, general
17. Christmas tree, temporary

18. Clothing and apparel
19. Computer, including service and repair
20. Department store
21. Drugs and pharmaceuticals
22. Electric appliances, including service and repair
23. Electric equipment, including service and repair
24. Feed
25. Fireworks stand, temporary
26. Floor covering, drapery, or upholstery
27. Florist
28. Furniture
29. Gardening and landscaping supply
30. Gift and card
31. Gun, including repair
32. Hardware, general
33. Hobby supplies
34. Home or office furnishings
35. Jewelry and watches
36. Ice vending machine
37. Lapidary
38. Lawnmower, including repair
39. Leather goods and luggage
40. Locksmith or key and lock shop
41. Military surplus
42. Mobilehomes, including rental and service
43. Motorcycles, including rental and repair

44. Musical instruments, including repair

45. Newspaper or magazine stand

46. Nursery, plant

47. Office machines and equipment

48. Paint and wallpaper

49. Pawn shop

50. Pet store

51. Photographic supply or camera

52. Plumbing supply

53. Pottery

54. Recreational vehicles, including service

55. Shoes

56. Sporting goods and athletic equipment

57. Stationary and office supply

58. Tobacco

59. Toys

60. Truck, includes rental

61. Used clothing and household goods

62. Variety

Food and Beverage Retail Sales

63. Bakery

64. Convenience market

65. Drive-in food market or dairy

66. Farmers' market

67. Food store

68. Liquor store

69. Specialized, including meat, vegetables, health foods, or candy

Eating and Drinking Establishments

70. Bars, taverns, or cocktail lounges
71. Ice cream parlor
72. Restaurant, cafe, or coffee shop
73. Restaurant, fast-food

Services

74. Ambulance
75. Artist studio
76. Auto body repair and painting
77. Auto rental
78. Auto service/repair
79. Auto service station
80. Auto tire repair
81. Auto towing
82. Auto wash
83. Auto wash, self-service
84. Bath house, including sauna, spa, turkish, steam, or tanning
85. Barber or beauty shop
86. Carpet cleaning
87. Catering
88. Clinic, medical or physical therapy, out-patient only
89. Equipment, small, rental
90. Equipment, heavy, or truck or trailer rental
91. Furniture cleaning, refinishing, or upholstery
92. Gardening and landscaping
93. Interior decorator

94. Janitorial service

95. Laboratory, medical, dental, optical, or biological

96. Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials

97. Laundromat, self-service

98. Laundry, dry cleaning, pressing, and dying

99. Mini-warehouse

100. Mortuary or funeral parlor

101. Pest control, administrative offices only

102. Pet grooming

103. Photography studio

104. Picture framing

105. Printing, lithography, or blue-printing

106. Shoe shine stand

107. Shoe repair

108. Tailor or dressmaker

109. Taxidermist

110. Telegraph

111. Ticket agency

112. Travel agency

113. Truck fueling station

114. Truck service and repair

115. Veterinary, including veterinary hospital

116. Wedding chapel

E. INDUSTRIAL USES

Industrial Manufacturing or Assembly

1. Acids
2. Aircraft, assembly
3. Automobile or truck assembly
4. Amonia or chlorine
5. Asphalt
6. Acetylene or other gas
7. Bag cleaning
8. Batteries
9. Blast furnace or smelting
10. Boiler works
11. Brick, tile, or terra cotta products
12. Building materials
13. Cabinet shop
14. Candle
15. Carbon
16. Carpet and mattress
17. Celluloid or pyroxylin
18. Cement
19. Ceramics
20. Chemical blending, manufacturing, or recycling
21. Clothing, garments, or shoes
22. Coal, wood, or tar distillation
23. Coke ovens
24. Concrete blocks

25. Cosmetics, perfumes, or toiletries
26. Creosote
27. Detergent
28. Disinfectant
29. Drugs and pharmaceuticals
30. Electronic appliance
31. Electronic equipment
32. Explosives or ammunition, including storage
33. Fertilizer
34. Furniture
35. Glass
36. Glue
37. Ice
38. Iron, steel, or other metals
39. Linoleum or oiled products
40. Machinery
41. Mobilehome, modular home, or recreational vehicle
42. Musical instruments
43. Neon signs
44. Oil refining
45. Ore reduction
46. Paint, shellac, turpentine, or similar products
47. Paint mixing
48. Paper or pulp
49. Plastic
50. Potash

51. Prefabricated buildings and structures

52. Rolling mill

53. Rubber

54. Saw mills

55. Smelting

56. Soap

57. Sodium compounds

58. Starch

59. Stove or shoe polish

60. Tar products

61. Textiles

62. Tobacco processing

63. Toy manufacturing and assembly

64. Trusses

Industrial Storage

65. Automobile

66. Bottled gas

67. Cargo containers

68. Chemical storage

69. Cold storage

70. Contractor's storage yard

71. Draying or freight

72. Equipment and building materials

73. Feed and fuel, including wood yards

74. Lumber

75. Moving and storage

76. Petroleum

77. Recreational vehicle

78. Truck and heavy equipment

79. Warehouse

Other Industrial Uses

80. Asphaltic concrete batch plant

81. Assaying

82. Bakery

83. Beverage bottling works

84. Billboard sign fabrication and storage

86. Boat building and major repair

86. Concrete batch plant

87. Electroplating

88. Machine shop

89. Metal extrusion

90. Newspaper, magazine, or book printing

91. Oil field service yard

92. Photographic processing plant or wholesale supply

93. Sandblasting, if incidental to another permitted use and conducted wholly within an enclosed building

94. Sheet metal shop

95. Tire retreading

96. Well drilling service

97. Welding or blacksmith

98. Wholesale distribution

F. TRANSPORTATION FACILITIES

1. Auto parking garage or lot
2. Bus depot, including service and storage
3. Railroad station
4. Railroad freight classification or switching yard
5. Taxi depot, including service and storage

G. UTILITY AND COMMUNICATIONS FACILITIES

1. Microwave relay station
2. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04
3. Utility substation

H. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Cogeneration facility
2. Electrical distribution stations
3. Electrical power generating plants, excluding nuclear and coal
4. Mineral exploration
5. Oil or gas exploration and production pursuant to Article 7260
6. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity
7. Wind-driven electrical generators for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

I. INSTITUTIONAL USES

1. Auditorium, public
2. Charitable or public service organization
3. Church

4. Fire or police station

5. Government office or building

6. Library

7. Museum

8. Public agency or utility buildings and facilities

J. MISCELLANEOUS USES

1. Commercial coach, when incidental to a permitted use

2. Construction trailer, temporary, during construction activity only

3. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

4. Kennel

5. Massage parlor

6. Revival, temporary, not to exceed fourteen (14) days

7. Studio, radio, television, recording, or movie

8. Water system, small

SECTION 7085.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are all permitted in accordance with the standards set out in Article 7215 and subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. AGRICULTURAL USES

Breeding and Raising Animals

1. Beef cattle or livestock feed lot, stockyard, auction, or sales yard

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Circus or carnival

2. Race track, automobile, bicycle, horse, or motorcycle

C. **INDUSTRIAL USES**

Industrial Storage

1. Log storage
2. Salvage or junk yard
3. Mineral and ore storage and loading

Other Industrial Uses

4. Metal, glass, or paper recycling facility

D. **TRANSPORTATION FACILITIES**

1. Airport, private
2. Airport, public use
3. Heliport

E. **UTILITY AND COMMUNICATIONS FACILITIES**

1. Radio, television, or commercial communications transmitter, receiver, or translator

F. **RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES**

1. Electrical power generating plant, nuclear or coal powered
2. Mining and mineral extraction pursuant to Article 7265
3. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity
4. Wind-driven electrical generators, commercial

G. **WASTE FACILITIES**

1. Community septic disposal system
2. Hazardous waste disposal facility
3. Nonhazardous oily waste disposal facility
4. Sanitary landfill
5. Septage disposal site
6. Sewage treatment plant

7. Transfer station, large volume

8. Transfer station, small volume

9. Waste-to-energy facility

H. **INSTITUTIONAL USES**

1. Cemetery, mausoleum, or columbarium

2. Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary

I. **MISCELLANEOUS USES**

1. Drainage sump

2. Flea market and swap meet

3. Water system, large

4. Water treatment plant

SECTION 7085.04 PROHIBITED USES

All other uses not permitted by Sections 7085.02 and 7085.03 are prohibited.

SECTION 7085.05 MINIMUM LOT SIZE

None.

SECTION 7085.06 MINIMUM LOT AREA PER DWELLING UNIT

None. Dwellings are not permitted, except as accessory to a permitted use.

SECTION 7085.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Forty (40) feet from the legal centerline of any existing or proposed public or private local street.

Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

In no case shall buildings be located in the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** None required.

C. **Rear Yard.** None required.

SECTION 7085.08 HEIGHT LIMITS

Buildings and structures shall not exceed thirteen (13) stories or one hundred and fifty (150) feet.

SECTION 7085.09 MINIMUM DISTANCE BETWEEN STRUCTURES

None required.

SECTION 7085.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7085.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed twelve (12) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Temporary construction signs

D. Temporary political, religious, or civic campaign signs

E. Institutional identification signs

F. Signs attached to buildings

G. Monument signs, not to exceed one hundred (100) square feet in area each

H. Pole signs, not to exceed two hundred (200) square feet in area each

I. Off-site advertising signs

The maximum permitted area of all signs shall not exceed three (3) square feet for each lineal foot of street frontage.

SECTION 7085.12 LANDSCAPING

Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

SECTION 7085.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the M-3 District shall comply with the minimum requirements of Article 7215 of this chapter.

B. Development in the M-3 District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7090

RECREATION FORESTRY (RF) DISTRICT

SECTIONS:

7090.01 PURPOSE AND APPLICATION
7090.02 PERMITTED USES
7090.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7090.04 PROHIBITED USES
7090.05 MINIMUM LOT SIZE
7090.06 MINIMUM LOT AREA PER DWELLING UNIT
7090.07 YARDS AND SETBACKS
7090.08 HEIGHT LIMITS
7090.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7090.10 PARKING
7090.11 SIGNS
7090.12 LANDSCAPING
7090.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7090.01 PURPOSE AND APPLICATION

The purpose of the Recreation Forestry (RF) District is to designate lands for the conservation and use of natural resources and for compatible recreational uses. Nonresource related uses are limited to uses that will not adversely affect the primary resource use or uses to which the land is devoted.

SECTION 7090.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. RESIDENTIAL USE

1. Residential accessory structures
2. Single-family dwelling

B. AGRICULTURAL USES

Growing and Harvesting Crops

1. Christmas trees
2. Growing of agricultural crops for domestic use of the resident/occupant
3. Timber

Breeding and Raising Animals

4. Bee keeping

5. Poultry and rabbits pursuant to Section 7090.13

6. Horses, donkeys, mules, hogs, sheep, goats, dairy stock, and beef cattle pursuant to Section 7090.13

7. Birds, including show or racing pigeons, and other small fowl pursuant to Section 7090.13

8. Fish and frogs

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Fishing or fly casting pond

2. Park or playground

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

2. Utility substation

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Mineral exploration

2. Oil or gas exploration and production pursuant to Section 7260.03

3. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

4. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

F. INSTITUTIONAL USES

1. Charitable or public service organization

2. Museum, when associated with a wildlife or nature preserve

G. MISCELLANEOUS USES

1. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

2. Flood control facilities

3. Garage or yard sales pursuant to Section 7090.13.C

4. Home occupation pursuant to Article 7250

5. Hunting or fishing club, not involving buildings or structures

6. Water storage or groundwater recharge facilities

7. Water system, small

8. Wildlife or nature preserve

SECTION 7090.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are all permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Logging camp

2. Mobilehome

B. AGRICULTURAL USES

Agricultural Industries

1. Saw or planing mill

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Boat dock, private

2. Camp, for religious or charitable organization

3. Campground

4. Community recreation facilities

5. Equestrian establishments

6. Golf course

7. Golf driving range

8. Marina, public

9. Race track, automobile, bicycle, horse, or motorcycle

10. Recreational vehicle park

11. Shooting range or gun club

D. TRANSPORTATION FACILITIES

1. Airport, private

2. Airport, public use

3. Heliport

E. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

F. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Dam, hydro

2. Mining and mineral extraction pursuant to Article 7265

3. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

4. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

G. WASTE FACILITIES

1. Septage disposal site

2. Transfer station, small volume

3. Waste-to-energy facility

H. INSTITUTIONAL USES

1. Cemetery

2. Church

3. Museum

4. Public agency or public utility buildings and facilities

5. Zoo

I. **EDUCATIONAL INSTITUTIONS AND SCHOOLS**

General

1. Preschool

2. Elementary school

3. Junior high school

4. Senior high school

5. College or university

J. **MISCELLANEOUS USES**

1. Drainage sump

2. Hunting or fishing club

3. Water system, large

4. Wild animal keeping

SECTION 7090.04 PROHIBITED USES

All other uses not permitted by Sections 7090.02 and 7090.03 are prohibited.

SECTION 7090.05 MINIMUM LOT SIZE

No portion of any lot within the RF District shall contain less than five (5) gross acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7090.06 MINIMUM LOT AREA PER DWELLING UNIT

There shall be no more than one single-family dwelling per legal lot.

SECTION 7090.07 YARDS AND SETBACKS

A. **Front** Yard. The front-yard minimum setback for all buildings shall be as follows:

Eighty (80) feet from the legal centerline of any existing or proposed local street or access easement.

Ninety-five (95) feet from the legal centerline of any existing or proposed secondary highway.

One hundred and five (105) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than fifty (50) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of any building of not less than twenty-five (25) feet.

C. **Rear Yard.** There shall be a rear yard of not less than fifteen (15) feet.

SECTION 7090.08 HEIGHT LIMITS

A. Residential buildings shall not exceed three (3) stories or thirty-five (35) feet.

B. Detached accessory structures shall not exceed two (2) stories or thirty-five (35) feet.

C. Radio and television antennae, chimneys, or other similar structures shall not exceed eighty (80) feet.

SECTION 7090.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be a minimum of ten (10) feet between residential buildings.

B. There shall be a minimum of six (6) feet between a residential building and an accessory building or between accessory buildings.

SECTION 7090.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7090.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising property for sale or rent, not to exceed eight (8) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary construction signs

C. Agricultural signs

D. Institutional identification signs, when approved in conjunction with a conditional use permit

SECTION 7090.12 LANDSCAPING

None required.

SECTION 7090.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. The breeding and raising of birds, including show or racing pigeons, poultry, and rabbits shall be limited to domestic or hobby purposes only and shall not be raised for commercial purposes.

B. The breeding and raising of animals pursuant to Section 7090.02 shall be limited to one horse, donkey, mule, cow, dairy stock, sheep, goat, hog, or other similar animal per one-quarter (1/4) acre of lot area.

C. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

D. Development in the RF District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7095

OPEN SPACE (OS) DISTRICT

SECTIONS:

7095.01 PURPOSE AND APPLICATION
7095.02 PERMITTED USES
7095.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7095.04 PROHIBITED USES
7095.05 MINIMUM LOT SIZE
7095.06 MINIMUM LOT AREA PER DWELLING UNIT
7095.07 YARDS AND SETBACKS
7095.08 HEIGHT LIMITS
7095.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7095.10 PARKING
7095.11 SIGNS
7095.12 LANDSCAPING
7095.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7095.01 PURPOSE AND APPLICATION

The purpose of the Open Space (OS) District is to designate lands in public or private ownership that are essentially unimproved and should remain in open space use for the preservation of identified scenic values, habitat for endangered plants or animals, unique geologic features, natural resources, passive recreational values, or for the protection of public health and safety.

SECTION 7095.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. AGRICULTURAL USES

Breeding and Raising Animals

1. Beef cattle or animal grazing

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Hiking or equestrian trails

C. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

D. MISCELLANEOUS USES

1. Hunting or fishing club, not including buildings or structures

2. Wildlife or nature preserve, not involving structures

SECTION 7095.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are all permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Roads or trails for motor driven vehicles, excluding race courses

B. MISCELLANEOUS USES

1. Scientific study sites for the systematic exploration and classification of archaeological, anthropological, or historic artifacts or remains

2. Restrooms and shelters

SECTION 7095.04 PROHIBITED USES

All other uses not permitted by Sections 7095.02 and 7095.03 are prohibited.

SECTION 7095.05 MINIMUM LOT SIZE

None required, provided, however, that no lot zoned Open Space (OS) may be divided or separated in any manner, except in the case of a conveyance or dedication of land to a government agency, public entity, or public utility for public purposes or public utility purposes.

SECTION 7095.06 MINIMUM LOT AREA PER DWELLING UNIT

None. Dwellings are not permitted.

SECTION 7095.07 YARDS AND SETBACKS

None required.

SECTION 7095.08 HEIGHT LIMITS

None required.

SECTION 7095.09 MINIMUM DISTANCE BETWEEN STRUCTURES

None required.

SECTION 7095.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7095.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Institutional identification signs identifying a permitted use on the property. Such signs shall be limited to monument signs not to exceed one hundred (100) square feet in area and not to exceed fifteen (15) feet in height.

B. Temporary real estate signs advertising the property for sale or rent, not to exceed eight (8) square feet each, excluding the area of any vertical and/or horizontal support members

SECTION 7095.12 LANDSCAPING

None required.

SECTION 7095.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

Development in the OS District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7100

NATURAL RESOURCE (NR) DISTRICT

SECTIONS:

7100.01 PURPOSE AND APPLICATION
7100.02 PERMITTED USES
7100.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7100.04 PROHIBITED USES
7100.05 MINIMUM LOT SIZE
7100.06 MINIMUM LOT AREA PER DWELLING UNIT
7100.07 YARDS AND SETBACKS
7100.08 HEIGHT LIMITS
7100.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7100.10 PARKING
7100.11 SIGNS
7100.12 LANDSCAPING
7100.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7100.01 PURPOSE AND APPLICATION

The purpose of the Natural Resource (NR) District is to designate lands that contain productive or potentially productive petroleum, mineral, or timber resources and to prevent the encroachment of incompatible uses onto such lands. Uses in the NR District are limited to resource exploration, production and transportation, and to compatible activities. The minimum lot size shall be five (5) gross acres unless the NR District is combined with the Lot Size Combining District where a larger minimum lot size is specified. No final tract map subdivisions are permitted in the NR District.

SECTION 7100.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. RESIDENTIAL USES

1. Residential accessory structures

2. Single-family dwelling, if accessory or incidental to a permitted use

3. Mobilehome, if accessory or incidental to a permitted use

B. AGRICULTURAL USES

Growing and Harvesting Crops

1. Berry crops
2. Bush crops
3. Christmas trees
4. Field crops, dryland
5. Field crops, irrigated
6. Flowers and horticultural specialties, wholesale only
7. Nursery, plant, wholesale only
8. Nut and fruit trees
9. Timber
10. Vegetables
11. Vine crops

Breeding and Raising Animals

12. Bee keeping
13. Beef cattle or livestock grazing
14. Fish and frogs
15. Poultry, including the hatching, breeding, raising, butchering, processing, or shipping of chickens, turkeys, other fowl, or poultry, including eggs
16. Rabbits and fur-bearing animals
17. Horses, donkeys, mules, hogs, sheep, goats, or dairy stock

C. INDUSTRIAL USES

Industrial Storage

1. Bottled gas, when accessory to on-site production
2. Petroleum, when accessory to on-site production

D. UTILITY AND COMMUNICATIONS FACILITIES

1. Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission pursuant to Section 7282.04

2. Utility substation

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Accessory structures and equipment storage for natural resource extraction or processing uses

2. Cogeneration facility, primarily intended for steam production for another permitted use

3. Explosives storage, temporary, subject to approval by the Kern County Fire Department

4. Mineral exploration

5. Oil or gas exploration and production pursuant to Article 7260

6. Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

7. Wind-driven electrical generator with a rated capacity of no greater than fifteen (15) kilowatts for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

F. MISCELLANEOUS USES

1. Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map

2. Garage or yard sales pursuant to Section 7100.13.A

3. Hunting or fishing club, not involving buildings or structures

4. Water storage or groundwater recharge facilities

5. Water system, small

6. Wildlife or nature preserve

SECTION 7100.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. RESIDENTIAL USES

1. Farm labor housing for on-site employees
2. Mobilehome
3. Logging camp
4. Single-family dwelling

B. AGRICULTURAL USES

1. Saw or planing mill

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Boat dock, private
2. Equestrian establishment
3. Park or playground
4. Race track, automobile, bicycle, horse, or motorcycle
5. Recreational vehicle park

D. INDUSTRIAL USES

Industrial Manufacturing or Assembly

1. Oil refining

Industrial Storage

2. Contractor's storage yard, if accessory or incidental to the exploration for and production of oil, gas, or mineral deposits
3. Truck and heavy equipment parking and storage, if accessory or incidental to a natural resource extraction or processing activity

E. TRANSPORTATION FACILITIES

1. Airport, private

2. Airport, public use

3. Heliport

F. UTILITY AND COMMUNICATIONS FACILITIES

1. Radio, television, or commercial communications transmitter, receiver, or translator

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Concrete or asphalt batch plant

2. Electric power generating plant

3. Explosives storage

4. Mining and mineral extraction pursuant to Article 7265

5. Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

6. Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

H. WASTE FACILITIES

1. Hazardous waste disposal facility

2. Nonhazardous oily waste disposal facility

3. Sanitary landfill

4. Sewage treatment plant

5. Transfer station, large

6. Transfer station, small

I. INSTITUTIONAL USES

1. Cemetery

2. Charitable or public service organization

3. Community or senior citizens center

4. Museum

5. Public agency or public utility buildings or facilities

J. **EDUCATIONAL INSTITUTIONS AND SCHOOLS**

1. Preschool
2. Elementary school
3. Junior high school
4. Senior high school
5. College or university

K. **MISCELLANEOUS USES**

1. Drainage sump
2. Hunting or fishing club
3. Water system, large
4. Wild animal keeping

SECTION 7100.04 PROHIBITED USES

All other uses not permitted by Sections 7100.02 and 7100.03 are prohibited, including final map subdivisions.

SECTION 7100.05 MINIMUM LOT SIZE

No portion of any lot within the NR District shall contain less than five (5) gross acres or as otherwise specified by the Lot Size Combining District, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7100.06 MINIMUM LOT AREA PER DWELLING UNIT

Except for employee housing and dwellings accessory or incidental to a permitted use on the property, there shall be no more than one single-family dwelling per legal lot when such dwelling is permitted with a conditional use permit.

SECTION 7100.07 YARDS AND SETBACKS

A. **Front Yard.** The front-yard minimum setback for all buildings shall be as follows:

Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easements.

Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the minimum front-yard setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line.

B. **Side Yard.** There shall be a side yard on each side of any building of not less than five (5) feet, except that on the street side of corner lots, buildings shall have a side yard of not less than ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. **Rear Yard.** There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

SECTION 7100.08 HEIGHT LIMITS

No building or permanent structure shall exceed six (6) stories or seventy-five (75) feet in height.

SECTION 7100.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. There shall be a minimum of ten (10) feet between residential buildings.

B. There shall be a minimum of six (6) feet between a residential building and an accessory building or between accessory buildings.

SECTION 7100.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7100.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Temporary real estate signs advertising the property for sale or rent, not to exceed eight (8) square feet, excluding the area of any vertical and/or horizontal support members

B. Temporary construction signs

C. Temporary political, religious, and civic campaign signs

D. Agricultural signs

SECTION 7100.12 LANDSCAPING

None required.

SECTION 7100.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. Garage or yard sales are permitted without special permit provided they meet the following standards:

1. Sales last no longer than three (3) days.

2. Sales are held no more than twice yearly.

3. Sales are conducted on the owner's or tenant's property. Multiple family sales are permitted if they are held on the property of one of the participants.

4. No goods purchased for resale may be offered for sale.

5. No consignment goods may be offered for sale.

6. Directional signs may be placed on the street right-of-way.

7. All directional and advertising signs shall be freestanding and removed after completion of the sale.

8. All directional and advertising signs placed on private property shall have the owner's permission.

9. No directional or advertising signs may be larger than two (2) feet by three (3) feet.

B. Development in the NR District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7105

DRILLING ISLAND (DI) DISTRICT

SECTIONS:

7105.01 PURPOSE AND APPLICATION
7105.02 PERMITTED USES
7105.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7105.04 PROHIBITED USES
7105.05 MINIMUM LOT SIZE
7105.06 MINIMUM LOT AREA PER DWELLING UNIT
7105.07 YARDS AND SETBACKS
7105.08 HEIGHT LIMITS
7105.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7105.10 PARKING
7105.11 SIGNS
7105.12 LANDSCAPING
7105.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7105.01 PURPOSE AND APPLICATION

The purpose of the Drilling Island (DI) District is to designate single lots and relatively small areas within the boundaries of final map subdivisions and mobilehome parks that contain productive or potentially productive petroleum resources to promote the development of such resources in a manner compatible with surrounding development. Uses in the DI District are limited to petroleum and gas exploration, production and transportation, and to compatible open space and recreational uses.

SECTION 7105.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Oil or gas exploration and production pursuant to Section 7260.05

SECTION 7105.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

1. Park or playground

B. MISCELLANEOUS USES

1. Subdivision drainage sump, provided that mineral rights owners have given written consent

SECTION 7105.04 PROHIBITED USES

All other uses not permitted by Sections 7105.02 and 7105.03 are prohibited.

SECTION 7105.05 MINIMUM LOT SIZE

No portion of any lot within the DI District shall contain less than two and one-half (2 1/2) gross acres.

SECTION 7105.06 MINIMUM LOT AREA PER DWELLING UNIT

None. Dwellings are not permitted.

SECTION 7105.07 YARDS AND SETBACKS

Pursuant to Section 7260.05.A of this chapter, no oil or gas well shall be drilled within one hundred (100) feet of the right-of-way of any public highway, proposed public highway, Official Plan Line, or Specific Plan Line.

SECTION 7105.08 HEIGHT LIMITS

A. None on derricks and other equipment used during the exploration and drilling phase of development.

B. Pumping units shall not exceed thirty-five (35) feet in height.

SECTION 7105.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of Section 7260.05 of this chapter.

SECTION 7105.10 PARKING

No minimum requirement, provided, however, that all vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

SECTION 7105.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Directional, warning signs, and identification signs, not to exceed two (2) square feet each

B. Temporary real estate signs advertising the property for sale or rent, not to exceed six (6) square feet each, excluding the area of any vertical and/or horizontal support members

SECTION 7105.12 LANDSCAPING

As approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter.

SECTION 7105.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All drilling and other hydrocarbon development activity shall be carried out in accordance with the standards and procedures set out in Section 7260.05.

B. Development in the DI District shall comply with the interpretations and provisions of Article 7282 of this chapter.

ARTICLE 7110

FLOODPLAIN PRIMARY (FPP) DISTRICT

SECTIONS:

7110.01 PURPOSE AND APPLICATION
7110.02 PERMITTED USES
7110.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7110.04 PROHIBITED USES
7110.05 MINIMUM LOT SIZE
7110.06 MINIMUM LOT AREA PER DWELLING UNIT
7110.07 YARDS AND SETBACKS
7110.08 HEIGHT LIMITS
7110.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7110.10 PARKING
7110.11 SIGNS
7110.12 LANDSCAPING
7110.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7110.01 PURPOSE AND APPLICATION

The purpose of the Floodplain Primary (FPP) District is to protect the public health and safety and minimize property damage by designating areas that are subject to flooding with high velocities or depths and by establishing reasonable restrictions on land use in such areas. The FPP District shall be applied to those areas lying within the "Floodway" as shown on the Flood Boundary Floodway Map (FBFM) or within the "Designated Floodway" on the State of California's Board of Reclamation's Kern River Designated Floodway Studies, or other maps where engineering studies have been made and adopted by the Kern County Board of Supervisors. Uses in the FPP District are limited to those low intensity uses not involving buildings, structures, and other activities that might adversely affect or be adversely affected by flow of water in the floodway.

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions or flood heights may be increased by man-made or natural causes, such as bridge openings restricted by debris. This article does not imply that areas outside the floodplain districts or land uses permitted within such districts will be free from flooding or flood damages. This article shall not create liability on the part of the County of Kern or any officer or employee thereof for any flood damage that may result from reliance on this article or any administrative decisions lawfully made hereunder.

SECTION 7110.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. AGRICULTURAL USES

Growing and Harvesting Crops

1. Berry crops
2. Bush crops
3. Field crops, dryland
4. Field crops, irrigated
5. Flowers and horticulture specialties
6. Vegetables
7. Vine crops

Breeding and Raising Animals

8. Beef cattle or livestock grazing, excluding fencing and other related facilities which may obstruct flood flows

B. UTILITY AND COMMUNICATION FACILITIES

1. Transmission lines for gas, electricity, telephone, or telegraph service owned and operated by a public utility company, not including building, structure, or development which may obstruct flood flows

C. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

1. Oil or gas exploration and production pursuant to Section 7110.13.C

D. MISCELLANEOUS USES

1. Flood control facilities
2. Hunting or fishing club, not involving buildings or structures
3. Water storage or groundwater recharge facilities
4. Wildlife or nature preserve, not involving buildings or structures

SECTION 7110.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. **RECREATIONAL, ENTERTAINMENT, AND TOURIST FACILITIES**

1. Fishing or fly casting pond, not involving buildings or structures
2. Golf course, not involving buildings or structures
3. Golf driving range, not involving buildings or structures
4. Hiking or equestrian trail
5. Park or playground, not involving buildings or structures
6. Roads or trails for motor driven vehicles

B. **TRANSPORTATION FACILITIES**

1. Auto parking lot, not involving buildings or structures

SECTION 7110.04 PROHIBITED USES

All other uses not permitted by Sections 7110.02 and 7110.03 are prohibited, including:

A. Buildings, structures, mobilehomes, other improvements or accessory uses, or development that would encroach into the channel and obstruct the natural flow of waters within a designated floodway or which will in any manner endanger life and property.

B. All public and private sewage disposal systems or any part thereof.

C. Any use which may endanger temporary safeguards which have been erected until such time as flood protection or control works have been constructed.

D. Land fill, sumps, or excavation of a similar nature that would obstruct the natural flow of floodwater within a designated floodway.

E. All uses that are likely to increase the flood hazard or in any way affect the water-carrying capacity of the designated floodway.

F. Dumping, stockpiling, or storage of floatable substances or other materials, which in the opinion of the Kern County Department of Planning and Development Services will add to the debris loads of the stream or watercourse.

G. Commercial cattle or livestock feed yards, auction yards, dairies, junk or salvage yards, billboards, and other advertising structures of any kind or type which may have residential, commercial, or industrial connotations.

H. Storage tanks, sumps, processing equipment, or other similar facilities related to oil and gas production not expressly permitted pursuant to Sections 7110.02 and 7110.13.C.

I. Sources of water supply (e.g., wells, springs, etc.) unless protected by flood control devices approved by the Kern County Department of Planning and Development Services and constructed in accordance with the requirements of the Kern County Health Department or Kern County Department of Planning and Development Services, whichever has jurisdiction, so as to minimize infiltration of floodwaters.

J. Tree farming, unless it can be shown to the Kern County Department of Planning and Development Services that the spacing of the trees will not cause a rise in the base flood elevation or that the trees will not add to the debris load of the stream.

SECTION 7110.05 MINIMUM LOT SIZE

None.

SECTION 7110.06 MINIMUM LOT AREA PER DWELLING UNIT

None. Dwellings are not permitted.

SECTION 7110.07 YARDS AND SETBACKS

None. Buildings and structures are not permitted.

SECTION 7110.08 HEIGHT LIMITS

None. Buildings and structures are not permitted.

SECTION 7110.09 MINIMUM DISTANCE BETWEEN STRUCTURES

None. Buildings and structures are not permitted.

SECTION 7110.10 PARKING

Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

SECTION 7110.11 SIGNS

A. Temporary real estate signs advertising the property for sale or rent, not to exceed eight (8) square feet each, excluding the area of any vertical and/or horizontal support members

B. As provided by Section 7110.13.

SECTION 7110.12 LANDSCAPING

None required.

SECTION 7110.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development within the FPP District is subject to the requirements of Flood Damage Prevention Ordinance, Article 11, Division 2 of Part 4 of the Ordinance Code of Kern County.

B. Development in the FPP District shall comply with the interpretations and provisions of Article 7282 of this chapter.

C. Oil or gas exploration and production shall comply with the following standards:

1. Feasible remedial work, improvements and floodproofing will be carried out which will permit exercise of the use within the FPP District with a minimum obstruction to flood flow, will not cause peripheral flooding of other properties, will not cause the surface of the intermediate regional flood to rise by no more than one (1) foot, will not materially impair the ability of the primary floodplain to discharge the waters resulting from an intermediate regional flood, and will either be resistant to flotation or immune to extensive damage by flooding and will not endanger life or property.

2. No oil or gas well shall be drilled within ten (10) feet of the toe of the bank of a river or stream located within the FPP District.

3. All oil or gas wells in the FPP District, including pumps and all other associated equipment, shall be designed such that they are resistant to damage by flooding.

4. All pipelines in the FPP District shall be floodproofed by burial to sufficient depth to prevent rupture during flood conditions or by suspension at least two (2) feet above the surface of the intermediate flood. Supports for elevated pipelines shall also carry a catwalk to facilitate removal of debris caught by supports during floods.

5. The location of all buried pipelines shall be recorded on appropriate maps by the company that owns said pipelines, and the maps shall be made available to any public agency that shall request a copy.

6. All drilling, redrilling, and producing, including remedial work, well pulling, workovers, and deepening, shall conform to all applicable fire, safety, spacing, and environmental State law and regulations.

7. Proven technological improvements generally accepted and used in drilling and production methods shall be adopted as they may become, from time to time available, if capable of reducing factors of nuisance and annoyance.

8. Prior to the commencement of any drilling, a copy of a Spill Prevention Control and Counter-measure Plan, as required by the United States Environmental Protection Agency, shall be filed with the Kern County Department of Planning and Development Services.

9. All pumps expected to be inaccessible during times of flood shall be equipped with an accessible remote switch to shut off the pumps during emergencies.

10. The derrick, all boilers, and all other drilling equipment used pursuant to this article to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derrick, boilers, and drilling equipment are to be used within a reasonable time limit, determined by the Director of Planning and Development Services, for the drilling of another well or wells on the premises.

11. After any well has been placed in production, no earthen sumps shall be used for the storage of petroleum or gas.

12. Within ninety (90) days after any well has been placed in production or after its abandonment, earthen sumps used in drilling or production or both shall be emptied by vacuum truck or other approved means, then filled, and the drilling site restored as nearly as practicable to a uniform grade, unless such sumps are to be used within a reasonable time limit, as determined by the Director of Planning and Development Services.

13. Any derrick used for servicing operations shall be of the portable type; provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable-type derrick will not properly service such well, the Director of Planning and Development Services may approve the use of a standard type of derrick.

14. Directional and warning signs and those required for identification of the well, shall be constructed, erected, placed, or maintained on the premises, except those required by law to be displayed in connection with the drilling or maintenance of the well.

15. If a producing or service well is not secured twelve (12) months from the date of commencement of drilling operations or any extended period granted by the Director of Planning and Development Services, the premises shall be restored to the original condition as nearly as practicable to do so. If at the expiration

of the twelve- (12-) month period, the drilling program has not been completed, the Director of Planning and Development Services may, upon a written request, grant an additional period of time as requested for the completion of such drilling program.

ARTICLE 7115

SPECIAL PLANNING (SP) DISTRICT

SECTIONS:

7115.01 PURPOSE AND APPLICATION
7115 02 PERMITTED USES
7115.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7115.04 PROHIBITED USES
7115.05 MINIMUM LOT SIZE
7115.06 MINIMUM LOT AREA PER DWELLING UNIT
7115.07 YARDS AND SETBACKS
7115.08 HEIGHT LIMITS
7115.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7115.10 PARKING
7115.11 SIGNS
7115.12 LANDSCAPING
7115.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7115.01 PURPOSE AND APPLICATION

The purpose of the Special Planning (SP) District is to encourage and facilitate the creative and innovative use of land which may otherwise be limited or prohibited by the standard provisions of other parts of this chapter. The SP District is designed to allow diversity in the relationship between buildings and open spaces so as to create unique, interesting physical environments that maximize usable open space, while at the same time to preserve the public health, safety, and welfare. All development in the SP District shall be consistent with the General Plan. Development within the SP District shall conform to the standards specified elsewhere in this chapter for similar uses except to the extent that benefits will accrue to the public by deviation from such standards. The application of the SP District to land may only be initiated by application of the landowner or his/her representative.

SECTION 7115.02 PERMITTED USES

Any uses consistent with the General Plan land use category applicable to the subject property and which will not be in conflict with the public health, safety, and welfare are permitted in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

None. All uses are subject to approval in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.04 PROHIBITED USES

Uses inconsistent with the General Plan land use category applicable to the area and uses that would be in conflict with the public health, safety, and welfare are prohibited.

SECTION 7115.05 MINIMUM LOT SIZE

As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.06 MINIMUM LOT AREA PER DWELLING UNIT

As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.07 YARDS AND SETBACKS

As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.08 HEIGHT LIMITS

As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.09 MINIMUM DISTANCE BETWEEN STRUCTURES

As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.10 PARKING

As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.11 SIGNS

A. Temporary real estate signs advertising the property for sale or rent, not to exceed six (6) square feet each, excluding the area of any vertical and/or horizontal support members

B. Temporary subdivision signs

C. Permanent subdivision identification signs

D. Temporary construction signs

E. As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.12 LANDSCAPING

As established in accordance with the standards and procedures set out in Section 7115.13.

SECTION 7115.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

The SP District may only be initiated by the property owner or his/her authorized representative. An SP District shall be established in accordance with the procedures set out in Article 7292 and in conjunction with review and approval of a site development plan in accordance with the procedures set out in Section 7284.05 of this chapter.

A. Application Contents:

An application for a site development plan review shall include the following:

1. Name and address of applicant
2. Name(s) and address(es) of property owner(s)
3. Assessor's parcel number(s)
4. Legal description of the property
5. A site development plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:
   a. Topography of the lot(s)
   b. Proposed street system and parking areas
   c. Lot design
   d. Location of buildings
   e. Location of other proposed uses
   f. Proposed setbacks
   g. Areas to be reserved for parks, schools, or public or quasi-public buildings
   h. Proposed landscaping
   i. Water supply and distribution
   j. Sewage disposal system

k. Drainage system

l. North arrow

6. Acres of each proposed land use

7. Number of dwelling units per acre, if applicable

8. A narrative description of the proposed development, including:

   a. An explanation of the proposed deviations from the standards that would otherwise apply to the proposed uses and why the deviations are necessary or desirable

   b. Phasing or development schedule

B. Development Standards and Conditions:

Development within the SP District shall comply with the following standards:

1. All development shall be consistent with the goals and policies of the General Plan and with the uses and density or intensity standards of the General Plan land use category applicable to the area in which the property is located.

2. Development within the SP District shall be demonstratively superior to the development that could occur under any other zoning district or combination of zoning districts authorized by this chapter that are consistent with the General Plan land use category applicable to the subject property. In making this determination, the following factors shall be considered:

   a. Appropriateness of the use at the proposed location

   b. The mix of housing styles and costs

   c. Provision of units affordable to persons and families of low and moderate income or to lower income households

   d. Provision of infrastructure improvements, including community water distribution and sewage collection and treatment systems

   e. Provision of open space

   f. Compatibility of uses within the development area

   g. Use of innovative technology and materials

   h. Overall contribution to the enhancement of the environment of Kern County

   i. Creativity in design and use of land

3. The SP District may only be applied to areas containing five (5) acres or more.

C. Adoption by Ordinance:

Each SP District shall be adopted by ordinance and shall include all standards and conditions approved in connection with the review of the site development plan application. Each SP District shall be referenced by ordinance number on the Official Zoning Maps.

D. Time Limit on Approval:

1. If development approved pursuant to this article has not commenced within three (3) years of the approval, the Board of Supervisors shall initiate a reclassification of the property in accordance with the procedures set out in Article 7292 of this chapter, unless:

   a. Building permits for approved development have been issued;

   b. A tentative subdivision or parcel map for proposed development has been approved; or

   c. A written request for an extension has been filed with and approved by the Director of Planning and Development Services before the expiration of the three- (3-) year period. Such extension shall not exceed three (3) years from the expiration of the initial three- (3-) year period.

   In any event, development approved in accordance with this article shall be commenced or necessary final subdivision maps recorded within six (6) years of the original approval.

2. If the time limits specified in Section 7115.13.D.1 are not met, the Board of Supervisors shall initiate reclassification of the property to a zoning district or districts consistent with the Kern County General Plan in accordance with procedures set out in Article 7292 of this chapter.

E. Minor Plan Modifications:

The Director of Planning and Development Services may approve minor plan modifications to an approved SP site development plan in accordance with the procedures set out in Section 7284.02, if the Director of Planning and Development Services determines that the modification(s) does not constitute a substantial change in the approved project.

ARTICLE 7120

LOT SIZE COMBINING DISTRICT

SECTIONS:

7120.01 PURPOSE AND APPLICATION
7120.02 PERMITTED USES
7120.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7120.04 PROHIBITED USES
7120.05 MINIMUM LOT SIZE
7120.06 MINIMUM LOT AREA PER DWELLING UNIT
7120.07 YARDS AND SETBACKS
7120.08 HEIGHT LIMITS
7120.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7120.10 PARKING
7120.11 SIGNS
7120.12 LANDSCAPING
7120.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7120.01 PURPOSE AND APPLICATION

The purpose of the Lot Size Combining District is to provide for various lot sizes in the Estate (E), Mobilehome Subdivision (MS), and Natural Resource (NR) Districts. The minimum lot size specified for E, MS, and NR Districts will vary by combination with the Lot Size Combining District. The numerical designation following an E, MS, or NR designation in parenthesis (e.g., E (1/2 acre)) will specify the minimum lot size in that district. The basis for the minimum lot size applied to an area shall include neighborhood character, compatibility with surrounding uses, and consistency with the General Plan. In no case shall the Lot Size Combining District establish a lot size less than the minimum specified by the base district with which the Lot Size Combining District is combined.

SECTION 7120.02 PERMITTED USES

Uses permitted by the base district with which the Lot Size Combining District is combined.

SECTION 7120.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the Lot Size Combining District is combined.

SECTION 7120.04 PROHIBITED USES

Uses prohibited by the base district with which the Lot Size Combining District is combined.

SECTION 7120.05 MINIMUM LOT SIZE

The following minimum lot size designations may be applied to the E, MS, and NR Districts based on neighborhood character, compatibility with surrounding lot sizes in the area, and consistency with the General Plan:

A. 6,000 : Six thousand (6,000) net square feet minimum lot area

B. 1/4 acre : One-quarter (1/4) acre or ten thousand eight hundred and ninety (10,890) net square feet minimum lot area

C. 1/2 acre : One-half (1/2) acre or twenty-one thousand seven hundred and eighty (21,780) net square feet minimum lot area

D. 1 acre : One (1) net acre minimum lot area

E. 2 1/2 acres : Two and one-half (2-1/2) gross acres minimum lot area or a quarter of a quarter of a quarter of a quarter section of land, containing not less than two (2) gross acres

F. 5 acres : Five (5) gross acres minimum lot area or one-half of a quarter of a quarter of a quarter section of land, containing not less than four (4) acres

G. 10 acres : Ten (10) gross acres minimum lot area or a quarter of a quarter of a quarter section of land, containing not less than eight (8) gross acres

H. 20 acres : Twenty (20) gross acres minimum lot area or a half of a quarter of a quarter section of land, containing not less than sixteen (16) gross acres

In no event shall the minimum lot size exceed the density limit specified by the applicable General Plan land use category.

SECTION 7120.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the Lot Size Combining District is combined.

SECTION 7120.07 YARDS AND SETBACKS

Per the requirements of the base district with which the Lot Size Combining District is combined.

SECTION 7120.08 HEIGHT LIMITS

Per the requirements of the base district with which the Lot Size Combining District is combined.

SECTION 7120.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the Lot Size Combining District is combined.

SECTION 7120.10 PARKING

Per the requirements of the base district with which the Lot Size Combining District is combined.

SECTION 7120.11 SIGNS

Per the requirements of the base district with which the Lot Size Combining District is combined.

SECTION 7120.12 LANDSCAPING

Per the requirements of the base district with which the Lot Size Combining District is combined.

SECTION 7120.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

Per the requirements of the base district with which the Lot Size Combining District is combined.

ARTICLE 7125

PRECISE DEVELOPMENT (PD) COMBINING DISTRICT

SECTIONS:

7125.01 PURPOSE AND APPLICATION
7125.02 PERMITTED USES
7125.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7125.04 PROHIBITED USES
7125.05 MINIMUM LOT SIZE
7125.06 MINIMUM LOT AREA PER DWELLING UNIT
7125.07 YARDS AND SETBACKS
7125.08 HEIGHT LIMITS
7125.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7125.10 PARKING
7125.11 SIGNS
7125.12 LANDSCAPING
7125.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7125.01 PURPOSE AND APPLICATION

The purpose of the Precise Development (PD) Combining District is to designate areas with unique site characteristics or environmental conditions or areas surrounded by sensitive land uses to ensure that development in such areas is compatible with such constraints. All development in the PD Combining District shall be subject to site development plan review. The application of the PD District may be initiated by either the property owner or the County. The PD District may be combined with any base district. The regulations established by the PD District shall be in addition to the regulations of the base district with which the PD District is combined.

SECTION 7125.02 PERMITTED USES

Uses permitted by the base district with which the PD District is combined.

SECTION 7125.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the PD District is combined.

SECTION 7125.04 PROHIBITED USES

Uses prohibited by the base district with which the PD District is combined.

SECTION 7125.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the PD District is combined.

SECTION 7125.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the PD District is combined.

SECTION 7125.07 YARDS AND SETBACKS

Per the requirements of the base district with which the PD District is combined.

SECTION 7125.08 HEIGHT LIMITS

Per the requirements of the base district with which the PD District is combined.

SECTION 7125.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the PD District is combined.

SECTION 7125.10 PARKING

Per the requirements of Article 7220, Off-street Parking.

SECTION 7125.11 SIGNS

Per the requirements of the base district with which the PD District is combined.

SECTION 7125.12 LANDSCAPING

Per the requirements of Article 7230, Landscaping.

SECTION 7125.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

No use shall be established, no development shall occur and no building or grading permit shall be issued for any use or development in the PD Combining District until an application for site development plan review has been submitted to and approved by the Director of Planning and Development Services or the Board of Supervisors in accordance with the procedures set out in Article 7284 of this chapter.

A. Application Contents:

An application for site development plan review shall include the following:

1. Name and address of applicant
2. Name(s) and address(es) of the property owner(s)
3. Assessor's parcel number(s)

4. Legal description of the property

5. A site development plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Proposed development in relationship to all previously approved and projected PD site development plans

   c. The width, location, and names of surrounding streets

   d. The location, dimensions, and uses on adjacent property of all existing buildings and structures within fifty (50) feet of the boundary line of the subject property

   e. The location, dimensions, ground floor area, and uses of all existing and proposed buildings and structures on the subject property

   f. Proposed landscaping

   g. Streets and parking areas

   h. Signs, including location, size, and height

   i. Proposed dedications and improvements in accordance with applicable subdivision improvement standards for the area

   j. Location, height, and material of walls and fences

   k. Other specified uses of the property

   l. North arrow

6. A narrative description of the proposed development including the following:

   a. Acreage or square footage of the property

   b. Height, ground floor area, and total floor area of each building

   c. Number of dwelling units in each building

   d. Building coverage expressed as a percent of the total area of the property

   e. Area of land devoted to landscaping and/or open space usable for recreation purposes and its percentage of the total land area

f. Method of sewage disposal

g. Water supply, both domestic and fire

h. Proposed on-site drainage facilities

i. Methods of flood control, where appropriate

B. Development Standards:

Development in the PD District shall comply with the following standards:

1. All development shall be consistent with the goals and policies of the General Plan and with the uses and density and intensity standards of the General Plan land use category applicable to the area in which the property is located.

2. All development shall comply with any additional conditions deemed necessary or appropriate by the Director of Planning and Development Services or the Board of Supervisors to promote the public health, safety, and welfare.

C. Plan Certification

No use shall be established or changed and no building or grading permit shall be issued for any use or development until a precise plan is certified. This certification shall consist of the following:

1. A certificate affixed to the precise development plan, signed by the property owner, which shall state that the owner is aware of the proposals shown on the plan and agrees and understands that all conditions of approval shall be complied with prior to use or occupancy of the premises.

2. A certificate affixed to the precise development plan, signed by the Director of Planning and Development Services or the Board of Supervisors, which shall state that the plan was approved, subject to the conditions shown hereon, and is in full compliance with the Ordinance Code of the County of Kern.

D. Time Limit on Approval:

If development approved in accordance with this article has not commenced within two (2) years of the approval, the approval shall become null and void and of no effect, unless an extension has been granted by the Director of Planning and Development Services upon written request for an extension before the expiration of the two- (2-) year period. This provision shall not apply to applications approved in conjunction with a tentative parcel map or a tentative tract map. In such cases, the expiration period shall coincide with that of the approved tentative parcel map or approved tentative tract map, as applicable.

E. Temporary Uses:

Notwithstanding Subsections A, B, and C of this section, when a PD District has been established and is in effect, the Director of Planning and Development Services is authorized to approve a temporary use of the property consistent with the uses authorized by the base district within which the PD District is combined, but involving no permanent buildings or structures, if the Director of Planning and Development Services determines that such temporary use would not be detrimental to the public health, safety, and welfare, subject to the following conditions:

1. The applicant shall submit an application for a PD site development plan review, but the Director of Planning and Development Services shall have authority to defer the filing of a formal linen or cronar.

2. Authorization for a temporary use shall be evidenced by a temporary use permit approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02.

3. Such temporary use permit may be revoked by the Director of Planning and Development Services at any time if in the exercise of his/her reasonable discretion, he/she determines that continued temporary use of such property without the safeguards provided by an approved PD site development plan would be detrimental to the public health, safety, and welfare.

4. No temporary use permit shall ever ripen into the status of a permanent right or legal nonconforming use.

5. Prior to approval of a formal PD site development plan for permanent improvements, and in any case, in the event a PD site development plan is disapproved, the temporary use permit shall become null and void and the premises shall be completely vacated and restored to its original condition.

F. Minor Plan Modifications:

The Director of Planning and Development Services may approve minor plan modifications to an approved PD site development plan in accordance with the procedures set out in Section 7284.02 if the Director of Planning and Development Services determines that the modification(s) does not constitute a substantial change in the approved project.

G. Permit Revocation and Modifications:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7130

CLUSTER (CL) COMBINING DISTRICT

SECTIONS:

7130.01 PURPOSE AND APPLICATION
7130.02 PERMITTED USES
7130.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7130.04 PROHIBITED USES
7130.05 MINIMUM LOT SIZE
7130.06 MINIMUM LOT AREA PER DWELLING UNIT
7130.07 YARDS AND SETBACKS
7130.08 HEIGHT LIMITS
7130.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7130.10 PARKING
7130.11 SIGNS
7130.12 LANDSCAPING
7130.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7130.01 PURPOSE AND APPLICATION

The purpose of the Cluster (CL) Combining District is to promote development of imaginative, well-designed residential and commercial developments which preserve open space, promote affordable housing, and maximize the use of shared public and private recreation facilities. The CL District may be combined with the Estate (E), Low-density Residential (R-1), Medium-density Residential (R-2), High-density Residential (R-3), Mobilehome Subdivision (MS), Commercial Office (CO), Neighborhood Commercial (C-1), General Commercial (C-2), or Highway Commercial (CH) Districts. The regulations established by the CL District shall be in addition to the regulations of the base district with which the CL District is combined.

SECTION 7130.02 PERMITTED USES

Uses permitted by the base district with which the CL District is combined.

SECTION 7130.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the CL District is combined.

SECTION 7130.04 PROHIBITED USES

Uses prohibited by the base district with which the CL District is combined.

SECTION 7130.05 MINIMUM LOT SIZE

There is no minimum lot size where a base district is combined with the CL District.

SECTION 7130.06 MINIMUM LOT AREA PER DWELLING UNIT

None, except that overall project density shall not exceed the overall density established by the General Plan land use category applicable to the area in which the property is located.

SECTION 7130.07 YARDS AND SETBACKS

As established in accordance with the standards and procedures set out in Section 7130.13.

SECTION 7130.08 HEIGHT LIMITS

Per the requirements of the base district with which the CL District is combined.

SECTION 7130.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the CL District is combined.

SECTION 7130.10 PARKING

Per the requirements of the base district with which the CL District is combined.

SECTION 7130.11 SIGNS

Per the requirements of the base district with which the CL District is combined.

SECTION 7130.12 LANDSCAPING

Per the requirements of the base district with which the CL District is combined.

SECTION 7130.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

No use shall be established, no development shall occur, and no building or grading permit shall be issued for any use or development in the CL District until an application for site development plan review has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.03, or submitted to and approved by the Board of Supervisors in accordance with the procedures set out in Section 7284.05 when submitted in conjunction with an application for a change of zone classification or with a tentative subdivision map.

A. Application Contents:

An application for site development plan review shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of property owner(s)

3. Assessor's parcel number(s)

4. A site development plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following:

   a. Topography of the lot(s)

   b. Proposed street system and parking area

   c. Lot design

   d. Location of buildings

   e. Location of other proposed uses

   f. Proposed setbacks

   g. Areas to be reserved for parks, schools, or other public or quasi-public facilities

   h. Proposed landscaping

   i. Water supply and distribution

   j. Sewage disposal system

   k. Drainage system

   l. North arrow

5. Number of dwelling units per acre

6. Proposed method of ownership and maintenance of commonly held open space, if any

7. A narrative description of the development, including an explanation of the proposed deviations from the regulations otherwise applicable to the property

8. Phasing or development schedule

B. Development Standards and Conditions:

Development in the CL District shall comply with the following standards:

1. All development shall be consistent with the goals and policies of the General Plan and with the General Plan land use category applicable to the area in which the property is located.

2. Development within the CL District shall be demonstratively superior to the development that could occur under the base district regulations applicable to the property. In making this determination, the following factors shall be considered:

   a. Provision of open space

   b. Overall enhancement of the community environment

   c. Compatibility with uses in the area

C. Time Limit on Approval:

If development approved in accordance with this article has not commenced within two (2) years of the approval, the approval shall become null and void and of no effect, unless an extension has been granted by the Director of Planning and Development Services, upon written request for an extension before the expiration of the two- (2-) year period. This provision shall not apply to applications approved in conjunction with a tentative parcel map or a tentative tract map. In such cases, the expiration period shall coincide with that of the approved tentative parcel map or approved tentative tract map, as applicable.

D. Minor Plan Modifications:

The Director of Planning and Development Services may approve minor plan modifications to an approved CL site development plan in accordance with the procedures set out in Section 7284.02 if the Director of Planning and Development Services determines that the modification(s) does not constitute a substantial change in the approved project.

E. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7135

RESIDENTIAL SUBURBAN (RS) COMBINING DISTRICT

SECTIONS:

7135.01 PURPOSE AND APPLICATION
7135.02 PERMITTED USES
7135.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7135.04 PROHIBITED USES
7135.05 MINIMUM LOT SIZE
7135.06 MINIMUM LOT AREA PER DWELLING UNIT
7135.07 YARDS AND SETBACKS
7135.08 HEIGHT LIMITS
7135.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7135.10 PARKING
7135.11 SIGNS
7135.12 LANDSCAPING
7135.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7135.01 PURPOSE AND APPLICATION

The purpose of the Residential Suburban (RS) Combining District is to expand the number and type of permitted domestic agricultural uses within rural residential areas. The RS Combining District may be combined with the Estate (E) or Mobilehome Subdivision (MS) where the minimum lot size is one-half (1/2) net acre (21,780 square feet) or larger. The uses allowed and regulations established by the RS District shall be in addition to regulations of the base district with which the RS District is combined.

SECTION 7135.02 PERMITTED USES

The following uses and others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. Breeding, raising, and keeping of poultry, birds, rabbits, chinchillas, fish, frogs, or bees for the domestic use of the resident/occupant of the lot, provided, however, there shall be no killing or dressing of such animals for commercial purposes.

B. Keeping of cattle, sheep, goats, horses, or hogs owned by the resident/occupant of the lot, provided any combination of such animals on any one lot shall be limited to one animal for every one-quarter (1/4) acre, provided, however, there shall be no killing or dressing of such animals for commercial purposes.

C. Uses permitted by the base district with which the RS District is combined.

SECTION 7135.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the RS District is combined.

SECTION 7135.04 PROHIBITED USES

Uses prohibited by the base district with which the RS District is combined.

SECTION 7135.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the RS District is combined, provided, however, in no case shall a portion of any lot within the RS District contain less than one-half (1/2) net acre (21,780) square feet).

SECTION 7135.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the RS District is combined.

SECTION 7135.07 YARDS AND SETBACKS

A. Pens, coops, stables, corrals, and other structures and enclosures housing livestock or poultry shall be at least:

1. One hundred (100) feet from the front property line

2. Twenty-five (25) feet from the street side of a corner lot

B. All other uses shall comply with the requirements of the base district with which the RS District is combined.

SECTION 7135.08 HEIGHT LIMITS

Per the requirements of the base district with which the RS District is combined.

SECTION 7135.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. Pens, coops, stables, corrals, and other structures and enclosures housing livestock or poultry shall be at least fifty (50) feet from any residential building and one hundred (100) feet from any public park, school, hospital, or similar institution.

B. All other uses shall comply with the requirements of the base district with which the RS District is combined.

SECTION 7135.10 PARKING

Per the requirements of the base district with which the RS District is combined.

SECTION 7135.11 SIGNS

Per the requirements of the base district with which the RS District is combined.

SECTION 7135.12 LANDSCAPING

Per the requirements of the base district with which the RS District is combined.

SECTION 7135.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

The breeding and raising of livestock, in greater numbers than allowed by Section 7135.02.B, by minors in conjunction with a student-oriented fair project sponsored by a bonafide agricultural organization shall be permitted upon submission of an application for a Temporary Animal Permit to and approval by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter.

A. Application Contents:

An application for a Temporary Animal Permit shall include the following:

1. The name and address of the applicant
2. The name(s) and address(es) of the property owner(s)
3. Assessor's parcel number(s)
4. Legal description of the subject property
5. Name of the organization sponsoring the applicant
6. A plot plan showing the location of proposed pens, coops, or areas for the breeding and raising of animals in relation to existing residence(s) and other buildings and structures within one hundred (100) feet of pens, coops, or areas housing livestock
7. The signature of each owner of real property abutting the subject lot consenting to the granting of the Temporary Animal Permit

B. Development Standards and Conditions:

The breeding and raising of animals on a temporary basis shall comply with the following standards and conditions:

1. Applicant shall be sponsored by a bonafide organization, such as, but not limited to, Future Farmers of America, 4-H Club, Cow-Belles, or Junior Farmer.

2. The increase in animal density shall not exceed the density allowed by Section 7135.02 by more than fifty (50) percent. In any event, at least two (2), but no more than six (6), additional animals shall be allowed.

3. The Temporary Animal Permit shall be effective for a maximum period of six (6) months from the effective date of the permit. No more than one (1) such permit shall be approved for any lot within a one-year period.

4. The written consent of each abutting property owner consenting to the granting of the Temporary Animal Permit must be obtained.

5. The applicant shall allow inspection of animal maintenance facilities by the Kern County Department of Planning and Development Services (Building Inspection Division) and the Kern County Health Department.

6. Each additional animal authorized by the Temporary Animal Permit over the allowable animal density specified by Section 7135.02, shall be removed upon expiration of the permit.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter upon receipt of a recommendation for revocation or modification from the Kern County Department of Planning and Development Services (Building Inspection Division) or the Kern County Health Department.

ARTICLE 7140

MOBILEHOME (MH) COMBINING DISTRICT

SECTIONS:

7140.01 PURPOSE AND APPLICATION
7140.02 PERMITTED USES
7140.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7140.04 PROHIBITED USES
7140.05 MINIMUM LOT SIZE
7140.06 MINIMUM LOT AREA PER DWELLING UNIT
7140.07 YARDS AND SETBACKS
7140.08 HEIGHT LIMITS
7140.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7140.10 PARKING
7140.11 SIGNS
7140.12 LANDSCAPING
7140.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7140.01 PURPOSE AND APPLICATION

The purpose of the Mobilehome (MH) Combining District is to provide for the installation of mobilehomes with or without foundations in agricultural, resource related, and residential zoned areas. The MH District may be combined with Limited Agriculture (A-1), Low-density Residential (R-1), Estate (E), or the Recreation Forestry (RF) Districts. The uses allowed and regulations established by the MH District shall be in addition to the regulations of the base district with which the MH District is combined. Foundations or recessed mobilehomes are required in the Bakersfield Designated Urban Area. In all other areas, mobilehomes without foundations are allowed.

SECTION 7140.02 PERMITTED USES

The following uses and others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. Mobilehome.

B. Uses permitted by the base district with which the MH District is combined.

SECTION 7140.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the MH District is combined.

SECTION 7140.04 PROHIBITED USES

Uses prohibited by the base district with which the MH District is combined.

SECTION 7140.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.07 YARDS AND SETBACKS

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.08 HEIGHT LIMITS

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.10 PARKING

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.11 SIGNS

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.12 LANDSCAPING

Per the requirements of the base district with which the MH District is combined.

SECTION 7140.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

In the Bakersfield Designated Urban Area, each mobilehome shall be placed on a permanent perimeter foundation system or recessed into the ground so that no part of the undercarriage is visible. A mobilehome shall not be recessed if connected to liquified petroleum gas (LPG). If the foundation system used results in exposed areas between the foundation and the mobilehome, then aluminum skirting shall be installed and maintained in place around the

base of the mobilehome at all times. Skirting of equal material durability and design may be approved by the Director of Planning and Development Services.

Regardless of where the mobilehome is located, if the method of installation results in the exposure of the undercarriage, a continuous perimeter skirting compatible with the mobilehome siding shall be installed.

ARTICLE 7145

WIND ENERGY (WE) COMBINING DISTRICT

SECTIONS:

7145.01 PURPOSE AND APPLICATION
7145.02 PERMITTED USES
7145.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7145.04 PROHIBITED USES
7145.05 MINIMUM LOT SIZE
7145.06 MINIMUM LOT AREA PER DWELLING UNIT
7145.07 YARDS AND SETBACKS
7145.08 HEIGHT LIMITS
7145.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7145.10 PARKING
7145.11 SIGNS
7145.12 LANDSCAPING
7145.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7145.01 PURPOSE AND APPLICATION

It is the intent of the Board of Supervisors, in adopting this article, to promote the use of proven wind-driven generators for energy recovery, and to promote safeguards ensuring the maintenance of the health, safety, and welfare of the citizens of Kern County. In addition, in adopting this article, it is the intent of the Board of Supervisors to promote the use of an alternative to fossil fuel generated electical power in areas of Kern County which are identified to have suitable wind resources for production of commercial quantities of wind-generated electrical power. Furthermore, it is the intent of the Board of Supervisors that site-specific application of this ordinance shall occur only in a manner that provides a harmonious balance between the suitability of a project site with existing area land use and physical surroundings.

The WE District is a combining district and shall only be applied to the following district classifications: Exclusive Agriculture (A), Natural Resource (NR) with a minimum lot size of twenty (20) acres, or Estate (E) with a minimum lot size of twenty (20) acres. The uses allowed and the regulations required in the WE District shall be in addition to the regulations of the base district with which the WE District is combined. The W-E District may not be adopted as a single land use designation.

SECTION 7145.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. Wind-driven electrical generators, prototype, as defined in Section 7280.02.

B. Wind-driven electrical generators, production, as defined in Section 7280.02.

C. Accessory administrative and maintenance structures and facilities, electrical substations, transmission lines, and other facilities and electrical structures accessory and incidental to the main use.

D. Uses permitted by the base district with which the WE District is combined.

SECTION 7145.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the standards and procedures set out in Article 7286 of this chapter:

A. Wind-driven electrical generators, experimental, as defined in Section 7280.02, on a temporary basis.

B. Conditional uses permitted by the base district with which the WE District is combined.

SECTION 7145.04 PROHIBITED USES

A. Wind-driven electrical generators, experimental, as defined in Section 7280.02, on a permanent basis.

B. All other uses not permitted by Sections 7145.02 and 7145.03 are prohibited.

SECTION 7145.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the WE District is combined. However, in no event shall a portion of any lot within the WE District contain less than twenty (20) gross acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7145.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the WE District is combined.

SECTION 7145.07 YARDS AND SETBACKS

A. Wind-driven electrical generators shall comply with the setback requirements specified in Section 7145.13.

B. All other structures shall comply with the requirements of the base district with which the WE District is combined.

SECTION 7145.08 HEIGHT LIMITS

A. Wind-driven electrical generators shall comply with the height limits specified in Section 7145.13.

B. All other uses shall comply with the requirements of the base district with which the WE District is combined.

SECTION 7145.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. Wind-driven electrical generators shall comply with the requirements specified in Section 7145.13.

B. All other uses shall comply with the requirements of the base district with which the WE District is combined.

SECTION 7145.10 PARKING

Per the requirements of the base district with which the WE District is combined.

SECTION 7145.11 SIGNS

A. Signs in connection with wind-driven electrical generators shall comply with the requirements specified in Section 7145.13.

B. All other signs shall comply with the requirements of the base district with which the WE District is combined.

SECTION 7145.12 LANDSCAPING

A. None required in connection with wind-driven electrical generators.

B. All other uses shall comply with the requirements of the base district with which the WE District is combined.

SECTION 7145.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. Prior to issuance of construction permits, the developer shall submit a detailed plot plan for review and approval by the Director of Planning and Development Services. The plan boundaries shall coincide with those of the project parcel. The following information shall be included in said plan:

1. Existing topography and drainage channels.

2. Direction of prevailing winds across the project site.

3. Location, height, and dimensions of all existing structures.

4. Distance to all residences located within one (1) mile of exterior project boundary.

5. Manufacturer or machine trade name, including, but not limited to, rated KW capacity, tower or support structure location and height, total blade diameter, rated maximum shaft RPM, location of proposed structures and buildings, and manufacturer's production record, and/or sufficient manufacturer's data in order to classify machines as experimental, prototype, or production in accordance with the definitions contained in this article.

6. Location, grades, and dimensions of all roads and parking areas, both existing and proposed.

7. Location and extent of known archaeological remains.

8. Location and type of project security fencing.

9. A plan of proposed project phasing.

10. Any and all reports, approvals, or requirements, which may be required by mitigation measures incorporated into an environmental document adopted for implementation of this district for specific parcels; including a plan for implementation of recommendations contained in such reports.

11. A certificate signed by a registered civil engineer or licensed land surveyor stating that area encompassed by the project has been surveyed under his supervision or that a previous survey was performed by a registered civil engineer or licensed land surveyor and that sufficient monuments have been placed to accurately establish the exterior project boundaries.

B. Development Standards and Conditions:

Development in the WE Combining District shall comply with the following standards:

1. All necessary building and grading permits shall be obtained from the Kern County Department of Planning and Development Services. For construction and permit purposes, all wind generator towers shall conform to the regulations of the applicable seismic zone of the Uniform Building Code and the applicable groundshaking zone.

2. Towers and blades shall be painted a nonreflective, unobtrusive color or have a nonreflective surface.

3. Wind project facilities shall be enclosed with a minimum four- (4-) foot-high security fence constructed of four (4) strand barbed wire or materials of a higher quality. Fencing shall be erected for each wind machine or on the perimeter of the total project. Fencing erected on the perimeter of the total project shall include minimum eighteen- (18-) inch by eighteen- (18-) signs warning of wind turbine dangers. Said signs shall be located a maximum of three hundred (300) feet apart and at all points of site ingress and egress.

4. All on-site electrical wires associated with wind machines shall be installed underground, excepting therefrom "tie-ins" to a public utility company and public utility company transmission poles, towers, and lines. An additional exemption may be granted by the Director of Planning and Development Services if project terrain is found to be unsuitable to accomplish the intent and purpose of this provision.

5. Prior to issuance of construction permits, the developer shall provide the Kern County Department of Planning and Development Services with proof of approved access to the site.

6. Wind generator setback shall be as follows:

   a. Setback where adjacent parcels contain less than forty (40) acres: A minimum wind generator setback of four (4) times overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) or five hundred (500) feet, whichever is greater, shall be maintained from exterior project boundaries where the project site is adjacent to existing parcels of record which contain less than forty (40) acres and are not zoned WE Combining District.

      The Director of Planning and Development Services may allow a reduction in this setback, not to exceed a minimum setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) if a letter of consent from the owner(s) of record of adjacent parcels is filed with the Kern County Department of Planning and Development Services.

   b. Setback where adjacent parcels contain forty (40) acres or more: A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) shall be maintained from all exterior project boundaries.

      The Director of Planning and Development Services may allow a reduction of this setback requirement in accordance with all of the following provisions:

      (1) The project exterior boundary is a common property line between two (2) or more approved wind energy projects.

      (2) The property owner of each property has filed a letter of consent to the proposed setback reduction with the Director of Planning and Development Services.

(3) All setbacks shall comply with the setback requirements of the base district with which the WE District is combined.

(4) The project site and the adjacent property exist as the same parcel of record and are held under common ownership, and the property owner has filed a letter of consent to the proposed setback reduction with the Director of Planning and Development Services.

c. Setback from off-site residence(s) on adjacent parcels: In all cases, regardless of parcel area, a minimum wind generator setback of four (4) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) or one thousand (1,000) feet, whichever is greater, shall be maintained from any off-site residence.

The Director of Planning and Development Services may allow a reduction in this setback, not to exceed a minimum setback of one and one-half (1 1/2) times the overall machine height, if a letter of consent from the owner(s) of record of the adjacent parcel is filed with the Director of Planning and Development Services.

d. Project interior wind generator spacing: Wind generator spacing within the project boundary shall be in accordance with accepted industry standards pertaining to the subject machine.

e. Setback from on-site residences and accessory structures designed for human occupancy: A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blade) shall be maintained from any on-site residence or accessory structure designed for human occupancy.

f. Setback from public highways and streets, public access easements, public trails, and railroads: A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blade) shall be maintained from any public highway or street, public access easement, public trail, or railroad.

7. Wind generator machine height shall not exceed the maximum height permitted for antennae and towers by the District with which the WE District is combined. For the purposes of this provision, machine height shall be measured as follows:

a. Machine height of horizontal axis machines shall be measured from grade to the center of the blade hub.

b. Machine height of vertical axis or other machine designs shall be measured from grade to the highest point of the structure.

Approval of heights in excess of these limitations shall be in accordance with Sections 7288 and 7290 of this chapter.

8. All wind generators and towers shall comply with all applicable County, State, and federal laws, ordinances, or regulations.

9. One (1) project identification sign, located at each point of project ingress and egress, not to exceed thirty-two (32) square feet in area, may be erected on the project site. No other signs shall be installed other than the required warning signs. The developer shall submit a sign elevation drawing to the Director of Planning and Development Services for review and approval prior to installation.

10. Where a residence, school, church, public library, or other sensitive or highly sensitive land use, as identified in the Noise Element of the General Plan, is located within one (1) mile in a prevailing downwind direction or within one-half (1/2) mile in any other direction of a project's exterior boundary, an acoustical analysis shall be prepared by a qualified acoustical consultant prior to the issuance of any building permit. The consultant and the resulting report shall be subject to review and approval by the Kern County Health Department. The report shall address any potential impacts on sensitive or highly sensitive land uses.

In addition, the acoustical report shall demonstrate that the proposed development shall comply with the following criteria:

a. Audible noise due to wind turbine operations shall not be created which causes the exterior noise level to exceed forty-five (45) dBA for more than five (5) minutes out of any one- (1-) hour time period (L8.3) or to exceed fifty (50) dBA for any period of time when measured within fifty (50) feet of any existing residence, school, hospital, church, or public library.

b. Low frequency noise or infrasound from wind turbine operations shall not be created which causes the exterior noise level to exceed the following limits when measured within fifty (50) feet of any existing residence, school, hospital, church, or public library.

One-third Octave Bank Center Frequency (Hz)	Sound Pressure Level (dB)
2 to 16	70 (each band)
20	68
25	67
31.5	65
40	62
50	60
63	57
80	55
100	52
125	50

c. In the event audible noise due to wind turbine operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in Subsection "a" shall be reduced by five (5) dBA. A pure tone is defined to exist if the one-third (1/3) octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two (2) contiguous one-third (1/3) octave bands by five (5) dBA for center frequencies of five hundred (500) Hz and above, by eight (8) dBA for center frequencies between one hundred and sixty (160) Hz and four hundred (400) Hz, or by fifteen (15) dBA for center frequencies less than or equal to one hundred and twenty-five (125) Hz.

d. In the event the audible noise due to wind turbine operations contains repetitive impulsive sounds, the standards for audible noise set forth in Subsection "a" shall be reduced by five (5) dBA.

e. In the event the audible noise due to wind turbine operations contains both a pure tone and repetitive impulsive sounds, the standards for audible noise set forth in Subsection "a" shall be reduced by a total of five (5) dBA.

f. In the event the ambient noise level (exclusive of the development in question) exceeds one (1) of the standards given above, the applicable standard shall be adjusted so as to equal the ambient noise level. For audible noise, the ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA which is exceeded for no more than five (5) minutes per hour (L8.3). For low frequency noise or infrasound, the ambient noise level shall be expressed in terms of the equivalent level (Leq) for the one-third (1/3) octave band in question, rounded to the nearest whole decibel. Ambient noise levels shall be measured within fifty (50) feet of potentially affected existing residences, schools, hospitals, churches, or public libraries.

Ambient noise level measurement techniques shall employ all practical means of reducing the effects of wind-generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow wind turbine operation, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.

g. Any noise level falling between two (2) whole decibels shall be the lower of the two.

h. In the event that noise levels, resulting from a proposed development, exceed the criteria listed above, a waiver to said levels may be granted by the Director of Planning and Development Services provided that the following has been accomplished:

(1) Written consent from the affected property owners has been obtained stating that he/she is aware of the proposed development and the noise limitations imposed by the Ordinance Code, and that consent is granted to allow noise levels to exceed the maximum limits allowed.

(2) A permanent noise impact easement has been recorded in the County Hall of Records which describes the benefitted and burdened properties and which advises all subsequent owners of the burdened property that noise levels in excess of those permitted by the Ordinance Code may exist on or at the burdened property.

11. Prior to the issuance of any building permit, a plan for the mitigation of potential soil erosion and sedimentation shall be prepared. The plan shall include provisions for site revegetation and shall include sediment collection facilities as may be required by the Kern County Department of Planning and Development Services and/or the appropriate resource conservation district. The plan shall include a timetable for full implementation and a surety bond or other security as approved by the Kern County Counsel's Office, in an amount determined by the Kern County Department of Planning and Development Services and the appropriate resource conservation district and shall be provided to the Kern County Department of Planning and Development Services (Building Inspection Division) to guarantee plan implementation. The plan shall also be approved by the Kern County Director of Planning and Development Services and the appropriate resource conservation district, prior to issuance of a building permit. In the event that the appropriate resource conservation district cannot participate in plan approval, the Kern County Department of Planning and Development Services shall have final responsibility in said plan approval.

12. A minimum of on-site roadways shall be constructed. Temporary access roads utilized for initial machine installation shall be revegetated to a natural condition after completion of machine installation. The applicant shall submit a plan of all proposed roads, temporary and permanent, for approval by the Director of Planning and Development Services prior to the issuance of any building permits.

13. Construction of any slopes steeper than four to one (4:1) shall be prohibited unless specifically authorized by the Kern County Department of Planning and Development Services and mitigation is provided.

14. Wind project facilities shall be encircled with a ten- (10-) foot-wide fuel break. Subject fuel breaks may be installed for each wind machines or the perimeter of the total project, but in no event shall encompass more than forty (40) acres per block. Permanent access roads may also be considered fuel breaks. This requirement may be modified at the discretion of the Kern County Fire Chief.

15. No building permits will be issued until the grading has been completed in accordance with the approved plans and "As Graded Certification" has been made by the engineer.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7150

PETROLEUM EXTRACTION (PE) COMBINING DISTRICT

SECTIONS:

7150.01 PURPOSE AND APPLICATION
7150.02 PERMITTED USES
7150.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7150.04 PROHIBITED USES
7150.05 MINIMUM LOT SIZE
7150.06 MINIMUM LOT AREA PER DWELLING UNIT
7150.07 YARDS AND SETBACKS
7150.08 HEIGHT LIMITS
7150.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7150.10 PARKING
7150.11 SIGNS
7150.12 LANDSCAPING
7150.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7150.01 PURPOSE AND APPLICATION

The purpose of the Petroleum Extraction (PE) Combining District is to designate lands containing productive or potentially productive petroleum resources to promote the development of such resources in a manner compatible with surrounding development. The PE Combining District may be applied only to those areas that are zoned Estate (E), Professional Office (CO), Neighborhood Commercial (C-1), General Commercial (C-2), or Highway Commercial (CH). The uses allowed and the regulations established by the PE District shall be in addition to the regulations of the base district with which the PE District is combined.

SECTION 7150.02 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted:

A. Wells for the exploration for and development and production of oil or gas or other hydrocarbon substances if the well or wells are located more than three hundred (300) feet away from any existing dwelling or existing building utilized for commercial purposes, excluding those premises utilized solely for storage of equipment, material, household goods, or similar material.

B. Deepening or redrilling, within the existing well bore, of any well used for the production or development of oil or gas or other hydrocarbon substances, or the replacement of any production facility which did not require a conditional use permit on the date drilling began or the date the facility was installed.

C. Drilling of a replacement well when the original well did not require a conditional use permit, and where the original well has been abandoned in accordance with California Division of Oil and Gas regulations and drilling of a replacement well commences within one (1) year of the conclusion of abandonment procedures, and the replacement well is located within twenty (20) feet of the original well or is farther from any existing dwelling or commercial building than the original well.

D. Uses permitted by the base district with which the PE District is combined.

SECTION 7150.03 USES PERMITTED BY A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Section 7282.03 are permitted subject to securing a conditional use permit in accordance with the procedures set out in Article 7286 of this chapter:

A. Wells for the exploration for and development and production of oil or gas or other hydrocarbon substances if the well or wells are located within three hundred (300) feet of any existing dwelling or existing building utilized for commercial purposes, excluding those premises utilized solely for storage of equipment, material, household goods, or similar material.

B. Conditional uses permitted by the base district with which the PE District is combined.

SECTION 7150.04 PROHIBITED USES

All other uses not permitted by Sections 7150.02 and 7150.03 are prohibited.

SECTION 7150.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the PE District is combined.

SECTION 7150.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the PE District is combined.

SECTION 7150.07 YARDS AND SETBACKS

A. No oil or gas well shall be drilled within one hundred (100) feet of the right-of-way of any existing or proposed public highway or street.

B. All other uses permitted by the base district shall conform to the yard and setback requirements of the base district with which the PE District is combined.

SECTION 7150.08 HEIGHT LIMITS

A. No height limit on derricks and other equipment used during the exploration and drilling phase of development.

B. Pumping units shall not exceed thirty-five (35) feet in height.

C. All other uses permitted by the base district shall conform to the height limits of the base district with which the PE District is combined.

SECTION 7150.09 MINIMUM DISTANCE BETWEEN STRUCTURES

A. Per the requirements of Article 7260.

B. All other uses shall comply with the base district with which the PE District is combined.

SECTION 7150.10 PARKING

A. No minimum requirement for drilling and production activities, provided, however, all vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

B. All other uses permitted by the base district shall conform to the requirements of the base district with which the PE District is combined.

SECTION 7150.11 SIGNS

The following signs are permitted in accordance with the requirements of Article 7225 of this chapter:

A. Directional, warning signs, identification signs in connection with oil, gas or other hydrocarbon drilling and development operations.

B. Signs permitted by the base district with which the PE District is combined.

SECTION 7150.12 LANDSCAPING

Per the requirements of the base district with which the PE District is combined.

SECTION 7150.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

All drilling and hydrocarbon development activities shall be carried out in accordance with the standards and procedures set out in Section 7260.05 of this chapter.

ARTICLE 7155

GEOLOGIC HAZARD (GH) COMBINING DISTRICT

SECTIONS:

7155.01 PURPOSE AND APPLICATION
7155.02 PERMITTED USES
7155.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7155.04 PROHIBITED USES
7155.05 MINIMUM LOT SIZE
7155.06 MINIMUM LOT AREA PER DWELLING UNIT
7155.07 YARDS AND SETBACKS
7155.08 HEIGHT LIMITS
7155.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7155.10 PARKING
7155.11 SIGNS
7155.12 LANDSCAPING
7155.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7155.01 PURPOSE AND APPLICATION

The purpose of the Geologic Hazard (GH) Combining District is to protect the public's health and safety and minimize property damage by designating areas that are subject to or potentially subject to surface faulting, ground-shaking, ground failure, landslides, mudslides, or other geologic hazards by establishing reasonable restrictions on land use in such areas. The GH District shall be applied to lands designated Map Code 2.1, 2.2, or 2.3 by the General Plan and to any other area where there is a reasonable presumption based on documented evidence that a hazardous or potentially hazardous condition exists. The regulations established by the GH District shall be in addition to the regulations of the base district with which the GH District is combined.

SECTION 7155.02 PERMITTED USES

Uses permitted by the base district with which the GH District is combined, except as modified in accordance with the standards and procedures set out in Section 7155.13.

SECTION 7155.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the GH District is combined, except as modified in accordance with the standards and procedures set out in Section 7155.13.

SECTION 7155.04 PROHIBITED USES

Uses prohibited by the base district with which the GH District is combined.

SECTION 7155.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the GH District is combined.

SECTION 7155.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the GH District is combined.

SECTION 7155.07 YARDS AND SETBACKS

Per the requirements of the base district with which the GH District is combined, except as modified in accordance with the standards and procedures set out in Section 7155.13.

SECTION 7155.08 HEIGHT LIMITS

Per the requirements of the base district with which the GH District is combined, except as modified in accordance with the standards and procedures set out in Section 7155.13.

SECTION 7155.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the GH District is combined, except as modified in accordance with the standards and by procedures set out in Section 7155.13.

SECTION 7155.10 PARKING

Per the requirements of the base district with which the GH District is combined.

SECTION 7155.11 SIGNS

Per the requirements of the base district with which the GH District is combined.

SECTION 7155.12 LANDSCAPING

Per the requirements of the base district with which the GH District is combined.

SECTION 7155.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

No use shall be established, no development shall occur, and no building permit or grading permit shall be issued for any use or development in the GH Combining District until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter.

A. Application Contents:

An application for plot plan review shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Location and extent of all geologic hazards, including areas subject to surface faulting, groundshaking, ground failure, landslides, mudslides, and other geologic hazards

   c. Location of all proposed buildings and structures

   d. Location of proposed streets, roads, and parking areas

   e. Proposed drainage improvements

   f. North arrow

6. A geological report prepared by a qualified engineering geologist, certified by the State of California, that includes the following information:

   a. The original signature and certification number of the responsible geologist

   b. An index map showing the regional setting of the study area

   c. A description of the study methods used; the methods may include, but are not limited to, field traverses and inspections, test pits or trenches, drill holes, geophysical investigation, aerial photo analysis, laboratory texts, and review of previously published or unpublished maps and reports

   d. On an appropriate topographic base, an original geological map of the site and as much of the surrounding area as practicable. The scale shall be one (1) inch to one thousand (1,000) feet or larger for the main geologic map, and one (1) inch to one hundred (100) feet for complementary geologic maps emphasizing special features or hazards

e. One or more geologic structure sections showing actual or probable subsurface relations and clearly labeled as to which relations are conjectural

f. A statement of conclusions and recommendations regarding suitability of proposed uses, including, but not limited to, buildings, structures, roads, and septic systems in relation to the existing or potential geologic hazards and recommended mitigation measures with respect to the following:

(1) Location of buildings, structures, roads, and septic systems in relation to identified geologic hazard or hazards

(2) Method of construction

(3) Grading

(4) Removal of native vegetation and replanting of cut slopes

(5) Any other aspect of building construction or site development that has a clear relationship to the identified geologic hazard or hazards

g. A list of references of geologic literature used in evaluation of the site

B. Development Standards and Conditions:

Development in the GH Combining District shall comply with the mitigation measures recommended in the geological report required by Section 7155.13A as approved by the Kern County Department of Planning and Development Services. In any event, structures for human occupancy shall be set back at least fifty (50) feet from any active fault trace or one hundred (100) feet from any fault trace that cannot be precisely located or is depicted as "inferred" on the Kern County Seismic Hazard Atlas.

ARTICLE 7160

FLOODPLAIN (FP) COMBINING DISTRICT

SECTIONS:

7160.01 PURPOSE AND APPLICATION
7160.02 PERMITTED USES
7160.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7160.04 PROHIBITED USES
7160.05 MINIMUM LOT SIZE
7160.06 MINIMUM LOT AREA PER DWELLING UNIT
7160.07 YARDS AND SETBACKS
7160.08 HEIGHT LIMITS
7160.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7160.10 PARKING
7160.11 SIGNS
7160.12 LANDSCAPING
7160.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7160.01 PURPOSE AND APPLICATION

The purpose of the Floodplain (FP) Combining District is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas. The FP District shall be applied to those areas lying within Zone A on the Flood Insurance Rate Maps (FIRM) or those areas potentially subject to flooding as designated by the Kern County Department of Planning and Development Services pending reclassification of such areas into the Floodplain Primary (FPP) District or the Floodplain Secondary (FPS) Combining District. The regulations established by the FP District shall be in addition to the regulations of the base district with which the FP District is combined.

The special flood hazard area designated as Zone A is based on historical flood flows where no quantitative determination of the frequency of flooding has been made. Detailed engineering studies are performed and/or approved by the Kern County Department of Planning and Development Services prior to the reclassification of the FP Combining District into the FPP District and/or FPS Combining District.

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions or flood heights may be increased by man-made or natural causes, such as bridge openings restricted by debris. This article does not imply that areas outside the FP District or land uses permitted within the FP District will be free from flooding or flood damages. This article shall not create liability on the part of the County of Kern or any officer or employee thereof for any flood damage that may result from reliance on this article or any administrative decision lawfully made hereunder.

SECTION 7160.02 PERMITTED USES

Uses permitted by the base district with which the FP District is combined, except as prohibited by Section 7160.04 or as modified in accordance with the standards set out in Section 7160.13.

SECTION 7160.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the FP District is combined, except as prohibited by Section 7160.04 or as modified in accordance with the standards set out in Section 7160.13.

SECTION 7160.04 PROHIBITED USES

All other uses not permitted by Sections 7160.02 and 7160.03 are prohibited, including:

A. All uses prohibited by the base district with which the FP District is combined.

B. All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 7160.13 of this article.

C. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Department of Planning and Development Services, will add to the debris loads of the stream or watercourse, unless protected by flood control devices approved by the Director of Planning and Development Services and constructed in accordance with Section 7160.13.

D. Livestock feed yards, dairies, storage of junk, or salvage operations.

E. Oil storage tanks or processing equipment, unless floodproofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Department of Planning and Development Services.

F. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Department of Planning and Development Services and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.

G. Sources of water supply (e.g., wells, springs, etc.) unless protected by flood control devices approved by the Kern County Department of Planning and Development Services and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters.

H. Any use which endangers the temporary safeguards erected for flood protection.

SECTION 7160.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the FP District is combined, provided, however, that in no event shall the minimum lot size of any lot created after the effective date of this section be less than twenty (20) acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

SECTION 7160.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the FP District is combined, provided, however, there shall be no more than one (1) habitable structure per twenty (20) acres or per legal lot of record containing less than twenty (20) acres.

SECTION 7160.07 YARDS AND SETBACKS

Per the requirements of the base district with which the FP District is combined, except that all development shall be set back a minimum of ten (10) feet from the banks of any watercourse and sewage disposal systems shall be set back a minimum of one hundred (100) feet from the banks of any watercourse.

SECTION 7160.08 HEIGHT LIMITS

Per the requirements of the base district with which the FP District is combined.

SECTION 7160.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the FP District is combined.

SECTION 7160.10 PARKING

Per the requirements of the base district with which the FP District is combined.

SECTION 7160.11 SIGNS

Per the requirements of the base district with which the FP District is combined, provided that construction of the sign(s) shall comply with the minimum standards set out in Section 7160.13.

SECTION 7160.12 LANDSCAPING

Per the requirements of the base district with which the FP District is combined.

SECTION 7160.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

All development within the FP District shall comply with the requirements of the Flood Damage Prevention Ordinance (Article 11 of Division 2 of Part 4 of the Ordinance Code of Kern County) and the following standards:

A. Generally, development within the floodplain may not cumulatively increase the Base Flood Elevation at any point more than one (1) foot.

1. Computations of increased flood heights, caused by development in the floodplain, shall be based upon the reasonable assumption that there shall be an equal loss of conveyance on opposite sides of the stream.

2. Cases for supercritical flow, or where velocity conditions are such that normal encroachment analyses are not possible or inappropriate, the allowable increase of one (1) foot shall be applied to the energy grade line instead of the Base Flood Elevation.

3. Cases for overbank velocities exceeding seven (7) feet per second, the floodway boundary shall coincide with the 100-year floodplain boundaries.

4. All such computations shall be made or approved by the Kern County Department of Planning and Development Services.

B. There shall be no more than one (1) habitable structure per twenty (20) acres.

ARTICLE 7165

FLOODPLAIN SECONDARY (FPS) COMBINING DISTRICT

SECTIONS:

7165.01 PURPOSE AND APPLICATION
7165.02 PERMITTED USES
7165.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7165.04 PROHIBITED USES
7165.05 MINIMUM LOT SIZE
7165.06 MINIMUM LOT AREA PER DWELLING UNIT
7165.07 YARDS AND SETBACKS
7165.08 HEIGHT LIMITS
7165.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7165.10 PARKING
7165.11 SIGNS
7165.12 LANDSCAPING
7165.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7165.01 PURPOSE AND APPLICATION

The purpose of the Floodplain Secondary (FPS) Combining District is to protect the public health and safety and minimize property damage by designating areas that are subject to flooding with relatively low velocities or depths and by establishing reasonable restrictions on land use in such areas. The FPS District shall be applied to those areas lying within special flood hazard areas designated as Zones AO and AH, and Zone A1-A30 on the Flood Insurance Rate Maps (FIRM), but excluding the floodway on the Flood Boundary Floodway Maps (FBFM), the Designated Floodway on the State of California's Board of Reclamation's Kern River Designated Floodway Studies, or other maps where engineering studies have been made and adopted by the Kern County Board of Supervisors. The regulations established by the FPS District shall be in addition to the regulations of the base district with which the FPS District is combined.

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions or flood heights may be increased by man-made or natural causes, such as bridge openings restricted by debris. This article does not imply that areas outside the FPS District or land uses permitted within this district will be free from flooding or flood damages. This article shall not create liability on the part of the County of Kern or any officer or employee thereof for any flood damage that may result from reliance on this article or any administrative decision lawfully made hereunder.

SECTION 7165.02 PERMITTED USES

Uses permitted by the base district with which the FPS District is combined, except as prohibited by Section 7165.04 or as modified in accordance with the standards set out in Section 7165.13.

SECTION 7165.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the FPS District is combined, except as prohibited by Section 7165.04 or as modified in accordance with the standards set out in Section 7165.13.

SECTION 7165.04 PROHIBITED USES

All other uses not permitted by Sections 7165.02 or 7165.03 are prohibited, including the following:

A. All uses prohibited by the base district with which the FPS District is combined.

B. All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 7165.13 of this chapter.

C. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Department of Planning and Development Services, will add to the debris loads of the stream or watercourse.

D. Commercial cattle feed yards, dairies, storage of junk, or salvage operations.

E. Oil storage tanks or processing equipment, unless floodproofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Department of Planning and Development Services.

F. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Department of Planning and Development Services and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.

G. Sources of water supply (e.g., wells, springs, etc.), unless protected by flood control devices approved by the Kern County Department of Planning and Development Services and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters.

H. Any use which endangers the temporary safeguards erected for flood protection.

I. Tree farming, unless it can be shown to the Kern County Department of Planning and Development Services that the spacing of trees will not affect the water-carrying capacity of the stream beyond limits resulting from encroachment as specified in Section 7165.13.

SECTION 7165.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the FPS District is combined.

SECTION 7165.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the FPS District is combined.

SECTION 7165.07 YARDS AND SETBACKS

Per the requirements of the base district with which the FPS District is combined, except that all development shall be set back a minimum of ten (10) feet from the banks of any watercourse, and sewage disposal systems shall be set back a minimum of one hundred (100) feet from the banks of the watercourse.

SECTION 7165.08 HEIGHT LIMITS

Per the requirements of the base district with which the FPS District is combined.

SECTION 7165.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the FPS District is combined.

SECTION 7165.10 PARKING

Per the requirements of the base district with which the FPS District is combined.

SECTION 7165.11 SIGNS

Per the requirements of the base district with which the FPS District is combined, provided that construction of the sign(s) shall comply with the minimum standards set out in Section 7165.13.

SECTION 7165.12 LANDSCAPING

Per the requirements of the base district with which the FPS District is combined.

SECTION 7165.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

All development within the FPS District shall comply with the requirements of the Flood Damage Prevention Ordinance (Article 11 of Division 2 of Part 4 of the Ordinance Code of Kern County) and the following standards:

A. Generally, development within the floodplain may not cumulatively increase the Base Flood Elevation at any point more than one (1) foot.

1. Computations of increased flood heights, caused by development in the floodplain, shall be based upon the reasonable assumption that there shall be an equal loss of conveyance on opposite sides of the stream.

2. Cases for supercritical flow, or where velocity conditions are such that normal encroachment analyses are not possible or inappropriate, the allowable increase of one (1) foot shall be applied to the energy grade line instead of the Base Flood Elevation.

3. Cases for overbank velocities exceeding seven (7) feet per second, the floodway boundary shall coincide with the 100-year floodplain boundaries.

4. All such computations shall be made or approved by the Kern County Department of Planning and Development Services.

B. In areas where a determination is made by the Kern County Department of Planning and Development Services that the 100-year Flood has a critical stage duration greater than six (6) hours, access to habitable structures that are above the water surface elevation of the fifty (50) year flood, considering the effects of development in the floodplain, shall be provided.

ARTICLE 7170

ARCHITECTURAL DESIGN (D) COMBINING DISTRICT

SECTIONS:

7170.01 PURPOSE AND APPLICATION
7170.02 PERMITTED USES
7170.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7170.04 PROHIBITED USES
7170.05 MINIMUM LOT SIZE
7170.06 MINIMUM LOT AREA PER DWELLING UNIT
7170.07 YARDS AND SETBACKS
7170.08 HEIGHT LIMITS
7170.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7170.10 PARKING
7170.11 SIGNS
7170.12 LANDSCAPING
7170.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7170.01 PURPOSE AND APPLICATION

The purpose of the Architectural Design (D) Combining District is to designate areas with unique architectural or historical themes to ensure that proposed buildings, structures, signs, and landscaping and modifications to buildings, structures, signs, and landscaping within these areas are in harmony with the surrounding area and to promote economic development in such areas. The D District may be applied to the areas containing public buildings and grounds or privately owned buildings and land where unique architectural or historical themes have been established. In conjunction with establishing a D District in any area, the Board of Supervisors shall adopt an architectural theme and development guidelines for the D District. The regulations established by the D District shall be in addition to the regulations of the base district with which the D District is combined.

SECTION 7170.02 PERMITTED USES

Uses permitted by the base district with which the D District is combined.

SECTION 7170.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the D District is combined.

SECTION 7170.04 PROHIBITED USES

Uses prohibited by the base district with which the D District is combined.

SECTION 7170.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the D District is combined.

SECTION 7170.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the D District is combined.

SECTION 7170.07 YARDS AND SETBACKS

Per the requirements of the base district with which the D District is combined, except as modified pursuant to Section 7170.13.

SECTION 7170.08 HEIGHT LIMITS

Per the requirements of the base district with which the D District is combined, except as modified pursuant to Section 7170.13.

SECTION 7170.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the D District is combined, except as modified pursuant to Section 7170.13.

SECTION 7170.10 PARKING

Per the requirements of the base district with which the D District is combined, except as modified pursuant to Section 7170.13.

SECTION 7170.11 SIGNS

Per the requirements of the base district with which the D District is combined, except as modified pursuant to Section 7170.13.

SECTION 7170.12 LANDSCAPING

Per the requirements of the base district with which the D District is combined, except as modified pursuant to Section 7170.13.

SECTION 7170.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

Except as provided in this section, no use shall be established, no development shall occur, and no building or grading permit shall be issued for any use or development in the D District until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter.

A. Application Contents:

An application for site development plan review shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Location of all existing buildings and structures in the immediate vicinity

   c. Location of all proposed buildings and structures

   d. Yards and setbacks

   e. Proposed parking areas

   f. Proposed landscaping

   g. Location of signs

   h. Location of lighting

   i. North arrow

6. Elevations of the proposed buildings and structures showing:

   a. Dimensions of the buildings or structures

   b. Proposed architectural treatment, building materials, and colors

   c. Roof design and materials

   d. Size and spacing of windows, doors, and other openings

   e. Signs

   f. Lighting

7. Photographs of surrounding area

8. Narrative description of the proposed development, including how the proposed development has been designed to carry out the architectural theme established by the Board of Supervisors pursuant to Section 7170.13.C and to harmonize with surrounding development.

B. Development Standards and Conditions:

Development in the D District shall conform to the architectural theme and development guidelines established by the Board of Supervisors pursuant to Section 7170.13.C. In reviewing and approving the application for plot plan review, the Director of Planning and Development Services shall determine whether the application complies with the architectural theme and guidelines established by the Board of Supervisors pursuant to Section 7170.13.C with respect to the following:

1. Height, bulk, and area of buildings
2. Yards and setbacks
3. Color and materials of the exterior of any buildings
4. Type and pitch of roofs
5. Size and spacing of windows, doors, and other openings
6. Size, type, and location of signs
7. Landscaping
8. Parking area
9. Lighting
10. Any other aspects of building construction or site development that may relate to maintaining an overall theme within the area in which the proposed development is located.

C. Architectural Theme and Guidelines:

In conjunction with establishing a D District in any area, the Board of Supervisors shall adopt an architectural theme and guidelines for development in the D District.

D. Absence of Architectural Theme and Guidelines:

Where the Board of Supervisors has not yet adopted an architectural theme and guidelines pursuant to Section 7170.13.C for an area located in the D District, development within such area is exempt from the requirements of this article.

ARTICLE 7175

AIRPORT APPROACH HEIGHT (H) COMBINING DISTRICT

SECTIONS:

7175.01 PURPOSE AND APPLICATION
7175.02 PERMITTED USES
7175.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT
7175.04 PROHIBITED USES
7175.05 MINIMUM LOT SIZE
7175.06 MINIMUM LOT AREA PER DWELLING UNIT
7175.07 YARDS AND SETBACKS
7175.08 HEIGHT LIMITS
7175.09 MINIMUM DISTANCE BETWEEN STRUCTURES
7175.10 PARKING
7175.11 SIGNS
7175.12 LANDSCAPING
7175.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

SECTION 7175.01 PURPOSE AND APPLICATION

The purpose of the Airport Approach Height (H) Combining District is to minimize aviation hazards by limiting the height of buildings, structures, trees, and plants in approach zones around airports. The H District may be applied to areas within the vicinity of any public or general use airport. The standards established by the H District shall be in addition to the regulations of the base district with which the H District is combined.

SECTION 7175.02 PERMITTED USES

Uses permitted by the base district with which the H District is combined.

SECTION 7175.03 USES PERMITTED WITH A CONDITIONAL USE PERMIT

Conditional uses permitted by the base district with which the H District is combined.

SECTION 7175.04 PROHIBITED USES

Uses prohibited by the base district with which the H District is combined.

SECTION 7175.05 MINIMUM LOT SIZE

Per the requirements of the base district with which the H District is combined.

SECTION 7175.06 MINIMUM LOT AREA PER DWELLING UNIT

Per the requirements of the base district with which the H District is combined.

SECTION 7175.07 YARDS AND SETBACKS

Per the requirements of the base district with which the H District is combined.

SECTION 7175.08 HEIGHT LIMITS

No building, structure, plant, or tree shall exceed thirty-five (35) feet in height, except as may be approved pursuant to Section 7175.13. However, in no case shall the height exceed the height allowed by the base zone with which the H Combining District combined.

SECTION 7175.09 MINIMUM DISTANCE BETWEEN STRUCTURES

Per the requirements of the base district with which the H District is combined.

SECTION 7175.10 PARKING

Per the requirements of the base district with which the H District is combined.

SECTION 7175.11 SIGNS

Per the requirements of the base district with which the H District is combined.

SECTION 7175.12 LANDSCAPING

Per the requirements of the base district with which the H District is combined.

SECTION 7175.13 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

No building, structure, plant, or tree shall exceed thirty-five (35) feet in height until an application for site development plan review has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter. In no case shall height limitations be less restrictive than the requirement of Part 77 of the Federal Aviation Regulations of the Federal Aviation Administration, Department of Transportation, or any corresponding rules or regulations of the Federal Aviation Administration, as amended.

A. Application Contents:

An application for site development plan review shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A letter from the Federal Aviation Administration which shall state that the proposed development does not constitute a hazard to air traffic and does not violate any federal regulations. The letter shall also include any special conditions imposed by the Federal Aviation Administration.

6. A plot plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Proposed private access drives and parking areas

   c. Location of all permanent buildings and structures

   d. Park, open space, and recreation areas

   e. Proposed landscaping

   f. North arrow

7. Elevations of all permanent common buildings

ARTICLE 7190

INTERIM DISTRICTS

SECTIONS:

7190.01 PURPOSE AND APPLICATION
7190.02 AUTOMOBILE PARKING (P) DISTRICT

SECTION 7190.01 PURPOSE AND APPLICATION

Interim Districts are those zoning districts that have been determined by the Board of Supervisors to be no longer necessary to effect the purposes of the Kern County Zoning Ordinance. The Interim Districts are to be replaced by new permanent zoning districts in accordance with the procedures set out in Article 7292 of this chapter. Until all land in the County designated in any Interim District is rezoned to another district, provisions for permitted uses, height, bulk, and space standards are regulated by the new standards established in this chapter. This article identifies the regulations under which use and development of land may occur in any Interim District.

SECTION 7190.02 AUTOMOBILE PARKING (P) DISTRICT

All development in the P District shall comply with the requirements and standards set out in Article 7220 of this chapter.

ARTICLE 7215

SPECIAL DEVELOPMENT STANDARDS

SECTIONS:

7215.01 PURPOSE AND APPLICATION
7215.02 DEVELOPMENT STANDARDS
7215.03 PLOT PLAN REVIEW AND APPROVAL

SECTION 7215.01 PURPOSE AND APPLICATION

The purpose of this article is to establish reasonable and necessary development standards for multi-family, commercial, industrial, institutional, and other similar uses to ensure that development subject to this Article includes appropriate public improvements and is compatible with surrounding uses. The development standards specified in this article shall apply to all multi-family development in the Medium-density Residential (R-2), High-density Residential (R-3), Commercial Office (CO), Neighborhood Commercial (C-1), General Commercial (C-2), Highway Commercial (CH), Light Industrial (M-1), Medium Industrial (M-2), and Heavy Industrial (M-3) Districts, except as provided in this article.

SECTION 7215.02 DEVELOPMENT STANDARDS

A. Multi-family Residential Districts

All multi-family residential development in the R-2 and R-3 Districts shall comply with the following standards:

1. Street and road dedications shall be made to the County, in a manner prescribed by the Kern County Public Works Department, for all existing or proposed local, secondary, and major highways. The required dedication shall be thirty (30) feet from the centerline of a local street, forty-five (45) feet from the centerline of a secondary highway, and fifty-five (55) feet from the centerline of a major highway, or as required by any adopted Official or Specific Plan Line.

2. All developments within the Bakersfield Designated Urban Area shall provide road or street improvements to Type A Subdivision Standards. Developments in all other areas shall provide road or street improvements to Type B Subdivision Standards. Street improvements shall include base and pavement tie to existing pavement.

3. Obstructions within street rights-of-way shall be removed as specified by the Kern County Subdivision Ordinance.

4. Curb, gutter, and sidewalk shall be constructed as required by the Kern County Subdivision Ordinance when required as part of street improvements.

5. All access drives, parking areas, and vehicle maneuvering areas shall be surfaced with a minimum of two (2) inches of asphaltic concrete paving or material of higher quality.

6. All new on-site utility services shall be placed underground.

7. Prior to the issuance of any building permits, a plan for the disposal of drainage waters originating on-site and from adjacent road rights-of-way shall be approved by the Kern County Department of Planning and Development Services, if required. Easements or grant deeds shall be given to the County of Kern for drainage purposes or access thereto, as necessary.

8. The method of water supply and sewage disposal shall be as required and approved by the Kern County Health Department.

9. Fire flows, fire protection facilities, and access ways shall be as required and approved by the Kern County Fire Department.

10. When adjacent to property zoned for single-family residential purposes, a six- (6-) foot-high solid masonry wall shall be constructed between the proposed development and the adjacent property. The wall height shall be reduced to four (4) feet within the required front-yard setback area. The design and materials proposed shall be approved by the Director of Planning and Development Services prior to construction of said wall.

11. When construction in excess of one (1) story is proposed adjacent to property zoned for single-family residential use, all windows above the first story and adjacent to the property zoned for single-family residential use shall contain glass that is opaque or translucent or shall be screened in a manner as approved by the Director of Planning and Development Services.

12. All exterior lighting shall be directed away from adjacent properties.

13. All trash receptacles shall be screened so that they are not visually obtrusive from any off-site location. The location and method of screening for all trash receptacles shall be approved by the Director of Planning and Development Services.

14. Architectural design of all proposed buildings shall be compatible with the surrounding neighborhood.

15. For developments with ten (10) or more dwelling units, a minimum of five (5) percent of the net lot area shall be designated and developed as common usable open space, provided, however, no less

than four hundred (400) square feet of common usable open space shall be provided. The required common usable open space area may be divided into more than one location, provided that no single location shall contain less than four hundred (400) square feet. No buildings or structures shall occupy areas designated for common usable open space except buildings or structures designed exclusively for recreational purposes. Parking and manuevering areas shall not be utilized for the required common usable open space.

16. The Director of Planning and Development Services may waive any of the above-listed requirements where a documented hardship, not involving economics, exists or where there are unusual circumstances that prevent compliance with any of the required development standards. Additionally, street improvements and construction of curb, gutter, and sidewalks will not be required for individual or cumulative additions constituting less than twenty-five (25) percent expansion of development existing on the effective date of this article.

17. Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

18. Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

19. Signs may be provided as specified by the applicable zoning district regulation and Article 7225 of this chapter.

20. During all on-site grading and construction activities, adequate measures shall be implemented to control fugitive dust.

B. Commercial and Industrial Districts

All development in the CO, C-1, C-2, CH, M-1, M-2, and M-3 Districts shall comply with the following standards:

1. Street and road dedications shall be made to the County, in a manner prescribed by the Kern County Public Works Department, for all existing or proposed local, secondary, and major highways. The required dedication shall be thirty (30) feet from the centerline of a local street, forty-five (45) feet from the centerline of a secondary highway, and fifty-five (55) feet from the centerline of a major highway, or as required by any adopted Official or Specific Plan Line.

2. All developments within the Bakersfield Designated Urban Area shall provide road or street improvements to Type A Subdivision Standards. Developments in all other areas shall provide road or street improvements to Type B Subdivision Standards. Street improvements shall include base and pavement tie to existing pavement.

3. Obstructions within street rights-of-way shall be removed as specified by the Kern County Subdivision Ordinance.

4. Curb, gutter, and sidewalk shall be constructed as required by the Kern County Subdivision Ordinance when required as part of street improvements.

5. All access drives, parking areas, and vehicle manuevering areas shall be surfaced with a minimum of two (2) inches of asphaltic concrete paving or material of higher quality.

6. All new on-site utility services shall be placed underground.

7. Prior to the issuance of any building permits, a plan for the disposal of drainage waters originating on-site and from adjacent road rights-of-way shall be approved by the Kern County Department of Planning and Development Services, if required. Easements or grant deeds shall be given to the County of Kern for drainage purposes or access thereto, as necessary.

8. The method of water supply and sewage disposal shall be as required and approved by the Kern County Health Department.

9. Fire flows, fire protection facilities, access ways, and safety setbacks shall be as required and approved by the Kern County Fire Department.

10. When adjacent to property zoned for single-family residential purposes, a six- (6-) foot-high solid masonry wall shall be constructed between the proposed development and the adjacent property. The wall height shall be reduced to four (4) feet within the required front-yard setback area. The design and materials proposed shall be approved by the Director of Planning and Development Services prior to construction of said wall.

11. All exterior lighting shall be directed away from adjacent properties.

12. All trash receptacles shall be screened in such a manner so that they are not visually obtrusive from any off-site location. The location and method of screening for all trash receptacles shall be approved by the Director of Planning and Development Services.

13. Architectural design of all proposed buildings shall be compatible with the surrounding neighborhood.

14. For industrial developments utilizing outside storage, the areas devoted to outside storage shall be treated with a dust binder or other dust control measure, as approved by the Director of Planning and Development Services. Screening, if required by the base district regulations, shall also be provided.

15. The Director of Planning and Development Services may waive any of the above-listed requirements where a documented hardship, not involving economics, exists or where there are unusual circumstances that prevent compliance with any of the required development standards. Additionally, street improvements and construction of curb, gutter, and sidewalks will not be required for individual or cumulative additions constituting less than twenty-five (25) percent expansion of development existing on the effective date of this article.

16. Off-street parking shall be provided in accordance with the requirements of Article 7220 of this chapter.

17. Landscaping shall be provided in accordance with the requirements of Article 7230 of this chapter.

18. Signs may be provided as specified by the applicable zoning district regulations and Article 7225 of this chapter.

19. During all on-site grading and construction activities, adequate measures shall be implemented to control fugitive dust.

SECTION 7215.03 PLOT PLAN REVIEW AND APPROVAL

Except as provided in this section, no permitted use shall be established, no permitted development shall occur, and no building permit or grading permit shall be issued for any permitted use or development subject to this article until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter.

A. Application Contents:

An application for plot plan review shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Location of all existing buildings and structures

   c. Location of all proposed buildings and structures

d. Proposed vehicular circulation and parking areas

e. Kern County Fire Department approval for all access ways and safety setbacks

f. Proposed landscaping

g. North arrow

6. Elevations of proposed buildings and structures

7. Phasing or development schedule

8. A detailed description of facility improvements, including:

a. Curb, gutter, sidewalks, and street improvements

b. Water supply system

c. Sewage collection and disposal system

d. Public utilities

e. Fencing

f. Trash enclosures and method of screening

B. Review and Approval:

The plot plan application required by this article shall be reviewed and approved in accordance with procedures set out in Section 7284.02 of this chapter. No application for plot plan review shall be required where a use is allowed subject to securing a conditional use permit or precise development plan.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7220

OFF-STREET PARKING

SECTIONS:

7220.01 PURPOSE AND APPLICATION
7220.02 REQUIRED PARKING SPACES
7220.03 PARKING SPACE DIMENSIONS
7220.04 COMPACT CAR PARKING
7220.05 HANDICAPPED PARKING
7220.06 OFF-STREET LOADING SPACES
7220.07 LOCATION OF PARKING
7220.08 JOINT USE OF PARKING AREAS
7220.09 PARKING AREA DESIGN AND DEVELOPMENT STANDARDS
7220.10 OFF-STREET PARKING PLOT PLAN REVIEW AND APPROVAL

SECTION 7220.01 PURPOSE AND APPLICATION

The purpose of this article is to reduce street congestion and promote the safety and convenience of the residents of Kern County by requiring the provision of adequate and well-designed parking in connection with the land uses authorized by this chapter. Parking required by this article shall be provided at the time any main building or structure is erected or enlarged, or use is established, changed, or expanded. Development involving individual or cumulative expansion constituting fifty (50) percent or more of the development existing on the effective date of this article shall comply with the off-street parking requirements of this article for both the existing and new development, except that existing parking facilities shall be exempt from the landscaping requirements. The standards in this article are minimum standards.

SECTION 7220.02 REQUIRED PARKING SPACES

Uses permitted by this chapter shall provide off-street parking spaces according to the following schedule:

A. Residential Uses:

1. Single-family dwelling, duplex, triplex, quadruplex, multi-family dwelling, condominium, mobilehome (not in a mobilehome park), or secondary residential unit: Two (2) per dwelling unit

2. Boarding house, rooming house, residential hotel, fraternity or sorority house, or dormitory: One (1) per bedroom

3. Mobilehome park: Two (2) per mobilehome located on the mobilehome space plus one (1) guest space per four (4) mobilehome spaces in the park

4. Retirement or rest home: One (1) per four (4) resident beds

B. Recreation, Entertainment, and Tourist Facilities:

1. Bowling alley: Four (4) per lane

2. Dance hall, ballroom, or discotheque: One (1) per thirty (30) square feet of gross building area

3. Country club: Combination of the required spaces for the various uses included in the country club

4. Equestrian establishment: One (1) per three (3) horses or stalls, whichever results in the greater number of parking spaces

5. Hotel or Motel: One (1) per room plus two (2) for the manager's quarters and one (1) per full-time staff member

6. Golf course: Three (3) per hole

7. Golf driving range: One (1) per tee

8. Miniature golf course: Two (2) per hole

9. Movie theater: One (1) per three (3) seats

10. Pool and billiard parlor: Two (2) per pool or billiard table

11. Shooting range or gun club: One (1) per shooter station

12. Swimming pool: One (1) per one hundred (100) square feet of pool and deck area plus bicycle parking racks containing a minimum of ten (10) spaces

13. Sports arena: One (1) per three and one-half (3 1/2) seats

14. Tennis club, health club: One (1) per one hundred (100) square feet of open indoor recreational area plus two (2) per tennis or racquetball court

15. Video games arcade: One (1) per one hundred (100) square feet of gross building area plus bicycle parking racks containing a minimum of ten (10) spaces

C. Offices:

1. Business or professional office: One (1) per two hundred and fifty (250) square feet of gross building area

2. Financial institution, including bank, savings and loan, or credit union: One (1) per two hundred (200) square feet of gross building area

3. Medical or dental office, veterinary office, clinic: One (1) per two hundred (200) square feet of gross building area

D. General Retail Sales:

1. General retail: One (1) per two hundred and fifty (250) square feet of gross building area

2. Furniture store: One (1) per five hundred (500) square feet of gross building area

3. Nursery, retail: One (1) per two hundred and fifty (250) square feet of indoor display area plus one (1) per two thousand (2,000) square feet of outdoor sales area

4. Auto sales: One (1) per one thousand (1,000) square feet of sales area plus one (1) per two hundred and fifty (250) square feet of office area

5. Heavy equipment or truck sales: One (1) per two thousand (2,000) square feet of sales area plus one (1) per two hundred and fifty (250) square feet of office area

6. Restaurant, cafe, or coffee shop: One (1) per one hundred (100) square feet of gross building area

7. Restaurant, fast food: One (1) per seventy-five (75) square feet of gross building area

8. Bar, tavern, or cocktail lounge: One (1) per seventy-five (75) square feet of gross building area

E. Services:

1. Auto repair, tire sales and service: One (1) per three hundred (300) square feet of gross building area

2. Auto service station: One (1) per three hundred (300) square feet of gross building area

3. Barber or beauty shop: One (1) per one hundred (100) square feet of gross building area

4. Equipment rental: One (1) per one thousand (1,000) square feet of display area or storage area plus one (1) per two hundred and fifty (250) square feet of office area

5. Laundromat, self-service: One (1) per three (3) washing machines

6. Mortuary or funeral parlor: One (1) per three and one-half (3 1/2) seats

F. Industrial Uses:

1. Manufacturing or assembly: One (1) per five hundred (500) square feet of floor area plus one (1) per two hundred and fifty (250) square feet of office area

2. Contractor storage yard: One (1) per three thousand (3,000) square feet of lot area

3. Warehouse or wholesale distribution: One (1) per one thousand (1,000) square feet of storage area plus one (1) per two hundred and fifty (250) square feet of office area

G. Institutional Uses:

1. Cemetery: One (1) per three and one-half (3 1/2) seats in the chapel plus one (1) per two hundred and fifty (250) square feet of office space

2. Church: One (1) per three and one-half (3 1/2) seats

3. Auditorium: One (1) per three and one-half (3 1/2) seats

4. Convalescent hospital or sanitarium: One (1) per four (4) patient beds

5. Hospital: One (1) per two (2) patient beds

H. Educational Institutions and Schools:

1. Preschool: One (1) per six (6) students for which the facility is licensed plus one (1) per employee

2. Elementary and junior high school: One (1) per employee plus one (1) per twenty (20) students at full enrollment

3. High school: One (1) per employee plus one (1) per eight (8) students at full enrollment

4. College, business school, trade school: One (1) per employee plus one (1) per two (2) students at full enrollment

I. Miscellaneous Uses

1. Child care center: One (1) per six (6) children for which the facility is licensed plus one (1) per employee

J. Where the calculation of parking needs results in the requirement for a fraction of a parking space, the additional parking space shall be provided.

K. Floor area shall mean gross floor area unless otherwise specified.

L. Where a proposed use is not listed in this section, the Director of Planning and Development Services shall determine parking needs based on the listed use which most nearly resembles the proposed use.

M. Where parking requirements are based on the number of seats, eighteen (18) inches of pew or bench seating shall be equivalent to one (1) seat.

N. Where no fixed seating is provided, seven (7) square feet of floor space shall be equivalent to one (1) seat.

SECTION 7220.03 PARKING SPACE DIMENSIONS

All parking spaces shall be at least nine (9) feet by twenty (20) feet, except that:

A. Compact automobile parking spaces shall be at least eight (8) feet by eighteen (18) feet.

B. Handicapped automobile parking spaces shall comply with the requirements of Chapter 2-71 of Title 24 of the California Administrative Code.

SECTION 7220.04 COMPACT CAR PARKING

Up to twenty (20) percent of the spaces in a parking facility with ten (10) or more spaces may be designed and designated for compact cars.

SECTION 7220.05 HANDICAPPED PARKING

A. Parking spaces for the handicapped shall be provided and designed in accordance with the requirements of Chapter 2-71 of Title 24 of the California Administrative Code.

When less than five (5) total parking spaces are provided, one (1) of these spaces shall be fourteen (14) feet wide and lined to provide a nine- (9-) foot parking area and a five- (5-) foot loading and unloading area. However, there is no requirement that the space be reserved exclusively for handicapped use.

B. All handicapped parking spaces and access between the handicapped parking spaces and the primary entrances of associated buildings or facilities shall be surfaced in a manner to facilitate wheelchair use.

SECTION 7220.06 OFF-STREET LOADING SPACES

For every building or facility occupied by manufacturing, storage, warehouse, wholesale or retail store, market, passenger terminal, theater, hotel, motel, restaurant, hospital, laundry, dry cleaning plant, or other similar use requiring the receipt or distribution of vehicles or merchandise, adequate space for standing, loading, and unloading shall be provided and maintained on the same lot in addition to the automobile parking required by Section 7220.02.

SECTION 7220.07 LOCATION OF PARKING

Required residential off-street parking facilities shall be located on the premises they are intended to serve. Off-street parking for other than residential uses shall be located on the premises they are intended to serve or within five hundred (500) feet thereof. Where required parking is provided on a site other than that of the principal use, the property owner shall file with the Kern County Recorder's Office a covenant, on a form provided by the Kern County Department of Planning and Development Services and approved by the Director of Planning and Development Services, that provides for the maintenance of the parking facility as long as the associated principal use is maintained.

SECTION 7220.08 JOINT USE OF PARKING AREAS

If more than one use required to provide parking spaces in accordance with this article occupies the same building or premises, off-street parking shall be provided in an amount equal to the total number of spaces required for the separate uses, provided, however, that upon written request the Director of Planning and Development Services can reduce the number of spaces required in such cases by up to twenty (20) percent if he/she determines that it is unlikely the combination of uses in the same building or premises will at periods of peak use not necessitate provision of the number of parking spaces that would be required if the uses were developed independently.

SECTION 7220.09 PARKING AREA DESIGN AND DEVELOPMENT STANDARDS

Off-street parking areas required to be provided by this article shall be designed and developed in accordance with the following standards:

A. All off-street parking areas and ingress and egress to parking areas shall be surfaced with the following materials:

   1. For all residential, recreation, entertainment and tourist facilities, commercial, industrial, institutional, and other high intensity uses in the Bakersfield Designated Urban Area, parking areas shall be surfaced with one of the following materials on a prepared base:

a. Two (2) inches of asphaltic concrete

b. Three and one-half (3 1/2) inches of Portland Cement concrete

2. For all other uses in the Bakersfield Designated Urban Area and, except as specified by Article 7215, for all uses in any other area, the required parking areas shall be surfaced with one of the following materials:

a. Three (3) inches of bituminous road mix

b. Two (2) inches of asphaltic concrete

c. Three and one-half (3 1/2) inches of Portland Cement concrete

d. Three (3) inches of decomposed granite

e. Three (3) inches of compacted rock dust

f. Three (3) inches of gravel

3. Driveways serving single-family residential dwellings are exempt from the paving requirements specified in Sections 7220.09.A.1 and 7220.09.A.2 if greater than 100 feet in length. The required parking area is still subject to the aforementioned paving provisions.

4. In the case of uses subject to discretionary approval, the required parking areas shall be surfaced with the materials specified in accordance with the conditions of approval.

B. Parking aisles shall comply with the following minimum standards (see Figures 220A, 220B, 220C, and 220D):

Arrangement	Minimum Aisle Width
30 degree, single row	11 feet
45 degree, single or multiple row	14 feet
60 degree, single or multiple row	18 feet
90 degree, single or multiple row	25 feet, except where parking is perpendicular to and abuts an alley

C. All parking spaces shall be clearly marked.

D. Off-street parking facilities shall be designed so that each space can function independently of any other parking space.

E. Driveways for residential developments shall be a minimum of fourteen (14) feet (includes three- (3-) foot taper on each side) in width with fifteen (15) feet of unobstructed vertical clearance. Driveways for commercial and industrial developments shall be a minimum of eighteen

(18) feet (includes three- (3-) foot taper on each side) in width with fifteen (15) feet of unobstructed vertical clearance. These requirements may be reduced by the Director of Planning and Development Services upon recommendation of the Kern County Fire Chief.

F. Parking spaces requiring backing into a street or road right-of-way are prohibited, except in the case of driveways for lots containing only one (1) single-family dwelling.

G. In no case shall any parking be located within an existing right-of-way, proposed secondary or major highway, or within an adopted Official or Specific Plan Line and, except in the case of lots containing only one (1) single-family dwelling or mobilehome and lots zoned for commercial and industrial purposes, off-street parking may not be located in a required front-yard or required side-yard setback abutting a street.

H. Where a parking facility containing five (5) or more spaces abuts property zoned E, R-1, R-2, or R-3, the parking facility shall be separated from the abutting property by a solid masonry wall six (6) feet in height, except that from the front property line to a depth equal to the required front yard on the abutting residentially zoned property, the wall shall be four (4) feet in height.

I. For all parking lots containing ten (10) or more spaces, at least five (5) percent of the total interior area devoted to parking shall be landscaped. Trees shall be planted and maintained throughout the parking area at a minimum ratio of one (1) tree per ten (10) parking spaces. Minimum tree size shall be fifteen (15) gallon container. Landscaping materials and trees shall be selected from a list of approved plants maintained by the Department of Planning and Development Services. An irrigation system adequate for the maintenance of the landscaping shall be installed.

J. Where a parking facility containing five (5) or more spaces includes diagonal or perpendicular parking spaces that abut a public street or road, an ornamental fence, wall, or evergreen hedge of not more than four (4) feet in height shall be erected between the parking facility and the street or road to eliminate headlight glare. (See Figure 220E)

K. Lights used to illuminate parking area shall be directed away from any adjacent properties and streets.

SECTION 7220.10 OFF-STREET PARKING PLOT PLAN REVIEW AND APPROVAL

No use shall be established or changed, no development shall occur or be expanded, and no building or grading permit or business license for any use or development shall be issued until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services.

A. Application Contents:

1. Name and address of the applicant

2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan drawn at the scale specified by the Director of Planning and Development Services, including the following:

   a. Topography and proposed grading

   b. Location of existing buildings and structures where such buildings and structures are to remain

   c. Location of proposed buildings and structures

   d. Proposed uses of all buildings or structures

   e. Dimensions of the existing and proposed buildings or structures or other information (e.g., seating capacity) of the proposed buildings allowing the Director of Planning and Development Services to determine parking needs in accordance with the requirements set out in Section 7220.02 .

   f. Layout of proposed parking lot, including location of parking spaces, internal circulation pattern, and ingress and egress points

   g. Dimensions of parking stalls and aisles

   h. Location of landscaping and irrigation system, including identification of plant materials to be used

   i. Location of lighting

   j. North arrow

B. Review and Approval:

1. Where a discretionary or ministerial approval is required for the use or uses for which the parking is being provided, the off-street parking plot plan application shall be reviewed and approved in conjunction with that discretionary or ministerial approval process.

2. Where no discretionary or other ministerial approval is required for the use or uses for which parking is being provided, the off-street parking plot plan application shall be reviewed and approved in accordance with the standards and procedures set out in Section 7284.02 of this chapter.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

FIGURE 220 A
EXAMPLE OF 90° PARKING

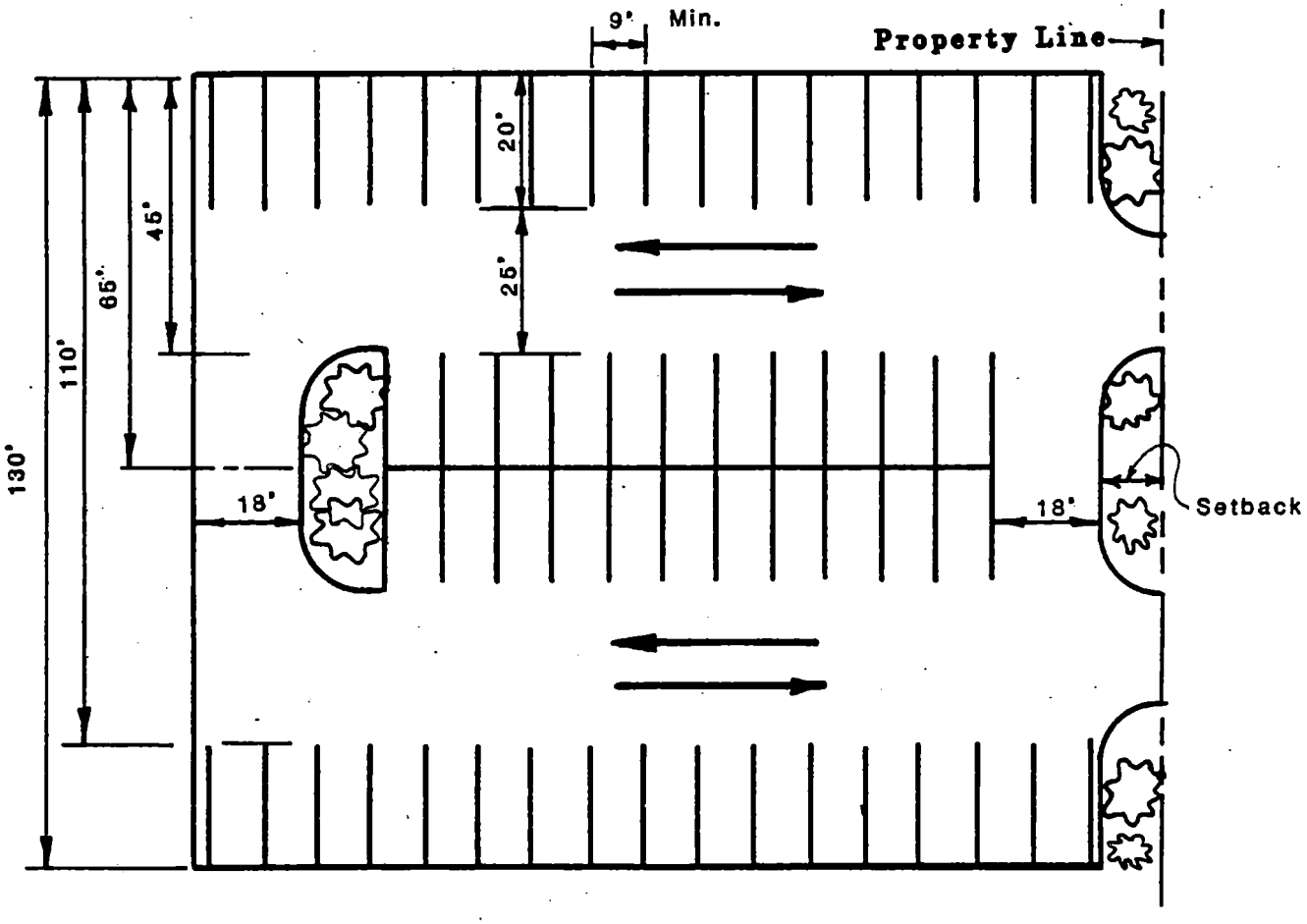
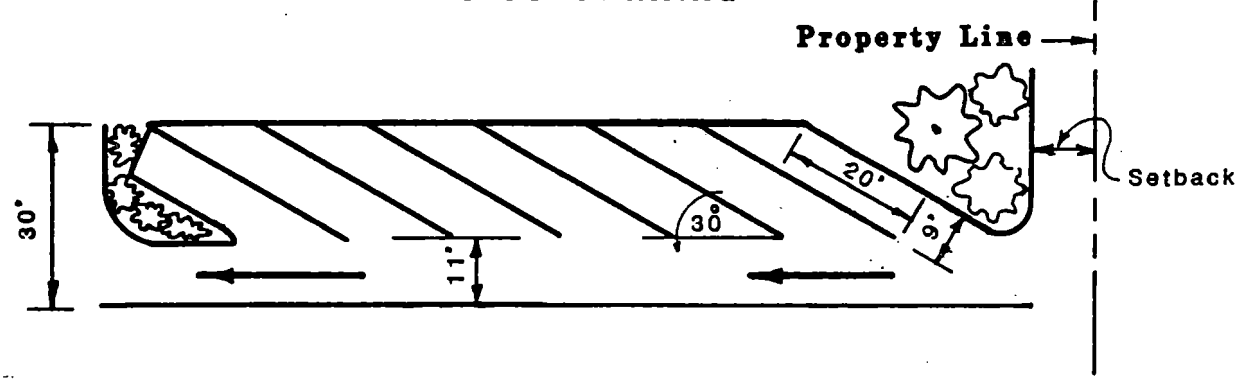
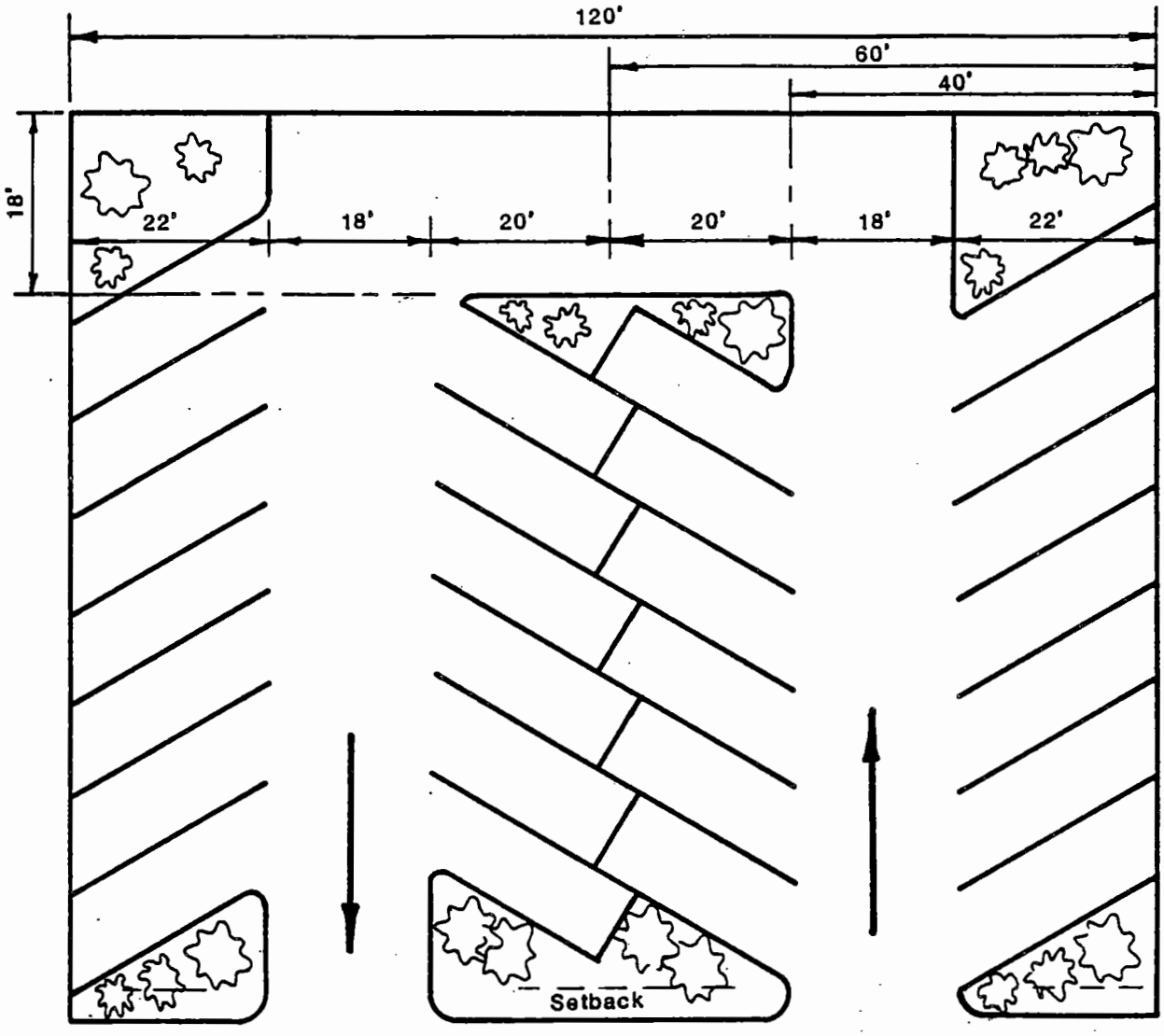


FIGURE 220 B
EXAMPLE OF 30° PARKING





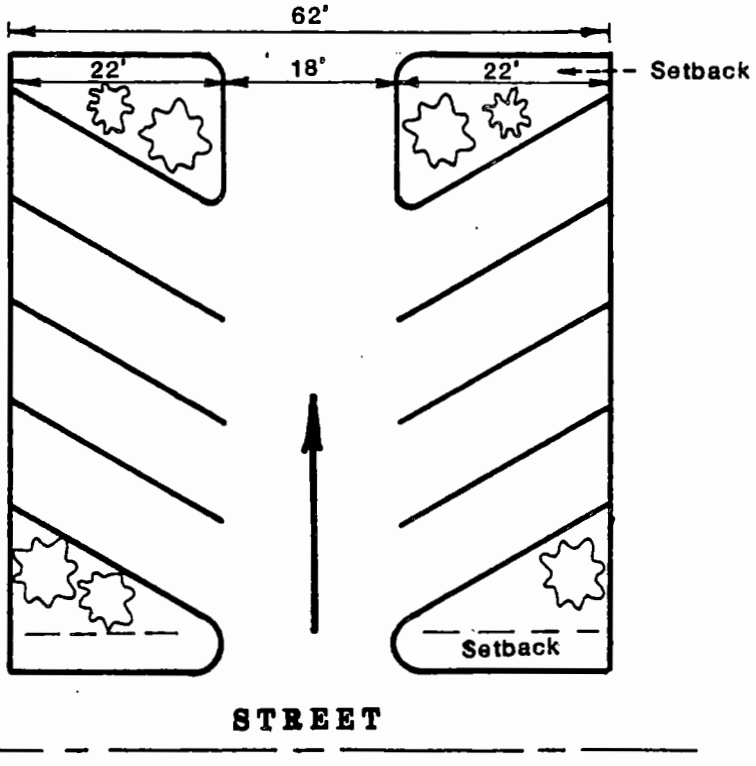


FIGURE 220 C

60° PARKING

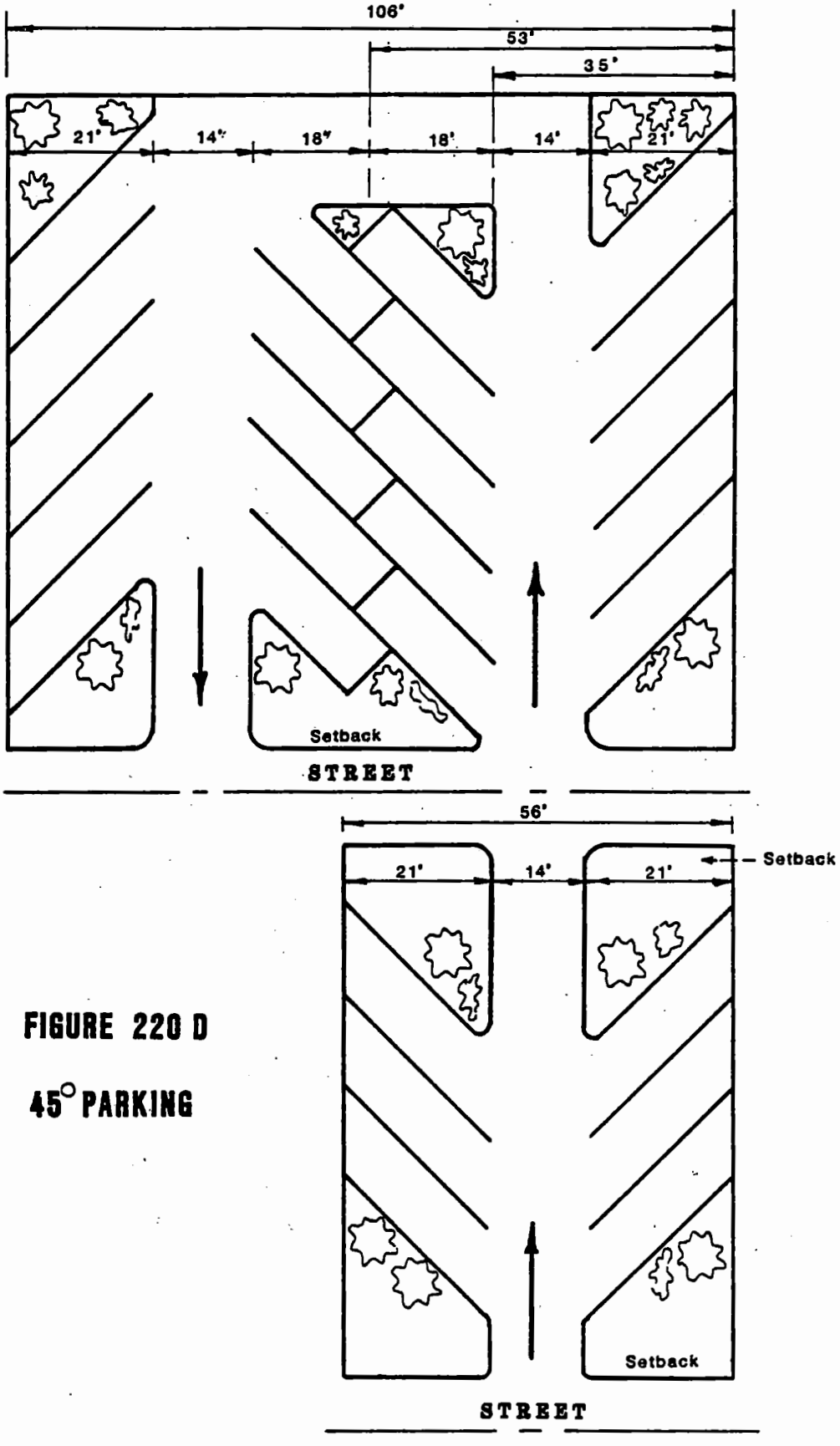
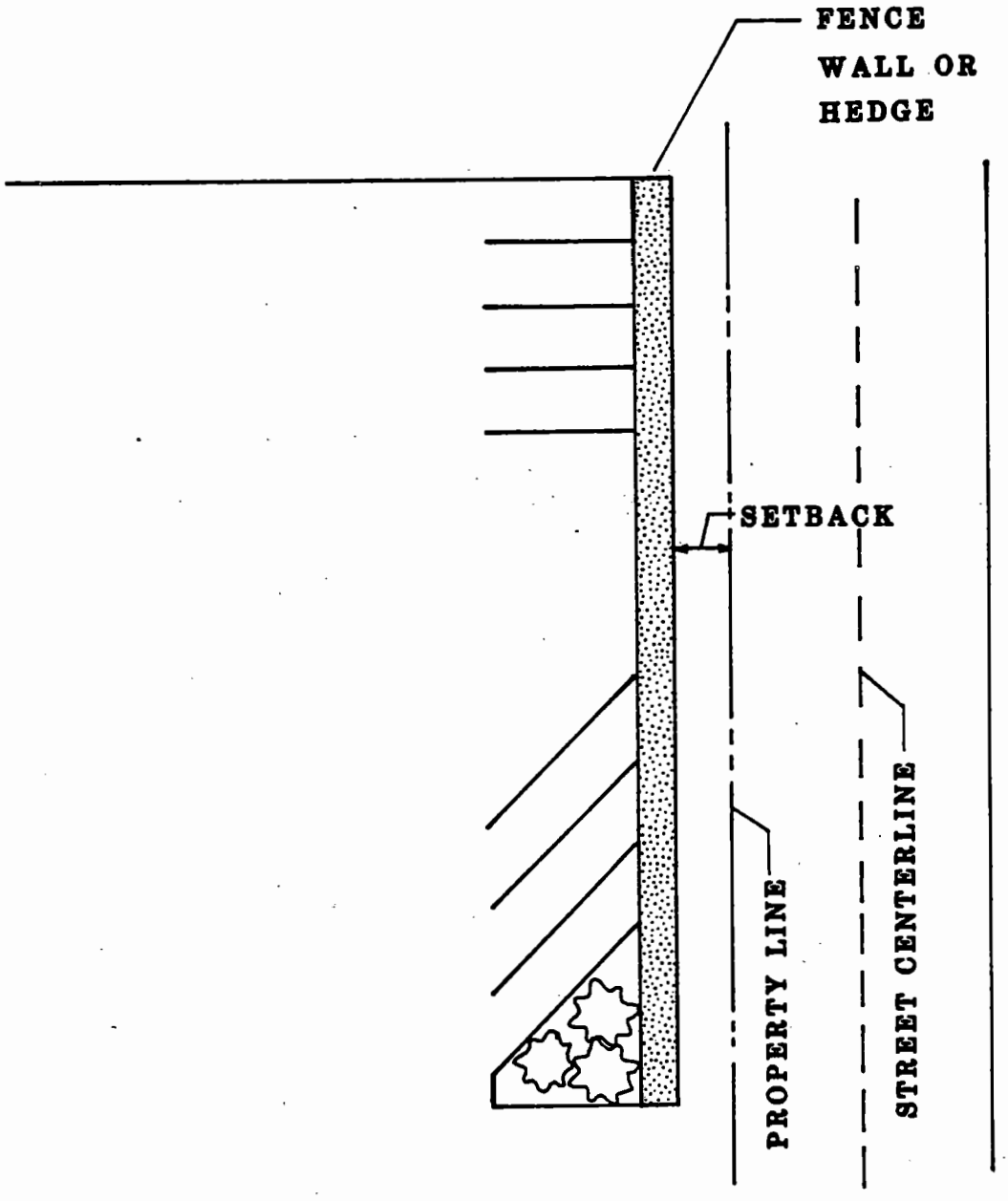


FIGURE 220 D

45° PARKING

FIGURE 220 E
PARKING FACILITY ABUTTING A PUBLIC STREET OR ROAD



ARTICLE 7225

SIGNS

SECTIONS:

7225.01 PURPOSE AND APPLICATION
7225.02 SIGN DESIGN AND DEVELOPMENT STANDARDS
7225.03 EXEMPT SIGNS
7225.04 PROHIBITED SIGNS
7225.05 COMPUTATION OF AREA
7225.06 SPECIAL SIGN PROVISIONS
7225.07 NONCONFORMING SIGNS

SECTION 7225.01 PURPOSE AND APPLICATION

The purpose of this article is to promote the orderly and attractive construction, placement, and display of signs throughout the County. It is the policy of the County that the primary purpose of signs are identification and public information. Signs that cause distraction and represent potential safety hazards as well as aesthetic problems are either discouraged or prohibited. These general provisions serve as specific development standards to be applied in addition to the basic sign provisions within each zoning district.

SECTION 7225.02 SIGN DESIGN AND DEVELOPMENT STANDARDS

A. Monument Signs:

Freestanding monument signs shall comply with the following standards:

1. No monument sign shall be located within any existing or designated future road right-of-way line.

2. The maximum height of the monument sign shall be six (6) feet.

3. Monument signs shall be a minimum of ten (10) feet from any common property line and shall be a minimum of twenty (20) feet apart.

4. Lighting of monument signs shall be arranged so as not to produce a glare on other properties in the vicinity.

B. Pole Signs:

Freestanding pole signs shall comply with the following standards:

1. The maximum area of a pole sign shall not exceed two hundred (200) square feet per side.

2. Pole signs shall be located so that no part of the sign extends into any existing or proposed street right-of-way line.

3. The maximum height of a pole sign shall be twenty-four (24) feet.

4. Pole signs shall be a minimum of ten (10) feet from common property lines and shall be a minimum of twenty (20) feet apart.

5. Lighting of pole signs shall be arranged so as not to produce a glare on other properties in the vicinity.

C. Signs Attached to Buildings:

Signs attached to a building or wall shall comply with the following standards:

1. All signs attached to a building shall be attached flat against the building and parallel thereto and shall not extend more than eighteen (18) inches from the wall of the building. For the purpose of this subsection, a wall is a surface not less than sixty (60) degrees from the horizontal. Exceptions to this provision are as follows:

   a. Signs may be attached to a building providing that the sign does not exceed four (4) feet in height and that the sign does not project above the peak of the roof of the building.

   b. Signs may be mounted below the soffit of a canopy, overhang, or porch and may be perpendicular to the building providing that they do not exceed twelve (12) inches below the soffit or beam and maintain a minimum of seven (7) feet vertical clearance along corridors or exit courts below.

2. Lighting of signs attached to buildings shall be arranged so as not to produce a glare on other properties in the vicinity, and the source of light shall not be visible from adjacent property or a public street.

3. Sign copy which is applied on the building in such a manner that no background is distinguishable from the overall architectural motif of the building shall be counted at seventy-five (75) percent of the area within straight lines enclosing the copy. All other signs shall be computed at one hundred (100) percent. (See Figure 225A)

D. Off-site Advertising Signs:

Off-site advertising signs shall comply with the following standards:

1. The total area of any side of any off-site advertising sign shall not exceed seven hundred (700) square feet nor shall the sign exceed the length of fifty (50) feet. In no case shall the square footage exceed the amount specified by the sign regulation of the zoning district in which the sign is to be located.

2. Each off-site advertising sign shall be located not less than five hundred and (500) feet from any other off-site advertising sign located on the same side of the street or highway. No off-site advertising sign shall be located within one thousand three hundred and twenty (1,320) feet of the business or activity which it advertises. No off-site advertising may be located closer than twenty-five (25) feet from any other type of sign.

3. No part of an off-site advertising sign shall be located within an existing or proposed street right-of-way.

4. The maximum height for off-site advertising signs shall be twenty-four (24) feet.

5. Lighting of off-site advertising signs shall be arranged so as not to produce a glare on other properties in the vicinity, and the source of light shall not be visible from adjacent property or a public street.

E. Temporary Real Estate Signs:

Temporary real estate signs advertising the particular property on which the sign is located shall comply with the following standards:

1. Not more than one (1) temporary real estate sign shall be placed on the lot, provided, however, that an auxiliary rider sign shall be allowed if attached to the same sign support, and further provided that where the lot is bounded by more than one (1) street, one (1) sign with an auxiliary rider sign shall be allowed along each adjacent street frontage.

2. Temporary real estate signs shall not be illuminated.

3. Temporary real estate signs shall be a minimum of ten (10) feet from any street right-of-way and property line.

4. If attached to a building, the temporary real estate sign shall not extend above the roof line or parapet wall of the building. If freestanding, the sign shall not exceed eight (8) feet in height.

5. This subsection shall not restrict the number or size of temporary real estate signs erected out-of-doors within courtyard or mall spaces below the height of the enclosed buildings within the buildable area of the lot, provided that the signs are not visible from a public street or adjoining property.

6. Notwithstanding the prohibition in Section 7225.02.D, portable, temporary off-site directional real estate signs may be used in conjunction with open house real estate sales activity provided that each portable directional sign does not exceed an overall size of nine (9) square feet, including support, does not exceed a height of two and one-half (2 1/2) feet, and is not located within a road or street right-of-way. Signs shall be on display only when property is open for inspection.

7. Real estate signs shall be removed within ten (10) days after sale of the property or immediately upon being leased.

F. Temporary Subdivision Signs:

1. Temporary directional subdivision signs shall comply with the following standards:

   a. The signs shall be located at primary streets providing directions to the subdivision.

   b. Each sign shall not exceed four (4) feet in height and not exceed twenty-four (24) square feet in area.

2. On-site subdivision signs shall comply with the following standards:

   a. The signs shall be located at the primary entrance to the subdivision or at the model homes.

   b. Each sign shall not exceed six (6) feet in height and shall not exceed thirty-two (32) square feet in area.

G. Permanent Subdivision Area Identification Signs:

Permanent identification signs, including signs identifying a subdivision, mobilehome park, apartments, townhouses, condominiums, or any other residential project, shall comply with the following standards:

1. Permanent subdivision identification signs may be either attached to an entrance fence or structure or be a monument sign. The sign shall not exceed four (4) feet in height or thirty (30) square feet in size and shall be located in a maintained landscaped area on a parcel within the subdivision at a primary entrance.

2. The sign shall not be illuminated except for low silhouette spotlighting that does not create glare on other properties in the vicinity.

3. The design and materials of the sign shall be approved by the Director of Planning and Development Services.

H. Temporary Construction Signs:

Where a building is under construction, temporary signs may be erected to identify the project owner, architect, landscape architect, contractor, builder, proposed business, or lender, provided they comply with the following standards:

1. There shall be no more than one (1) such temporary construction sign per project.

2. The sign shall not exceed thirty-two (32) square feet in area.

3. The sign shall not be illuminated.

4. If attached to the building, the sign shall not extend above the roof line or parapet wall of the building. If freestanding, the maximum height is six (6) feet.

5. The sign shall be stationary.

6. The sign shall be removed at the time of final inspection of the job.

I. Temporary Political, Religious, and Civic Campaign Signs:

Temporary political, religious, and civic campaign signs may be erected for a period not to exceed ninety (90) days and shall comply with the following standards:

1. The signs shall be removed within fifteen (15) days following the conclusion of the campaign.

2. In residential districts, each sign shall not exceed six (6) square feet in area or a height of four (4) feet.

J. Agricultural Signs:

Agricultural signs advertising agricultural products raised or produced on the subject property may be erected in all agricultural zoning districts, provided they comply with the following standards:

1. There shall be no more than one (1) agricultural sign per legal lot.

2. The sign shall not exceed sixteen (16) square feet in area for parcels less than five (5) acres nor exceed twenty-four (24) square feet for parcels exceeding five (5) acres. The sign shall not exceed six (6) feet in height.

3. The sign shall be a minimum of ten (10) feet from any street right-of-way.

4. The sign shall not be illuminated.

5. The sign shall be stationary.

6. The sign shall not be an off-site sign.

K. Agricultural Industry Signs:

Signs identifying agricultural industries located on the subject property may be erected in all agricultural zoning districts, provided they comply with the following standards:

1. There shall be no more than two (2) agricultural industrial signs per legal lot.

2. Each sign shall not exceed forty-eight (48) square feet in area nor fifteen (15) feet in height.

3. The sign shall be a minimum of ten (10) feet from the street or road right-of-way.

4. The sign shall not be illuminated.

5. The sign shall be stationary.

6. The sign shall not be an off-site sign.

L. Institutional Identification Signs:

Signs identifying churches, public and private schools, colleges, hospitals, universities, or fraternal, benevolent, and social service organizations located on the same property shall comply with the following standards, except that when such institutions are located in a commercial zoning district, the sign regulations applicable to signs in the commercial district shall govern:

1. There shall be no more than two (2) institutional identification signs per each street frontage, not to exceed a total of six (6) such signs on a lot.

2. Each sign shall not exceed forty-eight (48) square feet in area.

3. Lighting of institutional identification signs shall be indirect and nonflashing and shall not produce glare on other properties in the vicinity.

4. The signs shall not extend into any existing or proposed road or street right-of-way.

5. Freestanding signs shall not exceed six (6) feet in height. Signs attached to buildings shall not extend above the roof line or parapet wall of the building.

6. All signs shall be stationary.

7. Generally recognized and acceptable religious symbols that are freestanding or are attached to or part of a church (or attached to or part of a freestanding sign) may be exempted by the Director of Planning and Development Services from the provisions herein regarding height, area, and number of signs.

SECTION 7225.03 EXEMPT SIGNS

The following signs, except as provided elsewhere in this chapter, are exempt from the provisions of this chapter:

A. Approved highway directional signs

B. Railroad signal signs

C. Signs prohibiting trespassing and hunting, provided that they do not exceed two (2) square feet in area

D. Warning signs required by law or erected by public agencies

E. Utility company signs identifying cables, conduits, or hazards

F. Public notices and announcements authorized by courts and public officials

G. Advertising signs on buses and taxis

H. Signs attached to bus stops and shelters

I. Signs on automobiles and trucks that are painted on or attached flat against the vehicle to identify or advertise the associated business, provided that the vehicle is primarily used for the business and is parked on private property as a normal function

J. Window display signs limited to painted signs on glazing, poster paper signs, and placards attached to the inside of glazing of store fronts, provided that the store front glazing is not covered in excess of fifty (50) percent

K. Signs that are painted on or attached to the windshield of a vehicle or boat, properly located for display

L. Public telephone identification

M. Signs of an instructive nature or which include information required by County, State or federal enforcement agencies including: telephone booth, gas pump use instructions, instructions for recreational vehicle dump station, brake and smog certification, restroom identification, no smoking, propane tank identification, gas pump identification, air and

water, drive to forward pump, cashier, hours of operation, required gallon to liter conversion, full- and self-service signs at each island not exceeding four (4) square feet in area, and traffic directional signs as approved by enforcement agencies for necessary traffic control and direction provided that they do not exceed four (4) square feet in area each and do not exceed thirty (30) inches in height in front or side street yard and no symbol, name, or other message is on said signs

N. Signs erected inside enclosed malls

O. Signs erected out-of-doors within courtyards and mall spaces (below the height of enclosed buildings) within the buildable portion of the lot where signs are not visible from a public street or adjacent parcel.

P. Directional, warning, or identification signs for petroleum drilling and extraction activities not exceeding two (2) square feet in area

Q. Residential name and address signs not exceeding two (2) square feet in area

SECTION 7225.04 PROHIBITED SIGNS

The following signs are prohibited in all zoning districts:

A. Moving or rotating signs

B. Signs with flashing, moving, or animated illumination except as specified in Section 7225.06.A

C. Any sign displaying any obscene, indecent, or immoral matter

D. Advertising signs that include the words, "Stop, Look, Listen" or any other word, phrase, symbol, lights, motion, sound, fumes, mist, or other effluent that may interfere with, mislead, or confuse the driving public

E. Portable signs, except for temporary real estate signs as provided in Section 7225.02.E

F. Signs on inflatable advertising devices when the device is attached or secured to the ground

G. Signs extending above roofs and roof signs, except where specifically provided for under the provisions of this chapter for signs attached to buildings

H. Signs projecting from buildings, except where specifically provided for

I. Wind activated signs

J. Any other advertising device attached to a building, fence, pole, or vehicle on display not specifically authorized by this chapter

SECTION 7225.05 COMPUTATION OF AREA

The following methods will be used to compute the area of sign copy:

A. The area of a monument or pole sign is to be computed by multiplying the total height by the total length of the sign or signs for one-sided signs, excluding framework of separate single wood post or masonry column and single wood or masonry beam. The base of a monument sign shall not be considered part of the sign when constructed of wood or masonry. (See Figures 225B and 225C)

B. Where a two-sided monument or pole sign contains identical copy on each side, the area of the sign shall be computed by multiplying the total height by the total length of only one side. (See Figures 225B and 225C)

C. The area of a freestanding sign which has three or more faces shall be computed by adding the areas of each face of the sign.

D. The area of a freestanding sign that is an object or statuary shall be computed by the appropriate mathematical equation for determining total surface of an object.

SECTION 7225.06 SPECIAL SIGN PROVISIONS

A. Electronic time and temperature signs as part of an on-site advertising sign are permitted as regulated by development standards.

B. Exit, entrance, or other on-site traffic directional signs are permitted, provided that the signs do not exceed six (6) feet in height and contain no advertising or message other than for traffic directions.

C. Illuminated signs in store front window glazing visible from a public street shall be considered signs and shall comply with the requirements of this article.

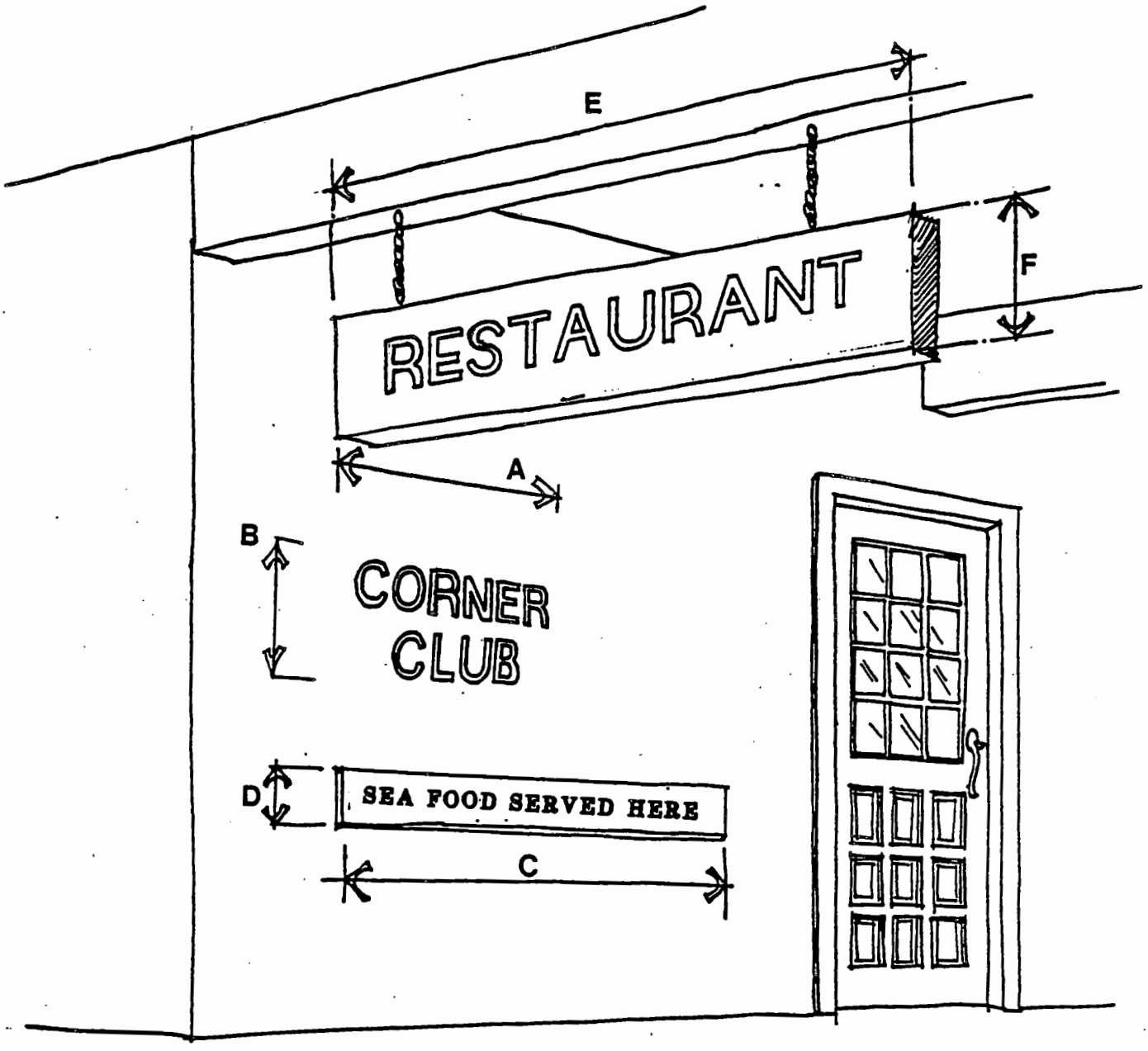
D. Special signing required for drive-in windows for drive-in restaurants, banks, or similar businesses are permitted provided the sign copy is necessary for information, instruction, or directions and specifically related to the special use subject to review and approval of the Director of Planning and Development Services who shall use discretion in approval of subject signs related to number, location, height, size, and design.

SECTION 7225.07 NONCONFORMING SIGNS

Nonconforming signs shall be subject to the requirements of Section 7296.07 of this chapter.

FIGURE 225 A

CALCULATION FOR AREA OF WALL SIGNS



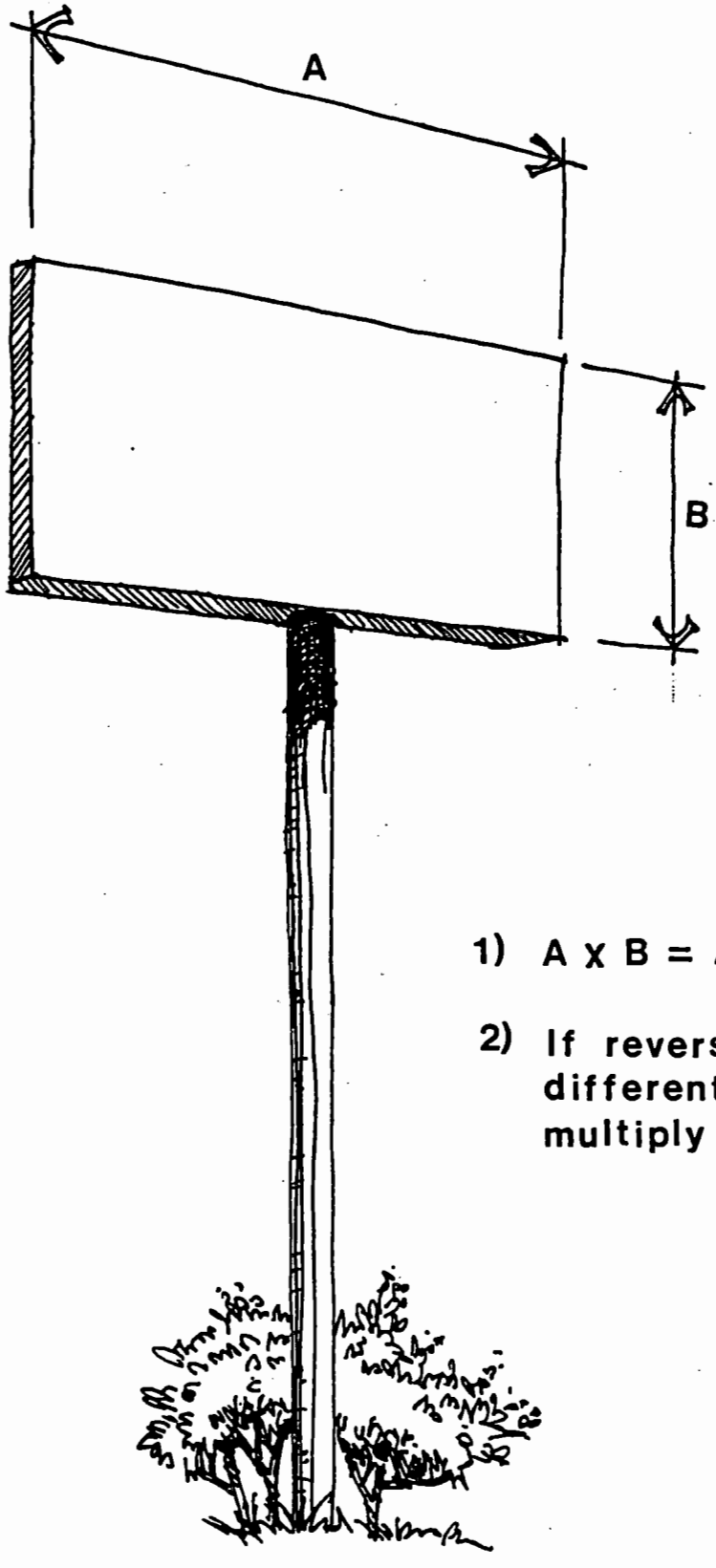
A x B x .75 = area

C x D = area

E x F x 2 = area

FIGURE 225 B

CALCULATION FOR AREA OF POLE SIGN

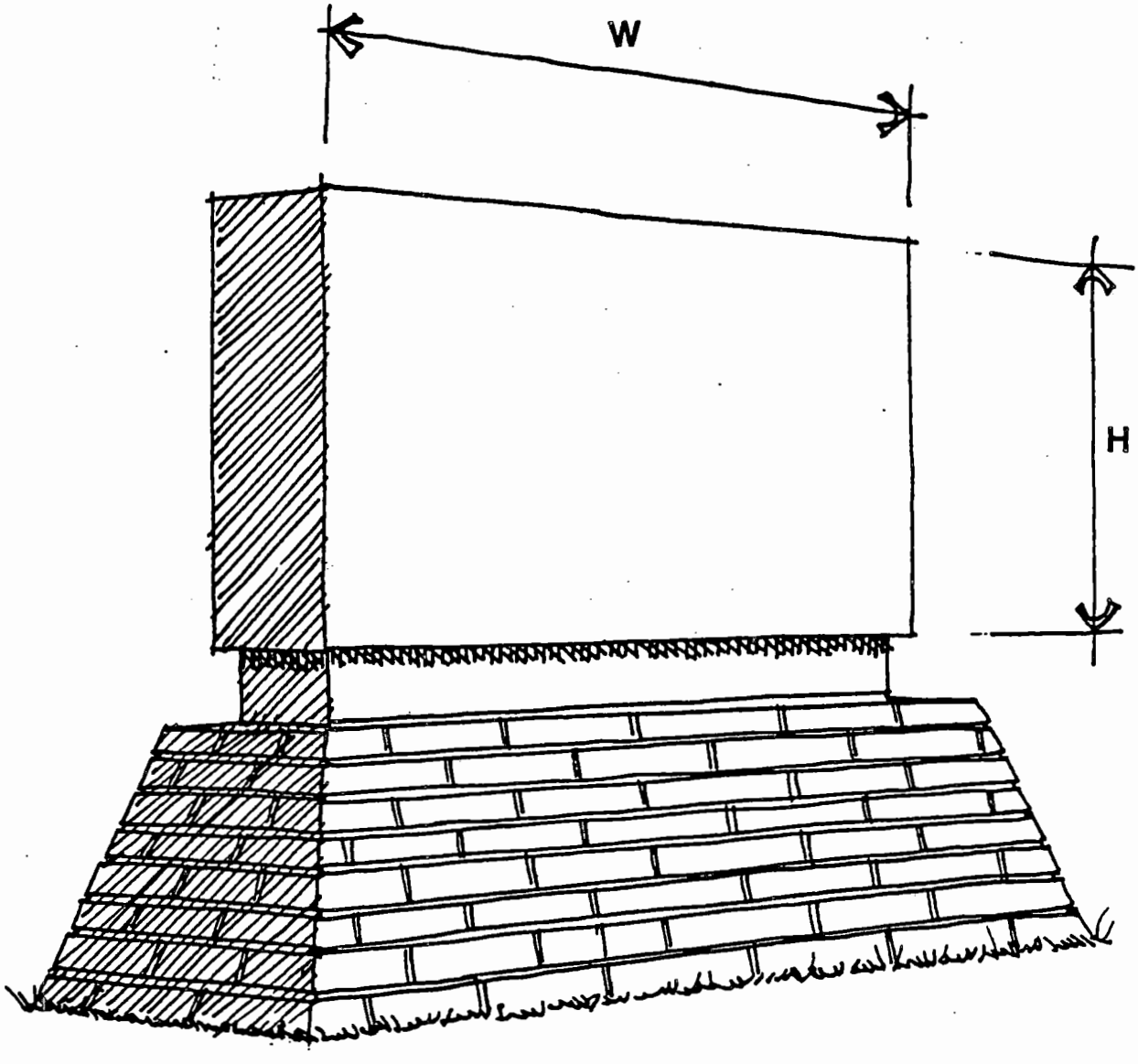


1) A x B = AREA

2) If reverse of sign has different message multiply area by 2

FIGURE 225 C

CALCULATION FOR AREA OF MONUMENT SIGN



1) H x W = AREA

2) If reverse of sign has different message, multiply by 2.

ARTICLE 7230

LANDSCAPING

SECTIONS:

7230.01 PURPOSE AND APPLICATION
7230.02 LANDSCAPING STANDARDS
7230.03 LANDSCAPE PLOT PLAN REVIEW AND APPROVAL

SECTION 7230.01 PURPOSE AND APPLICATION

The purpose of this article is to ensure that development is aesthetically pleasing and compatible with surrounding development by requiring the provision of adequate landscaping in connection with new development and the expansion of existing developments and changes in uses.

SECTION 7230.02 LANDSCAPING STANDARDS

Landscaping shall be provided in accordance with the following minimum standards, except as may be modified in connection with the approval of a discretionary development permit:

A. Multi-family Developments:

1. A minimum of ten (10) percent of the total developed lot area shall be landscaped.

2. Front-yard and street-side side-yard setback areas, excluding approved driveway entrances, maneuvering areas, and public sidewalks, shall be landscaped. Within this area, trees shall be planted no farther than fifty (50) feet apart and no closer than five (5) feet from the back of the sidewalks. No plant material that will grow to a height of more than eighteen (18) inches shall be planted in the street right-of-way.

3. All interior open space areas shall be landscaped with live landscaping.

4. Additional planters and landscaped areas shall be provided in off-street parking areas in accordance with the requirements of Section 7220.09.I of this chapter.

5. Within each planter or landscaped area, an irrigation system and live landscaping shall be provided and maintained.

6. Required planter or landscaped areas may be combined with pedestrian walks and similar hard surface areas, provided that such hard surface areas do not cover more than ten (10) percent of any

required planter or landscaped area. Ornamental or landscaping rock and gravel areas, artificial turf, or other areas covered with other artificial materials shall be considered hard surface areas for the purposes of this provision.

7. Landscaping materials and trees installed in planters or landscaped areas shall be selected from a list of approved plants maintained by the Department of Planning and Development Services.

B. Mobilehome Parks:

1. A minimum of five (5) percent of the total developed lot area shall be landscaped.

2. Setback areas between streets and the perimeter fence of the mobilehome park, excluding approved driveway entrances and public sidewalks, shall be landscaped. Within this area, trees shall be planted no farther than fifty (50) feet apart and no closer than five (5) feet from the back of the sidewalks. No plant material that will grow to a height of more than eighteen (18) inches shall be planted in the street right-of-way.

3. Within the interior of the mobilehome park, at least one (1) tree per mobilehome space shall be planted.

4. Within each planter or landscaped area, an irrigation system and live landscaping shall be provided and maintained.

5. Required planter or landscaped areas may be combined with pedestrian walks and similar hard surface areas provided that such hard surface areas do not cover more than ten (10) percent of any required planter or landscaped area. Ornamental or landscaping rock and gravel areas, artificial turf, or other areas covered with other artificial materials shall be considered hard surface areas for the purposes of this provision.

6. Landscaped materials and trees installed in planters or landscaped areas shall be selected from a list of approved plants maintained by the Department of Planning and Development Services.

C. Commercial Developments; Recreation, Entertainment, and Tourist Facilities; and Institutional Uses:

1. A minimum of five (5) percent of the total developed lot area shall be landscaped.

2. Along any interior property line abutting residentially zoned lots, trees shall be planted at least every thirty (30) feet in individual planters. The planters shall be sufficiently large and protected so that a parked car does not extend into the minimum four- (4-) foot by four- (4-) foot tree planting area which shall be landscaped with ground cover, shrubs, or climbing plants.

3. Planters or landscaped areas shall be provided in off-street parking areas in accordance with the requirements of Section 7220.09.I of this chapter.

4. Within each planter or landscaped area, an irrigation system and live landscaping shall be provided and maintained.

5. Required planter or landscaped areas may be combined with pedestrian walks and similar hard surface areas provided that such hard surface area does not cover more than ten (10) percent of any required planter or landscaped area. Ornamental or landscaping rock and gravel areas, artificial turf, or other areas covered with other artificial materials shall be considered hard surface areas for the purposes of this provision.

6. Landscaping materials and trees installed in planters or landscaped areas shall be selected from a list of approved plants maintained by the Department of Planning and Development Services.

D. Industrial Uses:

1. A minimum of five (5) percent of the developed area shall be landscaped.

2. Along any interior property line abutting residentially zoned lots, trees shall be planted at least every thirty (30) feet in individual planters. The planters shall be sufficiently large and protected so that a parked car does not extend into the minimum four- (4-) foot by four- (4-) foot tree planting area which shall be landscaped with ground cover, shrubs, and climbing plants.

3. Planters or landscaped areas shall be provided in off-street parking areas in accordance with the requirements of Section 7220.09.I of this chapter.

4. Within each planter or landscaped area, an irrigation system and live landscaping shall be provided and maintained.

5. Required planter or landscaped areas may be combined with pedestrian walks and similar hard surface areas, provided that such hard surface area does not cover more than ten (10) percent of any required planter or landscaped area. Ornamental or landscaping rock and gravel areas, artificial turf, or other areas covered with other artificial materials shall be considered hard surface areas for the purposes of this provision.

6. Landscaping materials and trees installed in planters or landscaped areas shall be selected from a list of approved plants maintained by the Department of Planning and Development Services.

SECTION 7230.03 LANDSCAPE PLOT PLAN REVIEW AND APPROVAL

No landscaping or irrigation system required to be provided by this article shall be installed until a landscape plot plan has been submitted to and approved by the Director of Planning and Development Services.

A. Application Contents:

An application for plot plan review shall include the following:

1. Name and address of the applicant

2. Name(s) and address(es) of the property owner(s)

3. Case number, if discretionary permit is required

4. A plot plan drawn at the scale specified by the Director of Planning and Development Services, including the following:

   a. Location of existing and proposed streets

   b. Location of existing buildings, structures, and parking areas where such structures are to remain

   c. Location of proposed buildings, structures, and parking areas

   d. Proposed uses of buildings and structures

   e. Proposed landscaping including:

      (1) Symbolic representation of each tree, shrub, and ground cover with name or initial shown on the plan for each plant

      (2) List of proposed plants with common and botanic name of each plant, the total number of each plant, and the size of container for each plant

   f. Proposed irrigation system including:

      (1) Location of each sprinkler head (including lawn and shrub head and bubblers, hose bibs, manual valves, and electric clocks)

      (2) Location of main and available pressure

      (3) Location of pipes

   g. North arrow

5. Name and address of person who prepared the landscaping plot plan

B. Review and Approval:

1. Where a discretionary or ministerial approval is required by this chapter for the use or uses for which the landscaping is being provided, a conceptual landscape plan showing the general location and type of proposed landscaping materials and hard surfaced areas shall be submitted in conjunction with the application for the discretionary or ministerial permit. Following approval of the discretionary or ministerial permit but prior to the issuance of any building or grading permit for the principal use or uses, the applicant shall submit a landscaping plot plan application containing the information specified in Subsection A to the Director of Planning and Development Services for review and approval. The landscape plot plan application shall be reviewed and approved in accordance with the procedures set out in Section 7284.02 of this chapter.

2. Where no discretionary or ministerial approval is required for the use or uses for which landscaping is being provided, the landscaping plot plan application shall contain the information specified in Subsection A and shall be reviewed and approved in accordance with the procedures set out in Section 7284.02.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7235

HILLSIDE DEVELOPMENT

SECTIONS:

7235.01 PURPOSE AND APPLICATION
7235.02 AVERAGE NATURAL SLOPE CALCULATION
7235.03 HILLSIDE DEVELOPMENT STANDARDS
7235.04 HILLSIDE PLOT PLAN REVIEW AND APPROVAL

SECTION 7235.01 PURPOSE AND APPLICATION

The purpose of this article is to provide for the reasonable use of hillsides and mountainous areas while protecting the public health, safety, and welfare by ensuring that development will not induce soil erosion, result in excessive grading, create sewage disposal problems, increase wildfire danger and slope instability, or lead to a loss of aesthetic value. This article implements the goals and policies of the Kern County General Plan and various specific plans and sets specific standards and regulations for all grading and development of slopes exceeding thirty (30) percent average natural slope. This article is not a base zoning district or combining district, but is applicable to all development in any zoning district on parcels designated Steep Slope (Map Code 2.4) by the General Plan. It is not the intent of this article to apply to oil and gas operations.

SECTION 7235.02 AVERAGE NATURAL SLOPE CALCULATION

For the purposes of this article, slope is defined as the relationship between the change in elevation (rise) of land and the horizontal distance (run) over which the elevation occurs. The percent slope of any given slope is determined by dividing the rise by the run on the natural slope of land, multiplied by one hundred (100).

Average slope shall be calculated by using the following formula:

$$S = \frac{IL\ (0.00229)}{A}$$

Where S = average natural slope of the total parcel (in percent)
I = contour interval (in feet)
L = total length of all contour lines within the parcel boundaries (in feet)
A = gross area of the parcel in acres
0.00229 = a constant used to convert square feet into acres by 100 percent

The calculated average natural slope shall be rounded to the nearest whole number. (See Figure 235A)

SECTION 7235.03 HILLSIDE DEVELOPMENT STANDARDS

All development in areas designated Steep Slope (Map Code 2.4) by the Kern County General Plan shall comply with the following standards:

A. Residential Density:

Residential development shall not exceed the maximum density permitted by the General Plan land use category applicable to the area in which the property is located, except that:

1. No lot shall be created after the effective date of this article on which the average natural slope exceeds sixty (60) percent, except if the lot contains a contiguous area of ten thousand (10,000) square feet within which there is no slope greater than ten (10) percent and on which development is proposed.

2. One (1) single-family dwelling may be built on any lot that was legally created prior to the effective date of this article, regardless of slope, provided that all other requirements of this article are met.

B. Grading:

Grading shall respect the natural contour of the existing terrain wherever possible. The following grading standards shall apply to all land subject to this article in addition to the grading requirements of Chapter 70 of the latest edition of the Uniform Building Code as adopted and modified, or as may be adopted or modified from time to time, by the Board of Supervisors:

1. Grading shall be limited to building pads and access drives thereto, and extensive grading shall be discouraged.

2. No cuts in excess of sixteen (16) feet in height from top to toe shall be allowed.

3. Where grading is necessary, the principles of contour grading should be employed:

   a. Cut slopes shall not exceed two (2) horizontal to (1) vertical (2:1). Shallower slopes may be required if indicated by soils and geologic investigations to be necessary.

   b. Graded slopes should be rounded and shaped to simulate the natural terrain.

   c. Grading should follow the natural contours as much as possible.

   d. Graded slopes should blend with naturally occurring slopes at a radius compatible with the existing natural terrain.

4. Graded slopes should be screened from view under or behind buildings or by landscaping or natural topographic features wherever possible.

5. Graded slopes shall be revegetated with a mixture of grass seed or shrubs as recommended by the Director of Planning and Development Services. Planting may be waived by the Director of Planning and Development Services for slopes that, due to the rock character of the material, will not support plant growth.

C. Drainage:

All proposed drainage facilities shall respect the natural terrain, preserve major drainage channels in their natural state, and be designed in such a manner as to minimize soil erosion and to otherwise preserve the public health, safety, and welfare. The following standards shall apply to all lands subject to this article in addition to the requirements of the Kern County Subdivision and Parcel Map Ordinances:

1. To the maximum extent possible, all natural drainage courses serving major drainage areas, and containing significant perennial vegetation which may constitute a significant wildlife habitat, should remain in their natural state.

2. In the event that off-site drainage facilities will be required to handle increased runoff, interim drainage facilities which provide for no increase in peak runoff from a ten- (10-) year storm shall be constructed and maintained until such time as the permanent facilities are completed.

3. The overall drainage system shall be completed and made operational at the earliest possible time during construction or shall be otherwise provided for in a manner acceptable to the County of Kern.

D. Driveways and Access Roads:

All proposed driveways and access roads shall be designed to provide convenient and safe access while minimizing the extent of grading. The following standards shall apply to all lands subject to this article in addition to the requirements of the Kern County Subdivision and Parcel Map Ordinances:

1. Driveways and access roads shall enter the fronting public road or street as nearly at right angle (or radial line, if on a curve) as physical features permit.

2. Driveways shall be designed and constructed in such a manner that stormwater runoff originating on the roadway will not drain down the drive, and stormwater runoff originating on the private property will not drain down the roadway, except in the ditch or gutter line.

3. Adequate and safe sight distance shall be provided for a design speed of fifteen (15) miles per hour.

4. Wherever feasible, driveways and access roads shall be installed parallel to elevation contours and shall not cut perpendicularly across contours. The maximum grade for driveways and access roads shall be (15) percent.

5. Driveways entering a public road or street shall have a minimum paved width of twelve (12) feet and a maximum width of twenty (20) feet and shall be improved with two (2) inches of asphaltic concrete, three (3) inches of rock dust on an aggregate base, three (3) inches of road mix, or three (3) inches of concrete.

6. Driveways and access roads serving residential projects of three (3) or more units shall be improved with a minimum of three (3) inches of road mix and shall tie to a paved road (under encroachment permit from the Kern County Public Works Department, where applicable). The paving requirement may be waived by the Planning Director when site access is not obtained from a paved road and when the project is not part of a precise development (PD) plan or cluster (CL) development.

7. Driveways and access roads shall comply with the requirements of the Kern County Fire Department.

SECTION 7235.04 HILLSIDE PLOT PLAN REVIEW AND APPROVAL

No development shall occur, no use shall be established, and no building or grading permit shall be issued for any development in areas designated Steep Slope (Map Code 2.4) by the Kern County General Plan until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.02 of this chapter.

A. Application Contents:

An application for plot plan review shall include the following:

1. Name and address of the applicant

2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan drawn at one (1) inch to two hundred (200) feet or other scale specified by the Director of Planning and Development Services, including the following:

a. Topography of the property prepared by a registered civil engineer or land surveyor

b. Proposed grading

c. Location of proposed buildings and structures

d. Location of proposed driveways and access roads

e. Kern County Fire Department approval for all driveways and access roads

f. Proposed drainage facilities

g. North arrow

6. A description of the proposed development, including description of how the proposed development complies with the requirements of Section 7235.03

7. Name and address of person who prepared the topographic map

B. Review and Approval:

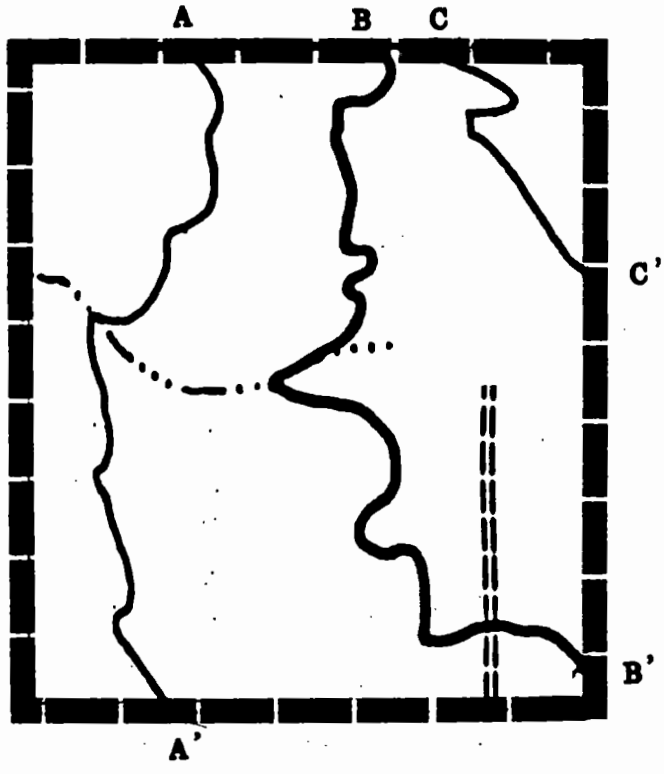
Where a discretionary approval is required by this chapter for the use or uses proposed, the hillside plot plan application shall be reviewed and approved as part of the discretionary review and approval process. Where no discretionary approval is required by this chapter for the use or uses proposed, the hillside plot plan shall be reviewed and approved in accordance with the procedures set out in Section 7284.02 of this chapter.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

FIGURE 235 A

CALCULATION OF AVERAGE NATURAL SLOPE



$$S = \frac{IL\ (0.00229)}{A}$$

I = CONTOUR INTERVAL (EG. , 5 FEET)

L = ADD LENGTH OF LINES AA',BB',CC'

A = AREA OF PARCEL IN ACRES

S = AVERAGE NATURAL SLOPE OF THE TOTAL PARCEL (in percent)

0.00229 = A CONSTANT USED TO CONVERT SQUARE FEET INTO ACRES x 100%

ARTICLE 7240

SECONDARY RESIDENTIAL UNITS

SECTIONS:

7240.01 PURPOSE AND APPLICATION
7240.02 ESTABLISHMENT OF A SECONDARY RESIDENTIAL UNIT
7240.03 DEVELOPMENT STANDARDS
7240.04 SECONDARY RESIDENTIAL UNIT PLOT PLAN REVIEW AND APPROVAL

SECTION 7240.01 PURPOSE AND APPLICATION

The purpose of this article is to provide for the establishment of new secondary residential units on existing lots in the Low-density Residential (R-1), Estate (E), or Limited Agriculture (A-1) Districts that already contain a legally established principal dwelling unit. The secondary residential unit may be occupied by family members, guests, servants, or employees of the property owner or used as a rental unit. Pursuant to Government Code Section 65852.2(b), secondary residential units are deemed to be in conformance with the density limitations established by the General Plan land use category applicable to the area within which the unit is located.

SECTION 7240.02 ESTABLISHMENT OF A SECONDARY RESIDENTIAL UNIT

A secondary residential unit may be established by any one of the following methods:

A. Alteration of interior space of an existing dwelling

B. Conversion of an attic, basement, garage, or other previously uninhabited portion of a dwelling or accessory structure

C. Addition of a separate unit onto an existing dwelling

D. Construction of a separate structure on a lot in addition to an existing principal dwelling

SECTION 7240.03 DEVELOPMENT STANDARDS

No secondary residential unit may be established unless it complies to the following standards:

A. The lot upon which the secondary residential unit is to be established shall be a minimum of seven thousand five hundred (7,500) net square feet in area and shall not be subdivided unless it meets the minimum requirements for subdivision.

B. The existing principal dwelling on the lot shall contain a minimum gross area of one thousand one hundred (1,100) square feet.

C. Only one (1) secondary residential unit may be created per legal lot.

D. The total floor area of the secondary residential unit may not exceed nine hundred (900) square feet or fifty (50) percent of the total floor area of the existing principal dwelling, whichever is greater.

E. The secondary residential unit shall contain separate kitchen and bathroom facilities and have a separate entrance.

F. The existing principal dwelling on the lot shall be occupied by the property owner.

G. The secondary residential unit shall comply with the development standards for the zoning district in which it is located, including front-, rear-, and side-yard setbacks, minimum distance between structures, height limits, but excluding minimum lot area per dwelling unit standards.

H. Off-street parking for the secondary residential unit shall be provided in accordance with Article 7220 of this chapter.

I. The secondary residential unit shall be constructed in accordance with the provisions of the latest adopted edition of the Uniform Building Code.

J. The secondary residential unit shall be constructed in such a manner as to be compatible with the existing principal dwelling unit and neighborhood in terms of design, height, material, and landscaping.

K. The principal entrance to the secondary residential unit shall not be visible from the street.

L. The secondary residential unit shall comply with applicable health standards and shall be approved by the Kern County Director of Health.

SECTION 7240.04 SECONDARY RESIDENTIAL UNIT PLOT PLAN REVIEW AND APPROVAL

No secondary residential unit may be established until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment.

A. Application Contents:

An application for a conditional use permit for a secondary residential unit shall include the following:

1. Name and address of the applicant

2. Name and address of the property owner

3. Address of the existing principal dwelling on the lot on which the secondary residential unit is to be established

4. Assessor's parcel number

5. Legal description of the property

6. Floor area of the existing principal dwelling and of the proposed secondary residential unit

7. Plot plan drawn at the scale specified by the Director of Planning and Development Services, including the following:

   a. Property lines and lot dimensions

   b. Location of all existing buildings and structures

   c. Location of the proposed secondary residential unit

   d. Location of all easements

   e. Location of existing and proposed parking areas

   f. North arrow

8. Elevations showing the height of the proposed secondary residential unit in relation to existing buildings on the subject property

9. Photographs accurately showing property on which the secondary residential unit is to be constructed and properties adjacent to side property lines

B. Review and Approval:

The conditional use permit application shall be reviewed and approved in accordance with the procedures set out in Section 7284.04 and Article 7286 of this chapter.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7245

DENSITY BONUSES

SECTIONS:

7245.01 PURPOSE AND APPLICATION
7245.02 DENSITY BONUSES FOR RESIDENTIAL PROJECTS
7245.03 DENSITY BONUS PERMIT REVIEW AND APPROVAL

SECTION 7245.01 PURPOSE AND APPLICATION

The purpose of this article is to implement General Plan policies and State law requirements for density bonuses in specified residential projects. Under policies of the General Plan, a density bonus of up to twenty (20) percent shall be allowed for specified residential projects that provide complete infrastructure improvements, including community water distribution and sewage collection and treatment systems. Under the requirements of State law, a density bonus of twenty-five (25) percent shall be granted for specified residential projects of five (5) or more units in which at least twenty-five (25) percent of the units are affordable to persons and families of low or moderate income or in which ten (10) percent of the units are affordable to lower income households. Additionally, a twenty (20) percent bonus shall be granted for those residential developments within certain zone districts when on-site day-care facilities are provided. The density bonus shall be in addition to the maximum allowable density specified by the General Plan land use category for the area in which the project is located. Only one (1) of the above density bonuses may apply to a qualifying project.

SECTION 7245.02 DENSITY BONUSES FOR RESIDENTIAL PROJECTS

A. A density bonus of up to twenty (20) percent over the maximum density specified by the applicable General Plan land use category shall be allowed for any residential project of fifty (50) or more units located in the Medium-density Residential (R-2), High-density Residential (R-3), or Mobilehome Park (MP) Districts if the residential project provides adequate on-site day-care facilities for the care of children.

B. A density bonus of up to twenty (20) percent over the maximum density specified by the applicable General Plan land use category shall be allowed for any residential project of five (5) or more units located in the Low-density Residential (R-1), Medium-density Residential (R-2), High-density Residential (R-3), Mobilehome Subdivision (MS), or Mobilehome Park (MP) Districts if the residential project provides complete public infrastructure improvements, including streets and roads, curb, gutter, and sidewalk, drainage facilities and community water distribution, and sewage collection and treatment systems.

1. The extent of necessary infrastructure improvements and the amount of the density bonus up to twenty (20) percent shall be determined by the decisionmaking authority reviewing and approving the project in accordance with the procedures set out in Article 7284 of this chapter.

2. If the density bonus provided for by this subsection is used for a qualifying project, no other density bonus may be applied to the project.

3. The residential project qualifying for this density bonus shall comply with all regulations of the zoning district or districts applicable to the area in which it is located, all other requirements of this chapter, and all other requirements and regulations of the County of Kern and the State of California.

C. A density bonus of twenty-five (25) percent over the maximum density specified by the applicable General Plan land use category shall be allowed for any new residential project or condominium conversion project containing five (5) or more units located in the Low-density Residential (R-1), Medium-density Residential (R-2), High-density Residential (R-3), Mobilehome Subdivision (MS), or Mobilehome Park (MP) Districts if at least twenty-five (25) percent of the total number of units in the residential development will be affordable to persons and families of low or moderate income, as defined in California Health and Safety Code; or if at least ten (10) percent of the total number of units in the residential development will be affordable to lower income households, as defined in California Health and Safety Code.

1. The units allowed as part of the density bonus shall not be included when determining the number of dwelling units which is equal to ten (10) or twenty-five (25) percent of the total. If the density bonus provided for by this subsection is used for a qualifying project, no other density bonus may be applied to the project.

2. The residential project qualifying for this density bonus shall comply with all regulations of the zoning district or districts applicable to the area in which it is located, all other requirements of this chapter, and all other requirements and regulations of the County of Kern and the State of California.

SECTION 7245.03 DENSITY BONUS PERMIT REVIEW AND APPROVAL

No development may occur pursuant to this article until an application for a density bonus permit has been submitted and approved as provided in this section.

A. Application Contents:

An application for a density bonus permit review shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of property owner(s)

3. Assessor's parcel number(s)

4. Legal description

5. A site development plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

    a. Topography of the lot(s)

    b. Proposed street system and parking area

    c. Lot design

    d. Location of buildings

    e. Location of other proposed uses

    f. Proposed setbacks

    g. Areas to be reserved for parks, schools, or other public or quasi-public facilities

    h. Proposed landscaping

    i. Water supply and distribution

    j. Sewage disposal system

    k. Drainage system

    l. North arrow

6. A narrative description of the proposed development, including the following:

    a. Total number of dwelling units and number of dwelling units per acre

    b. Number of dwelling units to be made available to persons of low and moderate income or to lower income households, if applicable

    c. Method of maintaining the affordability of the units described in Subparagraph b above, if applicable

    d. Building coverage expressed as a percent of the total area of the property

e. Area of land devoted to landscaping or open space usable for recreation purposes and its percentage of the total land area

f. Method of sewage disposal

g. Water supply, both domestic and fire

h. Proposed on-site drainage facilities

i. Methods of flood control, where appropriate

j. Phasing or development schedule

B. Review and Approval:

Where a discretionary permit or rezoning is otherwise required for the residential project, the density bonus permit application shall be reviewed and approved in conjunction with that discretionary permit or rezoning approval project. Where no other discretionary permit or rezoning is required for the residential project, the density bonus permit application shall be reviewed and approved in accordance with the procedures set out in Section 7284.02.

C. Preliminary Review:

Prior to submitting a formal application for a density bonus permit pursuant to this article or prior to submitting a formal application for a tentative map for conversion of apartments to a condominium project, an applicant shall submit to the Director of Planning and Development Services a preliminary proposal in writing for the residential project or condominium project. The Director of Planning and Development Services shall, within ninety (90) days of receipt of a written proposal, notify the applicant in writing of the procedures the applicant must follow to secure a density bonus provided for in this article.

ARTICLE 7250

HOME OCCUPATIONS

SECTIONS:

7250.01 PURPOSE AND APPLICATION
7250.02 PERMITTED HOME OCCUPATIONS
7250.03 HOME OCCUPATIONS NOT PERMITTED
7250.04 HOME OCCUPATION STANDARDS
7250.05 HOME OCCUPATION PERMIT REVIEW AND APPROVAL

SECTION 7250.01 PURPOSE AND APPLICATION

The purpose of this article is to establish standards for home occupations. In general, a home occupation is a residential accessory use so located and conducted that the average neighbor, under normal circumstances, would not be aware of its existence. The standards for home occupations in this article are intended to ensure compatibility with other permitted uses and with the residential character of the neighborhood.

SECTION 7250.02 PERMITTED HOME OCCUPATIONS

Home occupations may include, but are not necessarily limited to, the following:

A. Artist, sculptor, or photography studio, taxidermist, or firearm repair

B. Author or composer

C. Dressmaker, seamstress, or tailor

D. Home crafts, such as model making, rug weaving, or lapidary work

E. Office of a minister, rabbi, or priest

F. Office of a salesman, sales representative, or manufacturers' representative, provided that no retail or wholesale transactions are made on the premises, except as permitted by Section 7250.04.I

G. Office of an architect, artist, broker, consultant, engineer, instructor in arts and crafts, insurance agent, land surveyor, musician, bookkeeper, accountant, typist, notary public, or private investigator

H. School of special education whose class size does not exceed four (4) pupils at any given time

I. Telephone answering service

J. Saw sharpening

K. Key and locksmith

SECTION 7250.03 HOME OCCUPATIONS NOT PERMITTED

Permitted home occupations shall not in any event be deemed to include such uses as:

A. Antique shop

B. Barber shop or beauty parlor

C. Funeral chapel or funeral home

D. Gift shop

E. Medical or dental clinic or hospital

F. Renting of trailers, autos, trucks, and motorcycles

G. Restaurant

H. Stable or kennel

I. Veterinary clinic or hospital

J. Car repair or small engine repair

K. Cabinet making

L. Appliance repair

SECTION 7250.04 HOME OCCUPATION STANDARDS

A home occupation shall comply with the following minimum standards:

A. The home occupation shall be conducted solely by the occupants of the residence.

B. Not more than twenty-five (25) percent of the gross area of one (1) floor of a residence shall be used for such purpose.

C. Detached accessory buildings may not be used for any home occupation activity.

D. No use shall require external alterations or involve construction features or the use of electrical or mechanical equipment that would change the fire rating of the structure or the fire district in which the structure is located.

E. There shall be no outside storage of any kind related to the home occupation.

F. The home occupation shall be conducted by appointment only.

G. The home occupation shall not require the services of commercial carrier freight deliveries at the site in a frequency greater than normally found in a residential area.

H. No home occupation shall create noise, dust, vibration, smell, smoke, glare, electrical interference, fire hazard, or any other hazard or nuisance to any greater or more frequent extent than that usually experienced in an average residential occupancy in the district in question under normal circumstances wherein no home occupation exists.

I. There shall be no sales of products or merchandise other than those produced on the premises and shall be limited to those which are incidental to the permitted home occupation.

J. No sign shall be permitted, other than the clearly posted address of the home.

SECTION 7250.05 HOME OCCUPATION PERMIT REVIEW AND APPROVAL

No home occupation shall be established until an application for a home occupation permit has been submitted to and approved by the Director of Planning and Development Services as consistent with the requirements of this article in accordance with the procedures set out in Section 7284.02 of this chapter.

A. Application Contents:

An application for a home occupation permit shall include the following:

1. Name and address of applicant

2. Name(s) and address(es) of property owner(s)

3. Assessor's parcel number(s)

4. Description of the home occupation including:

   a. Trade name or business title

   b. Resale number, if any

   c. Detailed description of the proposed occupation

   d. Tools, machinery, or equipment required or used in the practice of the occupation

B. Review and Approval:

The home occupation permit application shall be reviewed and approved in accordance with the procedures set out in Section 7284.02 of this chapter.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7255

LARGE FAMILY DAY-CARE HOMES

SECTIONS:

7255.01 PURPOSE AND APPLICATION
7255.02 DEVELOPMENT STANDARDS
7255.03 LARGE FAMILY DAY-CARE HOME PERMIT REVIEW AND APPROVAL

SECTION 7255.01 PURPOSE AND APPLICATION

The purpose of this article is to authorize the establishment of large family day-care homes in residential neighborhoods where such uses will not have an adverse effect on surrounding area.

SECTION 7255.02 DEVELOPMENT STANDARDS

Large family day-care homes shall comply with the following standards:

A. An operating license, if required, shall be obtained through the Kern County Welfare Department, Division of Social Services, prior to or concurrently with obtaining a permit pursuant to this article. Applicant shall comply with all State and County regulations administered by the Welfare Department or any other agency designated by the State Department of Social Services including, but not limited to, the following:

1. Large family day-care homes shall be located within a detached single-family dwelling.

2. The maximum number of children, including the licensee's own children under age twelve (12), for whom care shall be provided when there is no assistant provider in the home shall be either:

   a. Four (4) infants

   b. Six (6) children, no more than three (3) of whom may be infants

3. The maximum number of children, including the licensee's and assistant provider's own children under age twelve (12), for whom care shall be provided when there is an assistant provider in the home shall be twelve (12) children, no more than four (4) of whom may be infants.

4. A large family day-care home shall have a maximum capacity of twelve (12) provided that staffing ratios are maintained.

5. The capacity specified on the license shall be the maximum number of children for whom care can be provided.

B. Sufficient off-street loading space shall be provided in addition to the required off-street parking to serve the dwelling. The required loading space may be located within the required front yard but shall not impede access to the off-street parking required to serve the dwelling.

C. Outside play areas shall be screened from adjacent properties with either a solid wood fence or masonry wall six (6) feet in height. The fence or wall height shall be reduced to four (4) feet within the required front yard.

D. No signs other than those permitted by the applicable zoning district regulations shall be permitted.

SECTION 7255.03 LARGE FAMILY DAY-CARE HOME PERMIT REVIEW AND APPROVAL

No large family day-care home shall be established until an application for a large family day-care home permit has been submitted to and approved by the Director of Planning and Development Services in accordance with the procedures set out in Section 7284.03 of this chapter.

A. Application Contents:

An application for a large family day-care home permit shall include the following:

1. Name and address of the applicant

2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. Plot plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Existing and proposed buildings and structures

   b. Distance of all existing and proposed buildings and structures from property lines

   c. Outside play areas, including screening

   d. Off-street loading space

   e. North arrow

6. Days and hours of operation

7. Number of children for whom care is to be provided

8. Copy of license or license application

B. Review and Approval:

A large family day-care home permit application shall be reviewed and approved according to the procedures set out in Section 7284.03, except that:

1. At least ten (10) days before the date on which the decision will be made on the application, notice of the application shall be given by mail or delivery to all owners shown on the last equalized assessment role as owning real property within a one-hundred-(100-) foot radius of the exterior boundary of the proposed large family day-care home.

2. No hearing on the application shall be held before a decision is made unless a hearing is requested by the applicant or other affected person.

3. The applicant or other affected person may appeal the decision of the Director of Planning and Development Services according to the procedures set out in Section 7284.03.D.

C. Permit Revocation and Modification:

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7260

OIL AND GAS PRODUCTION

SECTIONS:

7260.01 PURPOSE AND APPLICATION
7260.02 UNRESTRICTED DRILLING
7260.03 DRILLING BY MINISTERIAL PERMIT
7260.04 DRILLING BY CONDITIONAL USE PERMIT
7260.05 DEVELOPMENT STANDARDS AND CONDITIONS
7260.06 APPLICATION CONTENTS
7260.07 PERMIT REVOCATION AND MODIFICATION

SECTION 7260.01 PURPOSE AND APPLICATION

The purpose of this article is to promote the economic recovery of oil, gas, and other hydrocarbon substances in a manner compatible with surrounding land uses and protection of the public health and safety by establishing reasonable limitations, safeguards, and controls on exploration, drilling, and production of hydrocarbon resources. The procedures and standards contained in this article shall apply to all exploration drilling and production activities related to oil, gas, and other hydrocarbon substances carried out in unincorporated Kern County.

SECTION 7260.02 UNRESTRICTED DRILLING

No review or permit shall be required for the drilling of any steam injection well, steam drive well, service well, or any well intended for the exploration for or development or production of oil, gas, and other hydrocarbon substances, or for any related accessory equipment, structure, or facility in the Exclusive Agriculture (A), Limited Agriculture (A-1), Medium Industrial (M-2), Heavy Industrial (M-3), or Natural Resource (NR) Districts, provided that:

A. All drilling installations and operations comply with the requirements of State law and with applicable fire and safety ordinances and regulations of the County of Kern.

B. Drilling shall not be commenced within one hundred (100) feet of any existing residence without the written consent of the owner thereof.

C. Signs shall be limited to directional, warning signs, and identification signs in connection with oil, gas, or other hydrocarbon drilling and development operations.

D. Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

2. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

SECTION 7260.03 DRILLING BY MINISTERIAL PERMIT

No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services as consistent with the standards set out in Section 7260.05 and in accordance with the procedures set out in Section 7284.02 of this chapter. In approving an application for plot plan review, the Director of Planning and Development Services may waive any standards set out in Section 7260.05 if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

A. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

B. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

SECTION 7260.04 DRILLING BY CONDITIONAL USE PERMIT

No well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this chapter in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 7260.05 and in accordance with the standards and procedures set out in Section 7284.04 and Article 7286 of this chapter. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 7260.05 if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

Disposal of nonhazardous oil field liquid waste and production water is considered an accessory facility only if the facility complies with the following:

A. The nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or

B. The nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this article and Article 7286 within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) months period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

SECTION 7260.05 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Sections 7105.02, 7260.03, and 7260.04, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this article:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and fire fighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those

required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F. All derricks, boilers, and other drilling equipment employed pursuant to this section, to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well, shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Director of Planning and Development Services, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Director of Planning and Development Services for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Director of Planning and Development Services may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of 8:00 a.m. and 8:00 p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Director of Planning and Development Services. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

O. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas
2. Kern County Fire Department
3. Kern County Health Department
4. Regional Water Quality Control Board
5. Air Pollution Control District
6. Kern County Public Works Department

SECTION 7260.06 APPLICATION CONTENTS

An application for plot plan review pursuant to Section 7260.03 and an application for a conditional use permit pursuant to Section 7260.04 shall include the following:

1. Name and address of the applicant
2. Name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Topography and proposed grading

   b. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abondoned wells if such are known to exist

   c. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

   d. North arrow

6. Narrative description of the proposed development, including:

   a. Acreage or square footage of the property

   b. Nature of hydrocarbon development activity

   c. Description of equipment to be used

   d. Distance to all existing buildings

   e. Phasing or development schedule

SECTION 7260.07 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7265

SURFACE MINING OPERATIONS

SECTIONS:

7265.01 PURPOSE AND APPLICATION
7265.02 SURFACE MINING PERMIT APPLICATION AND APPROVAL
7265.03 MINOR PLAN MODIFICATIONS
7265.04 INSPECTION OF OPERATIONS
7265.05 VIOLATIONS
7265.06 ADDITIONAL TIME WITHIN WHICH TO CORRECT A VIOLATION
7265.07 SECURITY TO GUARANTEE RECLAMATION IN ACCORDANCE WITH PLAN
7265.08 CONDUCT OF RECLAMATION WORK OR PERFORMANCE OF CONDITIONS BY COUNTY ON DEFAULT BY PERMITTEE
7265.09 SUCCESSORS IN INTEREST
7265.10 REMEDIES NOT EXCLUSIVE

SECTION 7265.01 PURPOSE AND APPLICATION

The purpose of this article is to regulate surface mining operations consistent with the requirements of the California Mining and Reclamation Act (Public Resources Code Sections 2710 et seq.) and the State Policy for Surface Mining and Reclamation Practice (Title 14 of the California Administrative Code, Sections 3500 et seq.). The requirements of this article are applicable to any surface mining operation undertaken in unincorporated Kern County, except for those operations specifically exempted by Sections 2714 or 2776 of the California Public Resources Code.

SECTION 7265.02 SURFACE MINING PERMIT APPLICATION AND APPROVAL

Subject to the exceptions specified in Section 7265.01, no surface mining operations may be undertaken anywhere in unincorporated Kern County unless a surface mining permit and a reclamation plan has been submitted to and approved by the Board of Zoning Adjustment in accordance with the procedures set out in Section 7284.04 of this chapter.

A. Application Contents:

An application for surface mining and reclamation permit shall include the following:

1. Name and address of the applicant

2. Name(s) and address(es) of the property owner(s) or owners of surface rights

3. Name(s) and address(es) of owner(s) of mineral rights

4. Name and address of lessee

5. Name and address of operator

6. Name and address of person designated by operator as his agent for the service of process

7. Assessor's parcel number(s)

8. Legal description of the subject property

9. Site development plan drawn at a scale specified by the Director of Planning and Development Services, which includes the following information:

   a. Property boundary lines and dimensions

   b. Areas proposed for development

   c. Location of proposed buildings and structures

   d. Parking and vehicle maneuvering areas

   e. Method of vehicular access

   f. Location of any existing or proposed roads, water lines or other pipelines, easements proposed or existing, and any existing buildings, structures, or major areas of use for the property being considered

   g. Height, type, and location of fencing

   h. Such additional information as may be deemed necessary to permit adequate consideration of the proposal

10. A vicinity map showing all proposed access routes and a statement as to the method proposed for transporting mined materials from the site

11. A sufficient number of cross sections of the area to show existing grades and proposed finished grades after all surface mining has been completed shall be provided; such cross sections shall be drawn to an engineer's scale that is practical and workable

12. Reclamation plan including the following information:

   a. The anticipated quantity and type of minerals for which the surface mining operation is to be conducted

   b. The proposed dates for the initiation and termination of such operation

   c. The maximum anticipated depth of the surface mining operation

d. The size and legal description of the lands that will be affected by such operation, a map that includes the boundaries and topographic details of such lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, such lands, the location of all proposed access roads to be constructed in conducting such operation, and the names and addresses of the owners of all surface and mineral interests of such lands

e. A description of and plan for the type of surface mining to be employed and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation

f. A description of the proposed use or potential uses of the land after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses

g. A description of the manner in which reclamation adequate for the proposed use or potential uses will be accomplished, including:

(1) A description of the manner in which contaminants will be controlled and mining waste will be disposed

(2) A description of the manner in which rehabilitation of affected stream bed channels and stream banks to a condition minimizing erosion and sedimentation will occur

h. An assessment of the effect of implementation of the reclamation plan on future mining in the area

i. A statement that the person submitting the plan accepts the responsibility for reclaiming the mined lands in accordance with the reclamation plan

j. Any other information determined by the Director of Planning and Development Services to be necessary for consideration of the reclamation plan.

B. Development Standards and Conditions:

Surface mining operations shall comply with the following standards:

1. Surface mining operations shall be consistent with the goals and policies of the General Plan.

2. Surface mining operations shall comply with the requirements of the California Surface Mining and Reclamation Act, the State Policy for Surface Mining and Reclamation Practice, and any standards or procedures adopted by the Board of Supervisors to implement the act, State policy, or this article.

3. Surface mining operations shall comply with any conditions deemed necessary or convenient by the Board of Zoning Adjustment to effect the purposes of this article, including conditions with respect to the following:

   a. The environmental objectives set forth in California Public Resources Code Section 21000

   b. Protection of the health, safety, and welfare of persons residing near the site of the mining operation and the general public

   c. Reasonable preservation of the values and uses and opportunity for potential uses of the adjacent and nearby areas insofar as this is not inconsistent with the provisions of the act, State policy, this article, or any implementing standards or procedures adopted by the Board of Supervisors

SECTION 7265.03 MINOR PLAN MODIFICATIONS

The Director of Planning and Development Services may review and approve minor plan modifications to approved reclamation plans in accordance with the procedures set out in Section 7284.02 of this chapter. Where the Director of Planning and Development Services determines that a proposed amendment constitutes a substantial deviation from the original plan, the proposed amendment shall be considered by the Board of Zoning Adjustment.

SECTION 7265.04 INSPECTION OF OPERATIONS

A. The Building Official shall make, or cause to be made, periodic inspections of all surface mining operations and the areas affected thereby to ascertain if the operation is being conducted in conformity with the approved conditions of the permit and reclamation plan and all applicable statutes, regulations, and ordinances.

B. The person conducting or in charge of all surface mining operations shall make the surface mining operation open and available for such inspection during regular County business hours or at such other times as may be mutually agreed upon by him/her and the Building Official. The provisions of this subsection shall be deemed to be a condition of each permit.

C. The Building Official shall make a report, not less often than quarterly, of the results of his inspections. The report shall be filed with the Board of Supervisors, and copies shall be furnished to the Director

of Planning and Development Services. Copies of the report shall also be furnished to any officer of the County or State, or any interested person who has filed a written request.

SECTION 7265.05 VIOLATIONS

A. Where it appears to the Building Official that a surface mining operation is in violation of any condition of an approved permit or reclamation plan or applicable statute, regulation, or ordinance, he/she shall serve formal notice to the permittee that he/she must correct the violation within a reasonable time as specified by the Building Official. Where a violation comes to the attention of the Board of Zoning Adjustment, the Board may order the Building Official or its Secretary to cause such notice to be given, and in so doing, the Board shall fix the time period within which the violation is to be corrected.

The time within which the permittee must commence correction of the violation shall not be sooner than sixty (60) days after such notice is given, unless it is determined that earlier action is required for the protection of public safety.

B. If the permittee fails to commence to correct the violation or completely correct the violation within the time prescribed in notice or within such other time as the Board of Zoning Adjustment may order after hearing any appeal by the permittee from the determination by the Building Official, the Building Official shall report such fact to the Board of Zoning Adjustment.

C. Where the Building Official has reported a failure to comply with a notice pursuant to Subsection B, the Board of Zoning Adjustment shall initiate proceeding for review of the surface mining permit in accordance with the procedures set out in Section 7284.06 of this chapter.

D. After such matter has been heard and considered, the Board of Zoning Adjustment may take one of the following actions:

1. Revoke the permit

2. Require the reclamation program to begin immediately or within a prescribed time following the effective date of revocation of the permit

3. Allow additional time within which to cure the violation, if requested by the permittee

4. Impose new or additional conditions on the permit or on the reclamation plan

5. Increase the amount of the original security to guarantee reclamation in accordance with the plan, not to exceed the limits provided in Section 7265.07

6. Recommend to the Board of Supervisors proceedings to recover on any security

7. Recommend to the Board of Supervisors that the County conduct work to accomplish the reclamation plan, to perform any conditions in default, or otherwise cure any default

8. Such other order or orders as may be appropriate to correct the violation or default

SECTION 7265.06 ADDITIONAL TIME WITHIN WHICH TO CORRECT A VIOLATION

A. The permittee may file a petition for, or upon a hearing on proceedings for revocation of a permit may request, an order allowing additional time within which to correct the violation.

B. If the period of violation will exceed six (6) months from the date of the original notice, the Board of Zoning Adjustment may only allow the additional time in accordance with the procedures set out in Section 7284.04 of this chapter.

C. No order allowing additional time shall be made except on a showing of good cause by the permittee.

D. In issuing an order allowing additional time, the Board of Zoning Adjustment may impose conditions, including, but not limited to, an increase in the amount of the original security to guarantee reclamation in accordance with the plan or the furnishing of additional security to guarantee the correction of the violation within such additional time as may be allowed for such purpose.

SECTION 7265.07 SECURITY TO GUARANTEE RECLAMATION IN ACCORDANCE WITH PLAN

A. The security to guarantee reclamation in accordance with the approved or amended reclamation plan and the conditions thereof shall be a bond or bonds issued by a corporate surety duly authorized to conduct surety business in the State of California, in favor of the County of Kern as principal. As a part of the obligation secured thereby and in addition to the face amount thereof, the bond or bonds shall secure payment to the County of Kern its costs and reasonable expenses and fees, including reasonable attorneys' fees, as the County may incur in successfully enforcing such obligations. The form of such bond shall be subject to approval of the County Counsel who may require such additional provisions he/she may deem necessary to promote the security of such obligation and recovery thereon.

B. The security to guarantee reclamation in accordance with the approved or amended reclamation plan may be in such other form or on such other terms and conditions as may be provided in the implementing standards and procedures adopted by the Board of Supervisors.

C. The Board of Zoning Adjustment shall determine if the posting of security is necessary to guarantee reclamation in accordance with any approved reclamation plan or amended reclamation plan, and, if so, shall fix the amount thereof, subject to the limitations provided in this Section. In making any such determination, the Board of Zoning Adjustment shall consider the recommendations of the Public Works Director and the Director of Planning and Development Services.

D. The amount of such security shall not exceed five hundred dollars ($500) per acre of surface mining area involved and, in any case, shall not exceed an aggregate amount of fifty thousand dollars ($50,000).

E. The security shall be posted with the Public Works Director or with such other officer of the County as the Board of Supervisors may order.

F. The permittee may apply to the Board of Zoning Adjustment for an order approving reduction in amount or release of the security obligation, as in the case of a proposal for amendment of a condition of a reclamation plan.

G. Before the Board of Zoning Adjustment considers an application for reduction or release of security, an inspection of the site shall be made by the Building Official and he/she shall file his/her report and recommendation with the Board of Zoning Adjustment.

H. If the Board of Zoning Adjustment finds that the amount of security is excessive, it shall order the amount reduced to an amount which it deems reasonable. If the Board finds that all reclamation work is completed, finds that no reclamation work needs to be done, or finds that no security is reasonably required to secure the completion of any reclamation work remaining to be done, it shall order the security released and exonerated.

I. The County Counsel shall undertake proceedings to recover on such security, when directed to do so by an order of the Board of Supervisors.

SECTION 7265.08 CONDUCT OF RECLAMATION WORK OR PERFORMANCE OF CONDITIONS BY COUNTY ON DEFAULT BY PERMITTEE

A. If the permittee fails to perform or conform to any requirement imposed by any order made under Section 7265.05 within the time fixed in such order, or if no time is fixed in such order, then within a reasonable time, the Board of Supervisors shall have authority to order and otherwise undertake the planning and conduct of all or any part of the work necessary to accomplish the reclamation plan, to perform any conditions in default, or to otherwise cure any default.

B. The officers, employees, and agents of the County, and any contractor hired by the County and his employees, subcontractors and agents, and any engineers, surveyors, and other experts retained by the County, may go on the site of the mine and any adjacent property of the permittee for the purposes of planning or doing all or any part of the work mentioned in Subsection A above, bringing and using thereon any and all equipment, machines necessary for doing such work, and using any equipment, supplies, earth, or other materials found thereon. One of the conditions of each permit shall be authorization for such entry, work, and use by or on behalf of the County.

C. Insofar as it is practical to do so, the County shall follow the previously approved reclamation plan or conditions in the conduct of such work.

D. The Board of Supervisors is authorized to order retention and deposit into the County general fund a portion of the proceeds from the security for its costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred in successfully enforcing the obligation of the security, and for its reasonable expenses incurred in any inspections, giving notices, conducting hearings pursuant to Section 7265.05, and for any expenses incurred in the planning, surveying, testing, and administration in preparation for the letting of any contracts, administration and enforcement of contracts, and otherwise doing any of the work mentioned in this section.

E. The Board of Supervisors may enter into an agreement with the permittee, or any successor in interest of the permittee, under which he/she would agree to do the work needed to accomplish the reclamation plan or a specified portion thereof, or to perform any or all of the conditions in default or such other work needed to cure any default, in consideration of payment from the remaining proceeds of the security of an amount commensurate with the work completed.

F. The Board of Supervisors may enter into an agreement with any public agency or public entity under which it would agree to do the work needed to accomplish the reclamation plan or a specified portion thereof, or to perform all or any of the conditions in default or such other work needed to cure any default, in consideration of transfer or payment to such agency or entity of all or any part of the remaining proceeds from the security.

G. If the Board of Supervisors determines that the work has been completed for the accomplishment of the reclamation plan, or for the performance of conditions in default or as otherwise needed to cure any default, or if the Board determines that there is no reasonable prospect that such work can be accomplished by any means mentioned in this section, or if the Board determines that by reason of changed circumstances no public purpose would be served by completion of such work, the Board shall order any portion of the proceeds from such security not retained by the County under Subsection D above or not expended under the provisions of this section, to be refunded to the permittee or his surety, as their interests may appear.

SECTION 7265.09 SUCCESSORS IN INTEREST

Any reference in this article to the permittee or applicant shall also be deemed to include any successor in interest or assign of the permittee or applicant.

SECTION 7265.10 REMEDIES NOT EXCLUSIVE

The provisions in this article of any remedy to the County, or to any board or officer of the County, for noncompliance with or default in the performance of any reclamation plan, or of any condition of any permit or reclamation plan, shall not be deemed as a limitation on any other remedy at law or in equity which the County, or any board or officer of the County, or any other public officer or agency, nor any member of the public, may otherwise have.

ARTICLE 7280

DEFINITIONS

SECTIONS:

7280.01 CONSTRUCTION
7280.02 DEFINITIONS

SECTION 7280.01 CONSTRUCTION

For the purpose of carrying out the intent of this chapter, words, phrases, and terms shall be deemed to have the meaning ascribed to them in Section 7280.02. In construing the provisions of this chapter, specific provisions shall supersede general provisions relating to the same subject, and text shall supersede diagrams relating to the same subject. Words, phrases, and terms not defined in this section shall have the meaning commonly or logically associated therewith.

SECTION 7280.02 DEFINITIONS

Abut

To physically touch, border upon, or to share a common corner or property line. For the purposes of this chapter, abutting properties shall include those properties separated by any road, street, or highway, except a major highway. (See Figure 280A)

Access Drive

A way or means of approach to provide entrance to a property.

Accessory Building or Structure

A building or structure detached from a principal building on the same lot and customarily incidental and subordinate to the principal building or use. An accessory building or structure may be erected only after the principal building or structure is established.

Accessory Use

A use of land or of a building that is customarily incidental and subordinate to the principal use of the land or building located on the same lot. An accessory use may be established only after the principal use is established.

Accessory Facility

Any improvement constructed, installed, or established to perform some particular function that is incidental to or facilitates the primary use. (Also see Disposal of Nonhazardous Oil Field Liquid Waste and Production Water)

Acre

A measure of land containing forty-three thousand five hundred and sixty (43,560) net square feet.

Adult Bookstore

A retail establishment selling publications and other material of a sexually explicit nature.

Actual Cash Value

Current market value as determined by a certified real property appraiser or actual sales price.

Airport, Private

A private airport or airstrip intended for the sole use of the airport owner and his or her invitees.

Airport, Public Use

A publicly or privately owned airport that offers the use of its facilities to the public without prior notice or special invitation or clearance, and that has been issued a California Airport Permit by the Division of Aeronautics of the California Department of Transportation.

Aliquot

The division or measurement of land in one-half (1/2) or one-quarter (1/4) portions.

Alley

A service way providing a secondary means of public access to abutting property and not intended for general traffic circulation.

Ambient Noise Level

The composite of noise from all sources excluding the alleged offensive noise. In this context, it represents the normal or existing level of environmental noise at a given location for a specified time of the day or night.

Amusement Park

An outdoor facility, which may include structures and buildings, where there are various facilities for entertainment, including rides, booths for the conduct of games or sales of items, and buildings for shows and entertainment.

Apartment

A building, or portion thereof, designed for or occupied by three (3) or more families living independently of each other.

Approved Access

Approved access shall be as defined in Part 4, Division 2, Chapter 4 (Code of Building Regulations) of the Kern County Ordinance Code.

Audible Noise

Sound pressure levels having a frequency greater than 125 Hz.

Auto Service Station, Large

A retail establishment selling gas and similar motor fuels to the public and may also include retail sales of motor oils, lubricants, travel aids, minor auto accessories, and minor automobile servicing, repairs, and maintenance.

Auto Service Station, Small

An auto service station where the retail sales of gasoline and similar motor fuels is a secondary use to another commercial establishment, such as, but not limited to, car washes and grocery stores. A small service station shall be limited to one gas pump island and a maximum of four fuel pumps.

Bakery, Large

A commercial enterprise engaged in large scale production and wholesale marketing of bakery goods, and which may include incidental retail sales.

Bakery, Small

A retail commercial enterprise engaged in the production of bakery goods intended for retail sale on site and not including any wholesale activities.

Bar

A structure, or part of a structure, used primarily for the sale or dispensing of liquor by the drink.

Base District

A zoning district which includes use, height, bulk, space, and development standards for the regulation of development in a particular area (e.g., R-1, C-1, RF).

Base Flood

The flood having a one (1) percent chance of being equaled or exceeded in any given year; also referred to as the one hundred- (100-) year flood, regulatory flood, Intermediate Regional Flood, or original zoning flood.

Bituminous Road Mix

A hard surface road paving material complying with the specifications of Section 38 of the January 1981 California Department of Transportation standards and specifications.

Board of Zoning Adjustment

Hearing and review body established pursuant to Part 1, Division 1, Chapter 3.1 of the Ordinance Code of Kern County.

Board of Supervisors

The Board of Supervisors of the County of Kern.

Boarding House

A dwelling or part thereof in which lodging is provided by the owner to more than three boarders.

Building

Any permanent structure built for the support, shelter, or enclosure of persons, animals, chattel, or property of any kind.

Building Height

The vertical distance of a building measured from the average elevation of the finished grade within twenty (20) feet of the structure to the highest point of the roof.

Building Official

The Kern County Director of Planning and Development Services or his/her designee.

Campground

A plot of ground upon which two (2) or more campsites are located, established, or maintained for occupancy by camping units of the general public as temporary living quarters for recreation, education, or vacation purposes.

Camping Unit

Any tent, trailer, cabin, lean-to, or similar structure established or maintained and operated in a campground as temporary living quarters for recreation, education, or vacation uses.

Camping Trailer

See Travel Trailer.

Cargo Container

A large metal box typically used for the shipment of containerized goods.

Cemetery

An area for burial or entombment of the deceased.

Center Frequencies

The geometric mean between the band limits of an octave or one-third (1/3) octave. (An octave is a frequency interval between two (2) sounds whose frequency ratio is two (2), e.g. from seven hundred and seven (707) to one thousand four hundred and fourteen (1,414) Hz. A one-third (1/3) octave is the frequency interval between two (2) sounds whose frequency ratio is one and one-quarter (1.25), e.g., from one hundred and forty-two (142) to one hundred and seventy-eight (178) Hz.)

Centerline, Legal

A line designated by official survey to be the center of a future or existing fully developed easement, street, road, or highway, which may or may not coincide with the construction centerline.

Church

A building, together with its accessory buildings and uses, where persons regularly assemble for worship, and which building, together with its accessory buildings and uses, is maintained and controlled by a religious body organized to sustain public worship.

Club

An association of persons, whether incorporated or unincorporated, for some common purpose but not including groups organized primarily to render a service carried on as a business.

Columbarium

A structure of vaults lined with recesses for cinerary urns for the ashes of cremated bodies.

Combining District

A zoning district that modifies use, height, bulk, space, or other development standards of the base district with which it is combined (e.g., CL, RS).

Commercial Coach

A vehicle, without motive power, designed and equipped for human occupancy for industrial, professional, or commercial purposes.

Commercial Purposes

The raising, growing of any plant or plant crop; the raising, breeding, or training of any animal, bird, or fowl; or the providing of a service having profit as the primary aim.

Common Area

Land within or related to a development, not individually owned or dedicated for public use, which is designed and intended for the common use or enjoyment of the residents of the development and which may include such complementary structures and improvements as are necessary and appropriate.

Common Property Line

A lot line shared by two or more properties.

Community Care Facility

A State-authorized, certified, or licensed family care home, foster home, or group home serving six (6) or fewer mentally disordered or otherwise handicapped persons or dependent and neglected children. (Welfare and Institutions Code 5116)

Community Center

A building used for recreational, social, educational, or cultural activities, usually owned and operated by a public or nonprofit group or agency.

Community Recreation Facility

A recreational facility, such as a park or swimming pool, including accessory structures, maintained and operated for the benefit of residents of a particular residential development, including an apartment, condominium, townhouse, subdivision, or mobilehome park.

Community Septic Disposal System

A septic disposal system, whether public or privately owned, serving two (2) or more dwelling units, lots, businesses, or other separate sources of domestic wastewater.

Conditional Use

A use permitted in a particular zoning district only upon showing that such use in a specified district will comply with all the conditions and standards for the location or operation of such use as specified in this chapter and authorized by the Board of Zoning Adjustment through the issuance of a conditional use permit.

Conditional Use Permit

A permit issued by the Board of Zoning Adjustment or other decision making authority stating that the conditional use meets all conditions set forth in this chapter and all others established by the Board of Zoning Adjustment or other decisionmaking authority.

Condominium

An estate in real property consisting of an undivided interest in common in a portion of a parcel of real property together with a separate interest in a space in a residential, industrial, or commercial building on such real property. (Civil Code Section 783)

Convalescent Hospital

An institution primarily engaged in the care of individuals recovering from illness.

Country Club

A land area and buildings containing recreational facilities, clubhouse, and usual accessory uses, open only to members and their guests for a membership fee.

County

The County of Kern.

County Official

Any employee of the County of Kern.

Cul-de-sac

See Street, Cul-de-sac.

Crematory

A building or structure operated in conjunction with a columbarium, mausoleum, cemetery, or mortuary containing one or more furnaces for the reduction of bodies of deceased persons to cremated remains.

Day-care Center

A public or private enterprise which provides full day-care services to thirteen (13) or more children.

Day-care Home, Large Family

A home which provides family day-care to seven (7) to twelve (12) children located within a detached single-family dwelling.

Day-care Home, Small Family

A home which provides family day care to six (6) or fewer children located within a detached single-family dwelling.

Dead Storage

The storage of the owners or occupants recreational vehicle on the site in such a manner that it is not connected to utilities and is not occupied as living quarters.

Decibel, dB

A unit for describing the amplitude of sound, equal to twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) micropascals (twenty (20) micronewtons per square meter).

Decisionmaking Authority

The Director of Planning and Development Services, Board of Zoning Adjustment, or Board of Supervisors, depending on which has been assigned the responsibility and authority for reviewing and approving a particular permit pursuant to Article 7284.

Dedication

A conveyance of land to some public use, especially streets, made by the owner and accepted for such use by or on behalf of the public.

Density

The number of dwelling units per unit of land.

Density Bonus

A density increase over the otherwise maximum residential density allowable by the applicable General Plan land use category.

Designated Urban Area

Any area within the unincorporated County designated pursuant to Article 15 of Chapter 1 of Division 3 of the Kern County Ordinance Code.

Development

The division of a parcel of land into two or more parcels; the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure; any mining, excavation, landfill or land disturbance; and any use or extension of the use of land.

Discretionary Decision

A decision requiring the exercise of judgment or deliberation when the public official or body decided to approve or disapprove a particular activity.

Disposal of Nonhazardous Oil Field Liquid Waste and Production Water

Considered an accessory facility only if the facility complies with the following: (a) the nonhazardous oil field liquid waste or production water is produced and disposed of within the same designated oil field, or (b) the nonhazardous oil field liquid waste or production water disposed of outside the designated oil field of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

District Attorney

The District Attorney of the County of Kern or his/her designee.

Domestic Agriculture

Agricultural activities carried on for noncommercial purposes.

Double Frontage Lot

See Lot, Through

Duplex

A detached building designed for or occupied exclusively by two (2) families living independently of each other.

Dwelling

See Dwelling Unit.

Dwelling, Multi-family

A building or portion thereof designed for or occupied by two (2) or more families living independently of each other, including duplexes, triplexes, quadruplexes, apartments, condominiums, and townhouses.

Dwelling, Single-family

A building or buildings designed for or occupied exclusively by one (1) family, excluding a mobilehome.

Dwelling Unit

One (1) or more habitable rooms which are designed to be occupied by one (1) family with facilities for living, sleeping, cooking, eating, and sanitation.

Easement

A grant of one (1) or more of the property rights by the owner to or for the use by the public, a corporation, or another person or entity.

Eighty Acres

An aliquot division of a section of land consisting of one-half (1/2) of one-quarter (1/4) of a section, not to be less than seventy (70) gross acres.

Exterior Noise Level

The noise level as measured near the exterior of a structure usually within fifty (50) feet of the structure.

Family

An individual, or two (2) or more persons related by blood or marriage or legal adoption, or a group of not to exceed six (6) persons (excluding servants) living together as a single housekeeping unit in a dwelling unit.

Five Acres

An aliquot division of a section of land consisting of one-half (1/2) of one-quarter (1/4) of one-quarter (1/4) of one-quarter (1/4) section of land not to be less than four (4) gross acres.

Farm Labor Housing, On-site Employee

Living quarters, either single family or group housing, provided for full-time farm laborers employed on the site or on lands owned or leased by the owner of the living quarters.

Farm Labor Housing, Contract Labor

Living quarters, either single family or group housing, provided by a labor contractor for farm laborers which are not full-time farm employees on lands owned or leased by the owner of the living quarters.

Farmers' Market

A retail market where agricultural produce is offered for sale to the general public, either within an enclosed building or outdoors.

Fast-food Restaurant

An establishment whose principal business is the sale of pre-prepared or rapidly prepared food directly to the customer in a ready-to-consume state for consumption either within the restaurant building or off the premises.

Fence

An artificially constructed barrier of any material or combination of materials erected to enclose or screen areas of land.

Flood or Flooding

Any general and temporary condition of partial or complete inundation of normally dry land from the overflow of inland or tidal waters or from the unusual and rapid accumulation of runoff of surface waters from any source.

Flood Boundary Floodway Map (FBFM)

An official map on which the Federal Insurance Administration, using their own information or information supplied by the Kern County Water Agency, the Kern County Department of Planning and Development Services, the State Reclamation Board, or other Federal Agencies, has delineated both the areas of flood hazard and the floodway.

Flood Control Structure

A structure to convey floodwater generated within an upstream watershed. Typical structures would include, but not be limited to, dams, channels, and levees.

Flood Insurance Rate Map (FIRM)

The official map on which the Federal Insurance Administration has delineated both the areas of special and historical flood hazards and the risk premium zones applicable to Kern County.

Flood, Original Zoning

The flood having a one (1) percent chance of being equaled or exceeded in any given year; also referred to as the one hundred (100-) year flood, regulatory flood, Intermediate Regional Flood, or base flood.

Floodplain

A land area adjoining a river, stream, watercourse, or lake which is likely to be flooded, including alluvial cones, wherein streams may change their course.

Floodway or Designated Floodway

The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot or increasing the velocity to greater than seven (7) feet per second, whichever results in the widest floodway. The floodway is delineated on the Flood Boundary Floodway Map and the State Reclamation Board Designated Floodway Map. Floodways are also delineated on the official zoning maps as Floodplain Primary (FPP) District.

Forty Acres

An aliquot division of a section of land consisting of one-quarter (1/4) of one-quarter (1/4) section of land not to be less than thirty-five (35) gross acres.

Fruit Stand

A permanent or temporary structure utilized for the sale of agricultural, horticultural, or farming products grown or produced by the owner or lessee of the property on which the structure is located.

A. A permanent fruit stand is one that is used throughout the year and no thirty- (30-) day time period elapses where the stand is not utilized.

B. A temporary fruit stand is one that is used seasonally and normally periods of time in excess of thirty (30) days pass where the stand is not utilized. A temporary fruit stand shall not be used in excess of one hundred and twenty (120) cumulative days within a calendar year.

Funeral Home

An establishment with facilities for the preparation of the deceased for burial or cremation, for the viewing of the body, and for funerals.

Garage

A deck, building, or structure, or part thereof, used or intended to be used for the parking and storage of vehicles.

General Plan

The General Plan of the County of Kern adopted by the Board of Supervisors pursuant to California Government Code.

Glucose Processing

The production of monosaccharide carbohydrates through the hydrolysis of starch and other carbohydrates.

Grade

The average of the finished ground level at the center of all walls of a building. In case walls are parallel to and within five (5) feet of a sidewalk, said ground level shall be measured at the sidewalk.

Groundwater Recharge Facilities

Those works, structures, and equipment, including but not limited to, spreading basins, wells, pumps, canals, weirs, pipelines, and streams, which permit water to reach the saturated zone of an aquifer.

Group Care Facility

A facility or detached dwelling unit providing twenty-four (24) hour nonmedical care of persons in need of personal services, supervision, or assistance essential for sustaining the activities of daily living or for the protection of the individual.

Guest Ranch

A building or buildings and open space for use of transients only, providing housing and meals and having recreational activities of one (1) or more types, for compensation.

Habitable Structure

Any structure used for living purposes, including working, sleeping, cooking, eating, or recreation (for the purpose of Articles 7160 and 7165 of this chapter only).

Hazardous Waste

A waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may either:

A. Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible, illness.

B. Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed

Hedge

A fence or barrier formed of bushes set close together.

Height

The vertical distance from the base to the top of any structure, measured from lowest point of the structure.

Herbicide

A substance used to destroy plants, especially weeds.

Hog Ranch or Farm

Any premises used for the commercial breeding or raising of hogs which are kept confined as a stockyard and fed concentrated food for the purposes of developing or fattening the animals for retail or wholesale sale. (Hogs raised as an FFA, 4-H, or Junior Farmer project are not to be classified as a hog ranch or farm unless the express purpose is for the commercial wholesale or retail sales market.)

Home Occupation

Any activity carried out for gain by a resident conducted as an accessory use in the resident's dwelling unit.

Horticultural

The cultivation of an orchard, garden, or garden on a small or large scale.

Hospital

Any building or portion thereof used for the accommodation and medical care of sick, injured, or infirm persons and including sanitariums.

Hotel

A facility offering transient lodging accommodations on a daily rate to the general public and providing additional services, such as restaurants, meeting rooms, and recreation facilities.

Hunting Club

A designated area where wild game birds or animals may be hunted. Normally membership or entry fee is required as a prerequisite to hunting.

Impulsive Noise

A noise having a high peak level and short duration, usually less than one (1) second, with an abrupt onset and rapid decay.

Infrasound

Sound pressure levels below twenty (20) Hz.

Kennel

A structure or structures consisting of fenced pens, runs, or buildings for the keeping, raising, breeding, and housing of dogs or similar animals for commercial purposes.

Kitchen

Any room or area primarily intended or designated to be used or maintained for the cooking, storing, preparation, or consumption of food.

Land Use

A description of how land is utilized.

Laundromat

An establishment providing washing, drying, or dry cleaning machines on the premises for rental use to the general public for family laundering or dry cleaning purposes.

Livestock

Any cattle, sheep, swine, goat, horse, mule, or other equine animals.

Livestock Feedlot

An enclosed area where animals are confined and fed concentrated food to raise or fatten them for slaughter or commercial sale.

Living Area

The interior inhabitable area of a dwelling unit, including the basement and attic, but excluding the garage or any accessory structure.

Lot

A designated parcel, tract, or area of land established by plat, subdivision, or as otherwise permitted by law, to be used, developed, or built upon as a unit.

Lot Area

The total area within the lot lines of a lot, excluding any street rights-of-way and including only that area which is usable for its intended purpose.

Lot Area, Minimum

The smallest lot area established by this chapter on which a use or structure may be located in a particular zoning district.

Lot, Corner

A lot or parcel of land abutting upon two (2) or more streets at their intersection or a lot abutting one (1) street that forms an interior angle of less than one hundred and thirty-five (135) degrees. The frontage of a lot abutting one (1) street that forms an interior angle of one hundred and thirty-five (135) degrees or more shall be considered the front yard of an interior lot. (See Figure 280B)

Lot Coverage

That portion of the lot that is covered by buildings and structures.

Lot Depth

The distance measured from the front lot line to the rear lot line. (See Figure 280C)

Lot, Flag

A lot with access provided to the bulk of the lot by means of a narrow corridor. (See Figure 280B)

Lot Frontage

The length of the front lot line measured at the street right-of-way (see Figure 280C), excluding lot lines adjacent to street right-of-way where no access rights exist.

Lot, Interior

A lot abutting one (1) street that forms an interior angle of one hundred and thirty-six (136) degrees or more. (See Figure 280B)

Lot, Key

A lot whose side lot line is coincident with the rear lot line of an adjacent lot. (See Figure 280B)

Lot Line

A line of record that divides one lot from another lot or from a public or private street or any other public space.

Lot Line, Front

The property line dividing a lot from a street. On a corner lot, only one (1) street line shall be considered as a front line and the shorter street frontage shall be considered the front lot line.

Lot Line, Rear

The lot line opposite and most distant from the front lot line; or in the case of triangular or otherwise irregularly shaped lots, an imaginary line ten (10) feet in length entirely within the lot, parallel to and at a maximum distance from the front lot line. (See Figure 280D)

Lot Line, Side

Any lot line other than front lot line or rear lot line.

Lot, Reversed Corner

A corner lot whose side street line is substantially a continuation of the front lot lines of the first lot to its rear. (See Figure 280B)

Lot, Through

A lot having frontage on two (2) parallel or nearly parallel streets and having the right of access to both streets (also known as a double frontage lot). (See Figure 280B)

Lot Width

The distance measured parallel to the street between the side lot lines; in the event of a corner lot, the lesser dimension.

Low Frequency Noise

Sound pressure levels between twenty (20) and one hundred and twenty-five (125) Hz.

Lower Income Households

Households with incomes eighty (80) percent or less of the County median income.

Main Building

The building in which the principal use of a lot is located.

Major Highway

A highway which is used, designed to be used, or is necessary to carry heavy volumes of traffic, and designated as a "Major Highway" in the Circulation Element of the General Plan and described in the Kern County Subdivision Standards.

Mausoleum

A tomb for one (1) or more deceased persons.

Mineral Exploration

Exploration by scientific means, in a manner similar to the exploration for petroleum products, for the purpose of determining the existence and extent of commercial mineral deposits.

Minimum Distance Between Buildings

The distance between the walls of buildings, measured at the nearest point to an adjacent building.

Ministerial Decision

A decision requiring the application of the statutes, ordinances, or regulations to the facts as prescribed and involving little or no personal judgment by the public official or decisionmaking body as to the wisdom or manner of carrying out a project.

Mini-warehouse

A structure containing separate storage spaces of varying sizes leased or rented on an individual basis.

Minor Plan Modification

A minor change or modification of an approved development plan which is not in conflict with the intent, policy, or expectations of original project approvals.

Mobilehome

A structure transportable in one (1) or more sections, designed and equipped to contain not more than two (2) dwelling units to be used with or without a foundation system. Mobilehome does not include a recreational vehicle, commercial coach, or factory built housing.

Mobilehome Park

An area or tract of land where two (2) or more lots are rented or leased or held out for rent or lease to accommodate mobilehomes for human occupancy.

Mobilehome Accessory Structure

Any awning, cabana, ramada, storage cabinet, storage building, private garage, carport, fence, windbreak, or porch or any residential building or structure established for the use of the occupant of a mobilehome on a lot.

Modular Home

A prefabricated dwelling unit constructed to Uniform Building Code; not a mobilehome.

Mortuary

A place in which the deceased are kept until burial.

Motel

A group of attached or detached buildings containing individual sleeping or living units, providing transient accommodations with garage or parking space conveniently located to each unit, including tourist courts, auto courts, or motor lodges.

Mudslide

A general and temporary movement down a slope of a mass of sand, gravel, rock or soil, artificial fill, or a combination of these materials, caused or precipitated by the accumulation of water on or under the ground.

Mudslide Area or Mudslide-prone Area

An area characterized by unstable slopes and land surfaces whose history, geology, soil and bedrock structure, and climate indicate a potential for mudslides.

Nature or Wildlife Preserve

An area set aside for the preservation of natural vegetation or wildlife where the general public may view the vegetation or wildlife, with or without charge.

Neighborhood

An area of a community with characteristics that distinguish it from other community areas and which may include distinct ethnic or economic characteristics or boundaries defined by physical barriers, such as major highways and railroads or natural features, such as rivers.

Nonconforming Building

A structure or building the size, dimensions, or location of which was lawful prior to the adoption, revision, or amendment to this Zoning Ordinance but which fails by reason of such adoption, revision, or amendment, to conform to the present requirements of the zoning or districts.

Nonconforming Lot

A lot, the area, dimensions, or location of which was lawful prior to the adoption, revision, or amendment of this Zoning Ordinance, but which fails by reason of such adoption, revision, or amendment to conform to the present requirements of the applicable zoning district or districts.

Nonconforming Use

A use which was lawful prior to the adoption, revision, or amendment of this Zoning Ordinance but which fails by reason of such adoption, revision, or amendment to conform to the present requirements of the applicable zoning district or districts.

Nuisance

An interference with the enjoyment and use of property.

Occupancy or Occupied

The residing of an individual or individuals overnight in a dwelling unit, or the installation, storage, or use of equipment, merchandise, or machinery in any public, commercial, or industrial building.

Off-site

Located outside the lot in question.

Off-street Parking

An area for the temporary storage of motor vehicles that is directly accessible to but not located on a dedicated street right-of-way.

Official Plan Line

The future right-of-way of any road or highway as adopted by resolution of the Board of Supervisors.

Oil or Gas Exploration by Scientific Means

Exploration by scientific means includes, but is not limited to, the following: seismic surveys, magneto-telluric, magnetometer or gravity meter surveys; surface mapping and holes less than five hundred (500) feet deep drilled for the purpose of taking core samples, velocity readings, temperature measurements, or water samples.

Oilfield

That area shown within the field boundary on the official oilfield maps prepared and maintained by the State of California, Department of Conservation, Division of Oil and Gas.

On-site Day-care Center

A day-care facility within the project boundary providing care for children.

One Ownership

Ownership of real property by a person, persons, firm, corporation, or partnership, or any combination thereof, individually, jointly, or in common whereby such property is under a single or unified control.

One-third Octave

The frequency interval between two (2) sounds whose frequency ratio is one and one-quarter (1.25), e.g., from one hundred and forty-two (142) to one hundred and seventy-eight (178) Hz.

Open Space

Any parcel or area of land or water which is essentially unimproved and devoted to one or more of the following uses: preservation of natural resources; outdoor recreation; or public health and safety.

Parcel

See Lot.

Park

Public or private land used for active or passive recreation.

Parking Area

Any public or private land area designed and used for parking motor vehicles, including parking lots, garages, private driveways, and legally designated areas of public streets.

Permanent Storage

The storage of motor vehicles, trailers, airplanes, boats, parts thereof, or building materials for a period of forty-eight (48) or more consecutive hours.

Permit

Written governmental permission issued by an authorized official empowering the holder thereof to do some act not forbidden by law but not allowed without such authorization.

Permitted Use

Any use allowed by right in a zoning district and subject to the restrictions applicable to that zoning district.

Person

Any individual, firm, co-partnership, joint venture, association, club, fraternal organization, corporation, estate, trust, receiver, organization, syndicate, city, county, municipality, district or other political subdivision, or any other group or combination acting as a unit.

Persons and Families of Low or Moderate Income

Persons with incomes one hundred and twenty (120) percent or less of the County median income.

Pesticides

An agent (as a chemical) used to destroy a pest.

Planning and Development Services Director

The Director of Planning and Development Services of the County of Kern or his/her designee.

Plot

A single unit parcel of land; or a parcel of land that can be identified and referenced to a recorded plat or map.

Plot Plan

A plan graphically describing proposed and existing buildings, structures, lot lines, and other required information submitted in conjunction with an application for discretionary or ministerial review and approval.

Poultry Ranch

The raising, breeding, hatching of poultry for commercial purposes.

Preschool

A licensed public or private institution which provides structured educational services to children between the ages of two (2) and five (5).

Principal Dwelling

The dwelling in which is conducted the principal residential use of the lot on which it is located.

Principal Use

The primary or predominant use of any lot.

Prohibited Use

A use that is not permitted in a zoning district.

Property Line

See Lot Line.

Public Hearing

A meeting announced and advertised in advance and open to the public with the public given an opportunity to talk and participate.

Public Works Department

The Public Works Department of the County of Kern, including the County Surveyor's Office and the Roads Division.

Public Works Director

The Public Works Director of the County of Kern or his/her designee.

Pure Tone

Any sound which can be judged as audible as a single pitch or a set of single pitches. A pure tone shall be assumed to exist if the one-third (1/3) octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of two (2) contiguous one-third (1/3) octave bands by five (5) dB for center frequencies of five hundred (500) Hz and above and by eight (8) dB for center frequencies between one hundred and sixty (160) and four hundred (400) Hz and by fifteen (15) dB for center frequencies less than or equal to one hundred and twenty-five (125) Hz.

Quadruplex

Four (4) attached dwellings in one (1) structure in which each unit has two (2) open space exposures and shares one (1) or two (2) walls with the adjoining unit or units.

Recharge Facilities

Those works, structures, and equipment, including, but not limited to, spreading basins, wells, pumps, canals, weirs, pipelines, or streams, which permit water to reach the saturated zone of an aquifer.

Recreational Vehicle

A motorhome, slide-in camper, travel trailer, truck camper, or camping trailer, with or without motive power, designed for human habitation for recreational or emergency use.

Recreational Vehicle Park

An area or tract of land where one (1) or more spaces are rented or held out for rent to owners or users of recreational vehicles or tents and which is occupied for sixty (60) consecutive days or less.

Rehabilitation

The upgrading of a building previously in a dilapidated or substandard condition for human habitation or use.

Residence

A home, abode, or place where an individual family is actually living at a specified point in time.

Residential Accessory Structures

Buildings and structures normally associated with dwellings, such as detached garages, carports, greenhouses; storage buildings, and swimming pools, but excluding cargo containers.

Residential Hotel

A hotel offering accommodations on a weekly or monthly basis.

Retail Services

Establishments engaged in selling goods or merchandise to the general public for personal or household consumption.

Rest Home

An institution primarily engaged in the provision of permanent living space for the elderly or mentally infirm.

Rezone

To change the zoning classification of particular lots or parcels pursuant to provisions of this chapter.

Right-of-Way

A strip of land acquired by reservation, dedication, prescription, or condemnation and intended to be occupied or occupied by a road, crosswalk, railroad, electric transmission lines, oil or gas pipeline, water line, sanitary storm sewer, or other similar uses

Road

See Street.

Roof

The outside top covering of a building.

Rooming House

See Boarding House.

School, Elementary or High

An institution of learning which offers instruction in the several branches of learning and study required to be taught in the public schools by the Education Code of the State of California. (High schools include Junior and Senior.)

Sanitary Landfill

A disposal site employing an engineered method of disposing of solid wastes in a manner that minimizes environmental hazards by spreading, compacting to the smallest practical volume, and applying cover material over all exposed wastes at the end of each operating day.

Secondary Highway

A street or highway designed to carry moderate volumes of traffic and designated as a "Secondary Highway" in the Circulation Element of the General Plan and described in the Kern County Subdivision standards.

Secondary Residential Unit or Second Unit

A detached or attached dwelling unit which provides complete independent living facilities for one (1) or more persons.

Septage Disposal Site

A site designated for the disposal of material pumped from septic tanks, cesspools, seepage pits, holding tanks, and privies.

Services, Commercial

Establishments providing services or entertainment, as opposed to products, to the general public.

Setback

The required minimum distance between the street centerline or any property line and and wall or support of any structure.

Sewage Collection and Disposal System

Any system for the collection and disposal of sewage or industrial wastes of a liquid nature, including various devices for the treatment of such sewage or industrial wastes.

Sewage Disposal System

Any system for the disposal of sewage of industrial wastes of a liquid nature, including various devices for the treatment of such sewage or industrial wastes.

Sewage Treatment Plant

A facility for treatment and disposal of sewage.

Sidewalk

A paved, surfaced, or leveled area, paralleling and usually separated from the street, used as a pedestrian walkway.

Sign

Any object, device, display, or structure, or part thereof, situated outdoors or indoors, which is used to advertise, identify, display, or direct attention to an object, person, institution, organization, business, product, service, event, or location by any means, including words, letters, figures, design, symbols, fixtures, colors, illumination, or projected images.

Sign, Agricultural

An on-site sign identifying a farm, ranch, or agricultural activities or products.

Sign, Agricultural Industry

A sign identifying industrial activities related to the manufacture or processing of agricultural products.

Sign, Animated or Moving

Any sign or part of a sign which changes physical position by any movement or rotation or which gives the visual impression of such movement or rotation.

Sign Area

The entire face of a sign, including the advertising surface, and any framing, trim, or molding, but not including the supporting structure.

Sign, Billboard

See Sign, Off-site.

Sign, Directional

Signs limited to directional messages, principally for pedestrian or vehicular traffic, such as "one-way," "entrance," and "exit."

Sign, Face

The area or display surface used for the message.

Sign, Flashing

Any directly or indirectly illuminated sign which exhibits changing natural or artificial light or color effects by any means whatsoever.

Sign, Freestanding

Any nonmovable pole or monument sign not affixed to a building.

Sign, Governmental

A sign erected and maintained pursuant to and in discharge of any governmental functions, or required by law, ordinance, or other governmental regulation.

Sign, Identification

A sign giving the nature, logo, trademark, or other identifying symbol, address, or any combination of the name, symbol and address of a building, business, development, or establishment on the premises where it is located.

Sign, Illuminated

A sign lighted by or exposed to artificial lighting either by lights on or in the sign or directed towards the sign.

Sign, Monument

A sign constructed upon a solid base or pedestal, the total width of which is at least fifty (50) percent of the overall width of the sign.

Sign, Nameplate

A sign, located on the premises, giving the name or address, or both, of the owner or occupant of a building or premises.

Sign, Off-site

A sign which directs attention to a business, commodity, service, or entertainment conducted, sold, or offered at a location other than the premises on which the sign is located.

Sign, On-site Informational

A sign commonly associated with, and not limited to, information and directions necessary or convenient for visitors coming on the property, including signs marking entrances and exits, parking areas, circulation direction, rest rooms, and pick-up and delivery areas.

Sign, Pole

A sign that is mounted on a freestanding pole or other support so that the bottom edge of the sign face is six (6) feet or more above grade.

Sign, Political, Religious, or Civic Campaign

A temporary sign announcing or supporting candidates or issues in connection with any national, state, or local election or civic or religious campaign.

Sign, Portable

A sign that is not permanent, affixed to a building, structure, or the ground.

Sign, Real Estate

A sign pertaining to the sale or lease of the premises, or a portion of the premises, on which the sign is located.

Sign, Temporary

A sign or advertising display constructed of cloth, canvas, fabric, plywood, or other light material and designed or intended to be displayed for a short period of time.

Sign, Temporary Construction

A temporary sign erected on the premises on which construction is taking place, during the period of such construction, indicating the names of the architects, engineers, landscape architects, contractors or similar artisans, and the owners, financial supporters, sponsors, and similar individuals or firms having a role or interest in the structure or project.

Sign, Temporary Subdivision

A temporary sign pertaining exclusively to the development or sale of residential land subdivisions and located within the same subdivision.

Sign, Wall

A sign fastened to or painted on the wall of a building or structure in such a manner that the wall becomes the supporting structure for, or forms the background surface of, the sign and which does not project more than twelve (12) inches from such building or structure.

Sign, Warning

Signs limited to messages of warning, danger, or caution.

Sign, Wind

A sign or objects, some or all of which is moved by wind as a method of attracting attention.

Sign, Window

A sign that is applied or attached to the exterior or interior of a window or located in such manner within a building that it can be seen from the exterior of the structure through a window.

Site

Any lot or parcel of land or combination of contiguous parcels of land.

Site Development Plan

A plan graphically describing proposed buildings, structures, and other required information submitted in conjunction with an application for discretionary review and approval.

Small Fowl

Birds raised or grown for hobby purposes, show, or racing, normally no larger than a small chicken (e.g., pigeon, parrot, or cockatiel).

Soffit

The horizontal underside of an eave.

Solid Waste

All putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes

Specific Plan Line

The designated centerline of any road or highway as adopted by resolution of the Board of Supervisors from which the ultimate right-of-way is determined in accordance with the Circulation Element of the General Plan.

Start of Construction

The first placement of permanent construction on a site, such as the pouring of slabs or footings, or any site preparation work, including, but not limited to, leveling and grading.

Stockyard

An enclosed area where livestock are temporarily confined and fed concentrated food while waiting for shipping to market, slaughter, or resale.

Story

That portion of a building included between the surface of any floor and the surface of the floor next above it, or if there be no floor above it, then the space between such floor and the ceiling next above it.

Story, Half

A story with at least two (2) of its opposite sides situated in a sloping roof, the floor area of which does not exceed two-thirds (2/3) of the floor area immediately below it.

Stream

A watercourse having a source and terminus, banks, and channel through which waters flow at least periodically.

Street, Cul-de-sac

A street with a single common ingress and egress and with a turnaround at the end.

Street, Local

A street designed to provide vehicular access to abutting property.

Street, Public

A street built to standards required and maintained by the County of Kern.

Street, Private

A street owned and maintained by a person or persons and intended for access to a limited number of private lots.

Structure

An edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

Structural Floor

The floor sheathing, structural beams, floor joists, or concrete slab of a building.

Subdivision

The division of any unit or units of improved or unimproved land, or any portion thereof, shown on the latest equalized County assessment roll as a unit or as contiguous units for the purpose of sale, lease, or financing, whether immediate or future, except for leases of agriculture land for agricultural purposes.

Substantial Improvement

Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the actual cash value of the structure, either (a) before the improvement is started, or (b) if the structure has been damaged and is being restored before the damage occurred. Substantial improvement is started when the first alteration of any structural part of the building commences.

Temporary Structure

A structure without any foundation or footings and which is removed when the designated time period, activity, or use for which the temporary structure was erected has ceased.

Temporary Use

A use established for a fixed period of time with the intent to discontinue such use upon expiration of the time period.

Ten Acres

An aliquot division of a section of land consisting of one-quarter (1/4) of one-quarter (1/4) of one-quarter (1/4) section of land not to be less than eight (8) gross acres.

Townhouse

A building with three (3) or more attached dwelling units, each with its own roof, oriented in a common wall relationship as one building.

Trailer

A structure mounted on wheels, towed or hauled by another vehicle, and used for short-term human occupancy, carrying materials, goods, or objects or as a temporary office.

Trailer Court

See Mobilehome Park.

Transfer/Processing Station

Includes those facilities utilized to receive solid wastes, temporarily store, separate, convert, or otherwise process the materials in the solid wastes, or to transfer the solid wastes directly from smaller to larger vehicles for transport. Transfer station does not include any facility the principal function of which is to receive, store, separate, convert, or otherwise process, in accordance with State minimum standards, manure; nor does it include any facility, the principal function of which is to receive, store, convert, or otherwise process wastes which have already been separated for reuse and are not intended for disposal.

Transfer Station, Large Volume

A transfer station which receives more than one hundred (100) cubic yards of waste per operating day.

Transfer Station, Small Volume

A transfer station which receives less than one hundred (100) cubic yards of waste per operating day.

Travel Trailer

A portable unit mounted on wheels and of such a size and weight as not to require special highway movement permits when drawn by a motor vehicle, and for human habitation for recreational or temporary occupancy.

Travel Trailer Park

See Recreational Vehicle Park.

Triplex

See Dwelling, Triplex.

Truck Repair

A commercial activity engaged in the service and repair of trucks, including truck tire repair.

Twenty Acres

An aliquot division of a section of land consisting of one half of one-quarter (1/4) of one-quarter (1/4) section of land not to be less than sixteen (16) gross acres.

Two and One-half Acres

An aliquot division of a section of land consisting of one-quarter (1/4) of one-quarter (1/4) of one-quarter (1/4) of one-quarter (1/4) section of land not to be less than two (2) gross acres.

Two-family Dwelling or Duplex

See Dwelling, Two-family.

Use

The purpose or activity for which land or buildings are designed, arranged, or intended, or for which either is or may be occupied or maintained.

Variance

Permission to depart from the literal requirements of the Zoning Ordinance.

Washroom

A room equipped with washing and, usually, toilet facilities.

Water Injection Well

A well used for the purpose of disposing of production wastewater produced within the same oilfield in which the injection well is located.

Water System, Large

A domestic water well and ancillary equipment providing water to more than ten (10) dwelling units or regularly serving twenty-five (25) or more people daily for at least sixty (60) days, such as a water system serving a business, factory, or other permitted use.

Water System, Small

A domestic water well and ancillary equipment providing water to ten (10) dwelling units or less.

Water Treatment Plant

A plant or facility for treatment or purification of water to make it usable.

Watercourse

A natural or man-made, intermittent or perennial drainage channel which includes, but is not limited to, the terms river, tributary, stream, or creek.

Wild Animal Keeping

Keeping or maintaining any dangerous, wild, carnivorous, or exotic animal that is wild by nature and not customarily domesticated by man so as to live and breed in a tame condition.

Wind-driven Electrical Generators, Experimental

Wind systems that are the first of their kind and their use constitutes a testing of a new concept or design.

Wind-driven Electrical Generators, Production

Electrical generators that have progressed beyond the prototype stage and the construction of a significant number on a continuing basis has occurred.

Wind-driven Electrical Generators, Prototype

Electrical generators that have progressed beyond the experimental stage and construction of a limited number to test operations in field conditions has occurred.

Yard

An open space that lies between the principal or accessory building or buildings and the nearest lot line. Such yard is unoccupied and unobstructed from the ground upward, except as may be specifically provided in the Zoning Ordinance.

Yard, Front

A space extending across the full width of the lot between the front lot line and the nearest line or point of the main building or of any accessory building or structure. (See Figure 280C)

Yard, Impound

The outside storage of autos, trucks, or other vehicles for commercial purposes.

Yard, Junk

The storage and dismantling of autos, trucks, or other machinery for commercial purposes. Includes salvage yards and dismantling yards.

Yard, Rear

A yard extending across the full width of the lot between the rear lot line and the nearest line or point of the main building or of any accessory building or structure. (See Figure 280C)

Yard, Side

A yard extending from the front yard to the rear yard between the side lot line and the nearest line or point of the main building or of any accessory building or structure. (See Figure 280C)

Zone Modification

Permission for minor departures from the literal requirements of the Zoning Ordinance.

Zoning

Dividing of the County into districts and the establishment of regulations governing the use, placement, spacing, and size of land and buildings.

Zoning District

A specifically delineated area or district in the County within which regulations and requirements uniformly govern the use, placement, spacing, and size of land and buildings.

FIGURE 280 A
ABUTTING PROPERTY
(PARCELS NOTED WITH AN ✳ ABUT THE SHADED PARCEL)

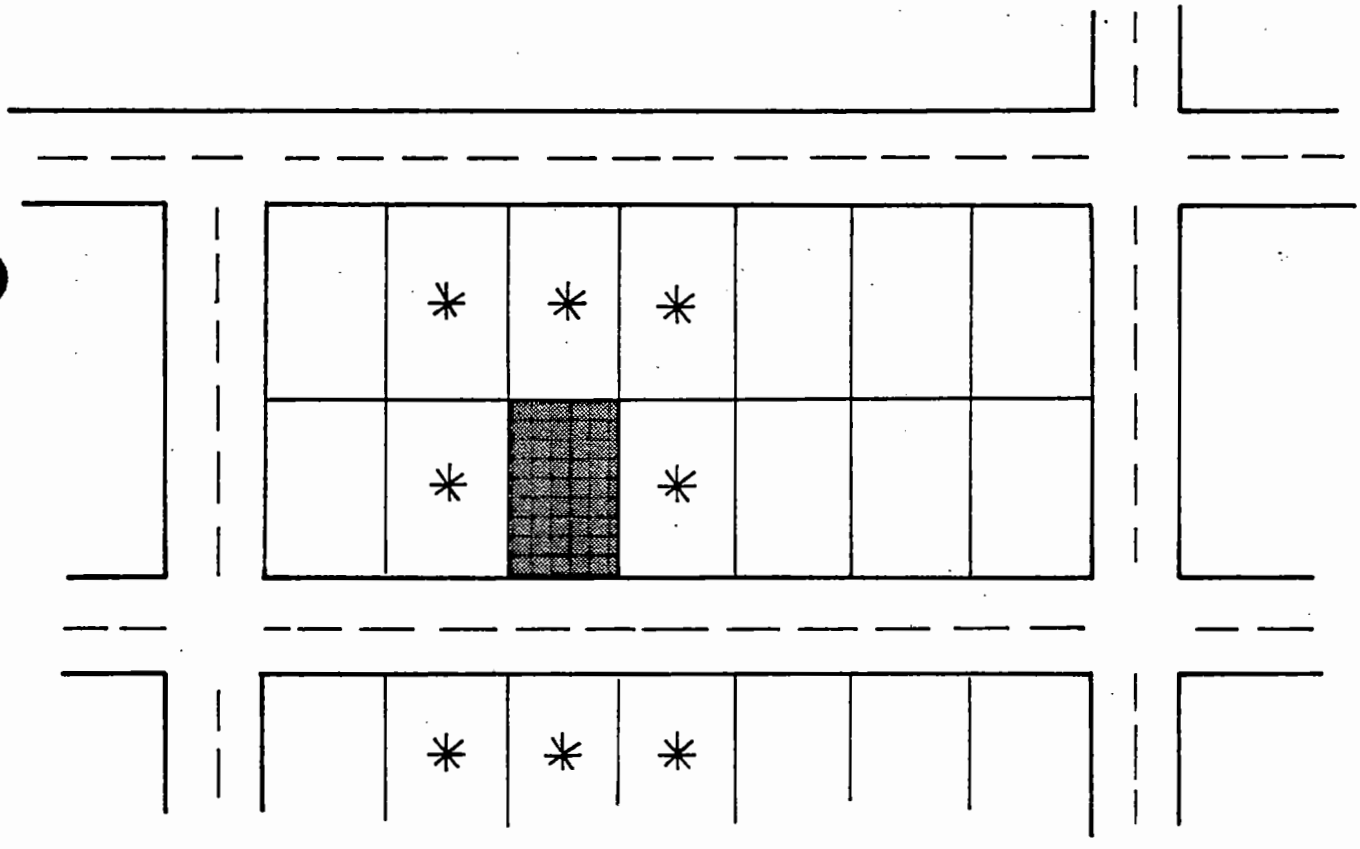
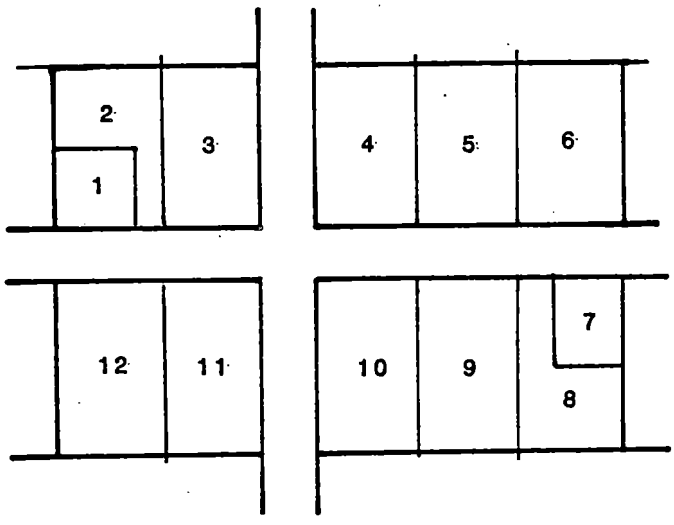
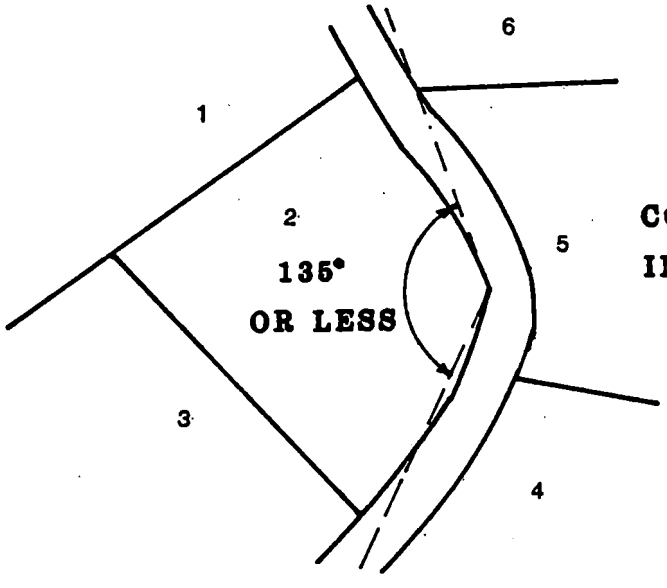


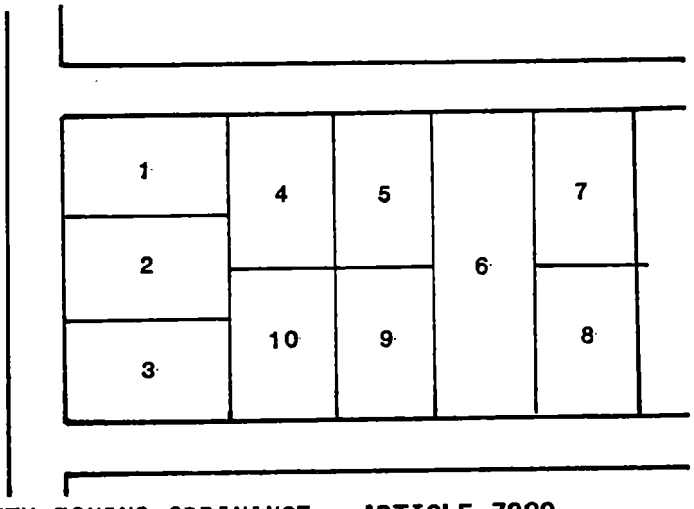
FIGURE 280 B
ILLUSTRATION OF LOTS:
CORNER, INTERIOR, FLAG,
REVERSE CORNER, THROUGH



CORNER LOTS: 3,4,10,11
INTERIOR LOTS: 1,2,5,6,7,8,9,12
FLAG LOTS: 2,8



CORNER LOT: 2
INTERIOR LOTS: 1,3,4,5,6



REVERSE CORNER LOTS:1,3
THROUGH LOT:6
INTERIOR LOTS: 4,5,7,8,9,10

FIGURE 280 C
SETBACKS AND LOT LINES

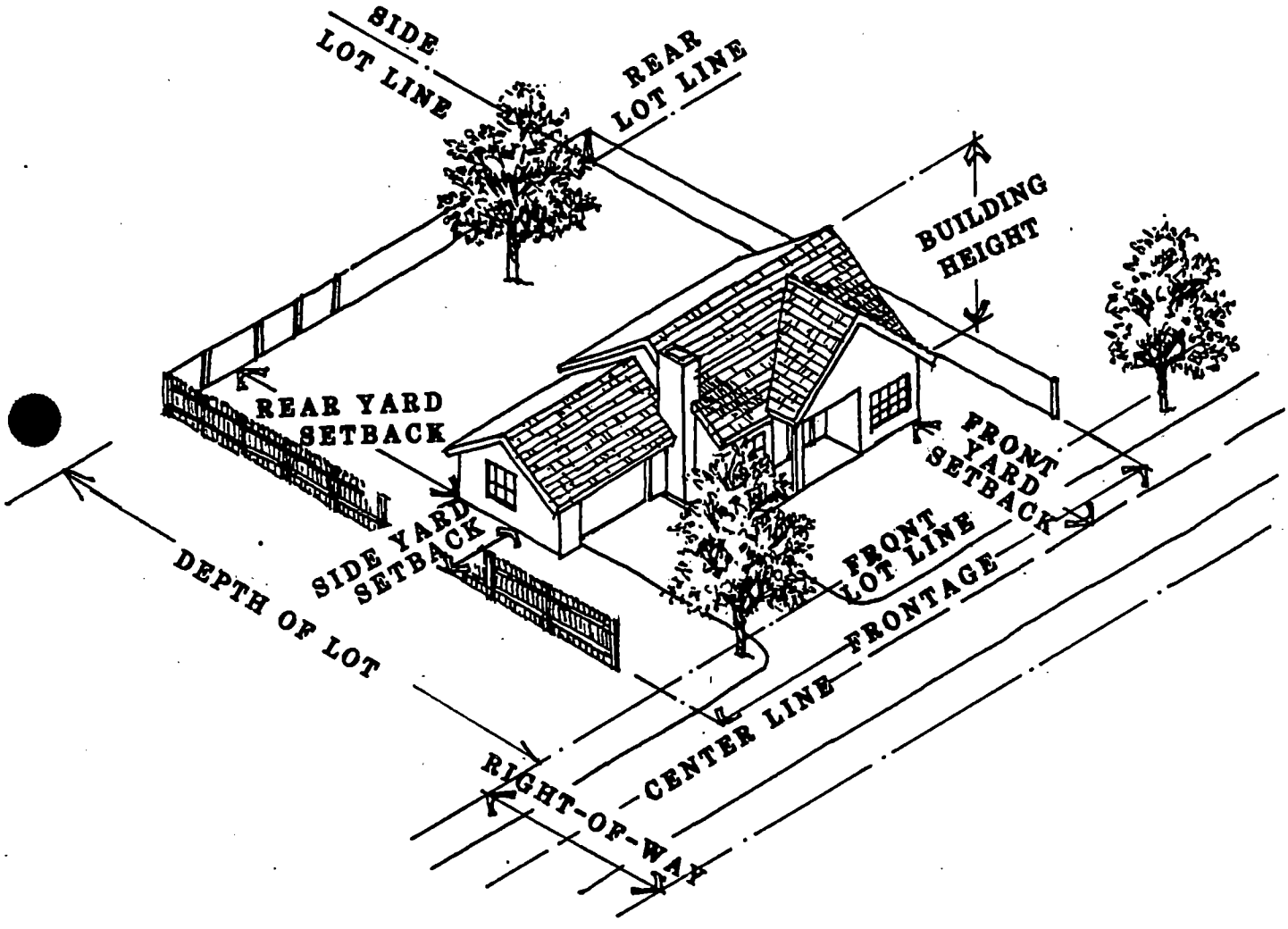
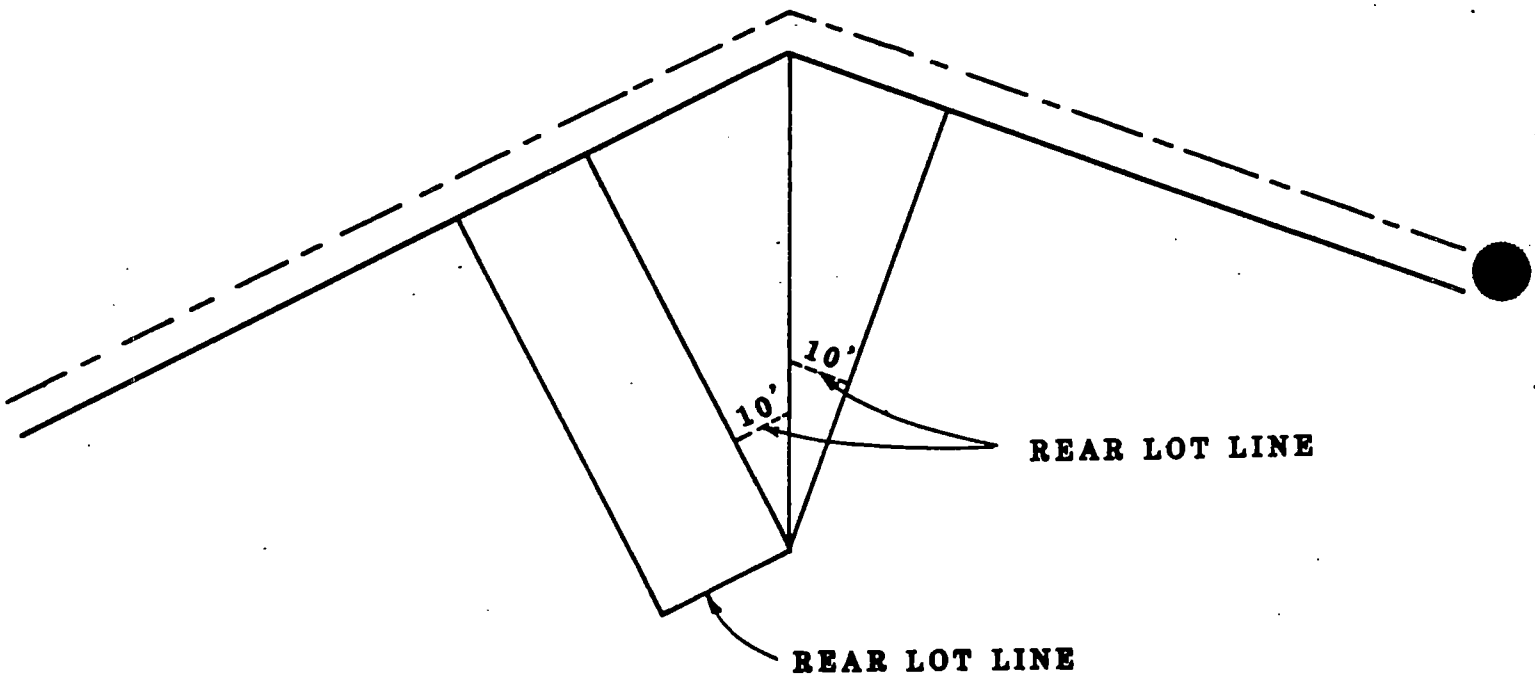


FIGURE 280 D
LOT LINE REAR



ARTICLE 7282

INTERPRETATIONS AND MISCELLANEOUS PROVISIONS

SECTIONS:

7282.01 PURPOSE AND APPLICATION
7282.02 BOUNDARIES OF ZONING DISTRICTS
7282.03 DETERMINATION OF SIMILAR USE
7282.04 COUNTY REVIEW OF PUBLIC UTILITY USES
7282.05 INTERPRETATION OF MINIMUM LOT SIZES
7282.06 DETERMINATION OF ACCESSORY USES AND STRUCTURES
7282.07 FRONT-YARD SETBACK EXCEPTION
7282.08 LESS RESTRICTIVE USES PROHIBITED
7282.09 LOCATION OF DWELLINGS
7282.10 HEIGHT OF BUILDINGS
7282.11 HEIGHT OF STRUCTURES
7282.12 DWELLINGS AND OTHER OCCUPANCIES
7282.13 ACCESSORY BUILDINGS
7282.14 THROUGH LOTS
7282.15 YARD ENCROACHMENTS
7282.16 FENCES, WALLS, AND HEDGES
7282.17 STORAGE IN YARDS
7282.18 COUNTY REVIEW OF PRIVATE OIL PIPELINES AND RELATED CONSTRUCTION FACILITIES
7282.19 BUILDING ACROSS PROPERTY LINES
7282.20 RESIDENTIAL GARAGE CAPACITY
7282.21 OIL AND GAS EXPLORATION BY SCIENTIFIC MEANS

SECTION 7282.01 PURPOSE AND APPLICATION

The purpose of this article is to establish guidelines for the interpretation of this chapter and to enumerate miscellaneous requirements applicable generally to the matters included in this chapter.

SECTION 7282.02 BOUNDARIES OF ZONING DISTRICTS

Where uncertainty exists as to the boundaries of any zoning district shown on the Official Zoning Maps, the following rules shall apply:

A. Where district boundaries are indicated as approximately following street, highway, railroads, and alley lines or lot lines, such lines shall be construed as extending to the centerline of such street, highway, railroad, or alley.

B. In unsubdivided property or where a zoning district boundary divides a lot, the location of district boundary, unless specified by dimensions, shall be determined by use of the scale appearing on the map.

C. In case any uncertainty exists, the Director of Planning and Development Services shall determine the location of district boundaries.

D. Where any public street or alley is officially vacated or abandoned, the regulations applicable to abutting property shall apply to the vacated or abandoned street or alley.

E. Where any private right-of-way or easement of any railroad, railway, canal, transportation, or public utility company is vacated or abandoned, the regulations applicable to abutting property shall apply to the centerline of such vacated or abandoned property, unless said right-of-way or easement has been previously zoned.

SECTION 7282.03 DETERMINATION OF SIMILAR USE

When a property owner, applicant, or potential applicant proposes or contemplates a use of property not expressly authorized as a permitted use or as a conditional use by the regulations of the applicable zoning district or districts, he/she may apply for a determination of similar use in accordance with the procedures set out in this section.

A. Application Contents:

An application for similar use shall be in writing on forms provided by the Director of Planning and Development Services and shall include the following:

1. Name of the applicant

2. Description of the proposed or contemplated use

3. Identification of the zoning district or districts in which the use is proposed or contemplated

4. Identification of the use or uses listed as permitted uses or conditional uses that most nearly resemble the proposed or contemplated use

5. Explanation of why the property owner, applicant, or potential applicant feels the proposed or contemplated use meets the criteria in Section 7282.03.E for determination of similar use

B. Time of Application:

An application for similar use may be submitted in conjunction with an application for a ministerial or discretionary permit described in this chapter or at any other time as may be convenient to the applicant.

C. Determination of Similar Use by the Director of Planning and Development Services:

Where an application for similar use is submitted in conjunction with an application for a ministerial permit or if a proposed or contemplated use is asserted to be similar to a permitted use in the applicable zoning district or districts where no permit application is submitted, the Director of Planning and Development Services shall make the determination of similar use. Such determination shall be made in accordance with the following procedures:

1. The determination shall be made in conjunction with the ministerial or discretionary decision on the application submitted in accordance with the procedures set out in Sections 7284.02 or 7284.03 or, where no ministerial or discretionary permit is involved, within forty-five (45) calendar days of submission of the application.

2. Written notice of such determination shall be given by mail within a timely manner after the date of the determination to the applicant and any person filing a written request for notice of the determination.

3. The decision of the Director of Planning and Development Services shall be final on the expiration of seven (7) calendar days from and including the date of mailing of notice of the decision, as required by paragraph 2, unless a notice of appeal is filed with the Director of Planning and Development Services within such time.

D. Appeal:

The determination of similar use by the Director of Planning and Development Services shall be subject to appeal to the Board of Supervisors:

1. The applicant for the determination may appeal from the decision of the Director of Planning and Development Services on the application for determination of similar use by filing a written notice of appeal with the Director of Planning and Development Services prior to the time the decision becomes final.

2. The Board of Supervisors may affirm or modify the determination of similar use by the Director of Planning and Development Services.

E. Basis for Determination of Similar Use:

The determination of similar use shall constitute a ministerial action. In making a determination of similar use, the Director of Planning and Development Services, or Board of Supervisors, acting on an appeal shall determine that a proposed or contemplated use is similar to a use

or uses expressly authorized in the applicable zoning district or districts if the proposed or contemplated use meets the following criteria:

1. The use resembles or is of the same basic nature as a use or uses expressly authorized in the applicable zoning district or districts in terms of the following:

   a. The activities involved in or equipment or materials employed in the use

   b. The effects of the use on the surrounding area, such as traffic impacts, noise, dust, odors, vibrations, and appearance

2. The use is consistent with the stated purpose of the applicable district or districts.

SECTION 7282.04 COUNTY REVIEW OF PUBLIC UTILITY USES

The provisions of this chapter shall not be construed to apply to the construction, installation, operation, and maintenance of public utility distribution and transmission lines, towers, and poles and underground facilities for providing gas, water, electricity, or telephone and telegraph services by public utility companies under the jurisdiction of the California Public Utilities Commission; provided, however, before any right-of-way for transmission lines is acquired for regional or interstate facilities, the proposed route shall be submitted for Director of Planning and Development Services review and recommendation.

SECTION 7282.05 INTERPRETATION OF MINIMUM LOT SIZES

For the purpose of complying with the minimum lot size and minimum lot area per dwelling unit requirements and other provisions of this chapter, the lot sizes or lot areas shall have the following meanings:

A. 1/4 acre : One-quarter (1/4) acre or ten thousand eight hundred and ninety (10,890) net square feet

B. 1/2 acre : One-half (1/2) acre or twenty-one thousand seven hundred and eighty (21,780) net square feet

C. 1 acre : One (1) net acre

D. 2 1/2 acres : Two and one-half (2-1/2) gross acres or a quarter of a quarter of a quarter of a quarter section of land containing not less than two (2) gross acres

E. 5 acres : Five (5) gross acres or a half of a quarter of a quarter of a quarter section of land containing not less than four (4) gross acres

F. 10 acres : Ten (10) gross acres or a quarter of a quarter of a quarter section of land containing not less than eight (8) gross acres

G. 20 acres : Twenty (20) gross acres or a half of a quarter of a quarter section of land containing not less than sixteen (16) gross acres

H. 40 acres : Forty (40) gross acres or a quarter of a quarter section of land containing not less than thirty-five (35) acres

I. 80 acres : Eighty (80) gross acres or a half of a quarter section of land containing not less than seventy (70) gross acres

SECTION 7282.06 DETERMINATION OF ACCESSORY USES AND STRUCTURES

If any question arises as whether any particular uses or structure is accessory to the primary use or structure in question, it shall be resolved based on the definitions of accessory building or structure or accessory use found in Section 7280.02 of this chapter and the following criteria:

A. Nature and size of the primary use or structure

B. Nature and size of the accessory use or structure

C. Relationship of the accessory use or structure to the primary use or structure

SECTION 7282.07 FRONT-YARD SETBACK EXCEPTION

Notwithstanding any of the minimum front-yard setbacks required in all of the E, R-1, R-2, and R-3 Districts, the front-yard minimum setback specified in these districts may be reduced where lots comprising forty (40) percent or more of the frontage on one (1) side of a street between intersecting streets are developed with buildings having an average front yard with a variation of not more than ten (10) feet. In such cases, no building newly erected or structurally altered may project beyond the average front yard line established by the existing buildings. In making this determination, buildings located more than thirty-five (35) feet from the front property line or buildings facing a side street on a corner lot shall not be counted. In no case shall any building or structure be located within any planned future right-of-way.

SECTION 7282.08 LESS RESTRICTIVE USES PROHIBITED

The express enumeration and authorization in this chapter of a particular class of building, structure, premises, or use in a designated zoning district shall be deemed a prohibition of such building, structure, premises, or use in all zoning districts of more restrictive classification, except as otherwise specified.

SECTION 7282.09 LOCATION OF DWELLINGS

Except where otherwise provided for in this chapter, every dwelling shall face or have frontage upon a street or permanent means of access to a street by way of a public or private easement or passageway other than the alley.

SECTION 7282.10 HEIGHT OF BUILDINGS

No penthouse or roof structures for the housing of elevators, stairways, tanks, ventilating fans or similar equipment, towers, steeples, roof signs, or other structures shall exceed the height limit provided in this chapter.

SECTION 7282.11 HEIGHT OF STRUCTURES

Radio and television masts, flagpoles, chimneys, and smokestacks may extend not more than forty-five (45) feet above the height limit specified in this chapter, provided that the same may be safely erected and maintained at such height in view of the surrounding conditions and circumstances. A tower constructed for the purpose of supporting a wind-driven power generator may extend not more than forty-five (45) feet above the height limit specified in this chapter, provided that the same may be safely erected and maintained at such height in view of the surrounding conditions and circumstances.

SECTION 7282.12 DWELLINGS AND OTHER OCCUPANCIES

Where a dwelling is located, placed, or erected above another type of use in zoning districts other than the E, E (1/2), E (1), E (2 1/2), E (5), E (10), E (20), R-1, R-2, or R-3 Districts, the rear and side yards for the floors occupied for dwelling purposes shall comply with the regulations of the R-3 District.

SECTION 7282.13 ACCESSORY BUILDINGS

The following regulations shall apply to the location of accessory buildings unless otherwise provided in this chapter:

A. No accessory buildings on the rear of a reverse corner lot in the E, E (1/2), E (1), E (2 1/2), E (5), E (10), E (20), R-1, R-2, or R-3 Districts shall be located nearer to the side lot line on the street side of such reversed corner lot than the front yard depth required on the key lot in the rear.

B. No accessory buildings or structures shall be located within a required front, side, or rear yard.

C. Accessory buildings may be considered a part of the main building if connected by a common wall of not less than five (5) feet in length, or if not more than twenty (20) feet from the main building and connected thereto by a roof of not less than five (5) feet in width.

D. One detached accessory building for use as a private garage may be permitted to occupy the required front yard of an interior lot in the E, E (1/2), E (1), E (2 1/2), E (5), E (10), E (20), R-1, R-2, or R-3 Districts when the slope of the front half of such lot is greater than one (1) foot rise or fall in the horizontal distance of four (4) feet from the established street elevation at the front property line; provided, however, that no portion of any such building shall be less than five (5) feet from the side or front property line of the lot and further provided that no such building shall exceed thirty-five (35) feet in height.

SECTION 7282.14 THROUGH LOTS

On through lots, either line separating the lot from a public thoroughfare may be designated by the owner as the front yard; however, the rear-yard setback shall be the same as the front-yard setback required on adjacent lots. (See Figure 282A)

SECTION 7282.15 YARD ENCROACHMENTS

Where yards are required by this chapter, those yards shall not be less in depth or width than the minimum dimension specified for any part, and they shall be at every point open and unobstructed from the ground upward, except as follows:

A. Cornices, canopies, eaves, or other similar architectural features not providing additional floor space within the building may extend into a required front, side, or rear yard no more than three (3) feet.

B. Open, unenclosed, uncovered porches, platforms, or landing places which do not extend above the level of the first floor of the building may extend into any front yard not more than six (6) feet, provided, however, that an open work railing, not more than thirty (30) inches in height, may be installed or constructed on any such porch, platform, or landing place.

C. Stairwells and connected platforms or landings extending above the level of the first floor of a building may protrude into a required front yard no more than six (6) feet.

SECTION 7282.16 FENCES, WALLS, AND HEDGES

A. In the E, E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the rear or side yards shall exceed a height of six (6) feet.

B. In the E, E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the required front yard shall exceed a height of four (4) feet.

C. Maximum fence, wall, or hedge height shall be measured from the finished interior grade. That portion of a wall or fence functioning as a retaining wall shall not be counted in determining overall fence or wall height. (See Figure 282B)

D. In the E, E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no barbed wire shall be used or maintained as part or on any fence, wall, or hedge located along the front, side, or rear lines of any lot, or within three (3) feet of said lines, and no sharp wire or points shall project at the top of any fence or wall less than six (6) feet in height.

E. In the E, E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the rear twenty-five (25) feet of a through lot shall exceed four (4) feet in height.

SECTION 7282.17 STORAGE IN YARDS

Except as otherwise provided in Section 7220.09.G, no portion of any required front yard or side yard on the street side of a corner lot shall be used for the permanent storage of motor vehicles, trailers, airplanes, boats, parts of any of the foregoing, or building materials, except building materials for use on the premises stored thereon during the time a valid permit is in effect for construction on the premises.

SECTION 7282.18 COUNTY REVIEW OF PRIVATE OIL PIPELINES AND RELATED CONSTRUCTION FACILITIES

The provisions of this chapter shall not be construed to apply to the construction, installation, operation, and maintenance of pipelines for the transmission of crude oil operated by private enterprises; provided, however, before any right-of-way for transmission lines is acquired for regional or interstate facilities, the proposed route shall be submitted for Director of Planning and Development Services review and recommendation.

SECTION 7282.19 BUILDING ACROSS PROPERTY LINES

Provided legal parcels of record are owned by the same property owner(s), a building or buildings that establish the main use may be developed across property lines to merge the properties into one (1) parcel for the determination of property development standards.

SECTION 7282.20 RESIDENTIAL GARAGE CAPACITY

The capacity of single-family residential garages, whether attached or detached to the main dwelling unit, shall not exceed four (4) automobiles.

SECTION 7282.21 OIL AND GAS EXPLORATION BY SCIENTIFIC MEANS

The provisions of this chapter shall not be construed to apply to the exploration for oil and gas by scientific means.

FIGURE 282 A

FRONT YARD/REAR YARD

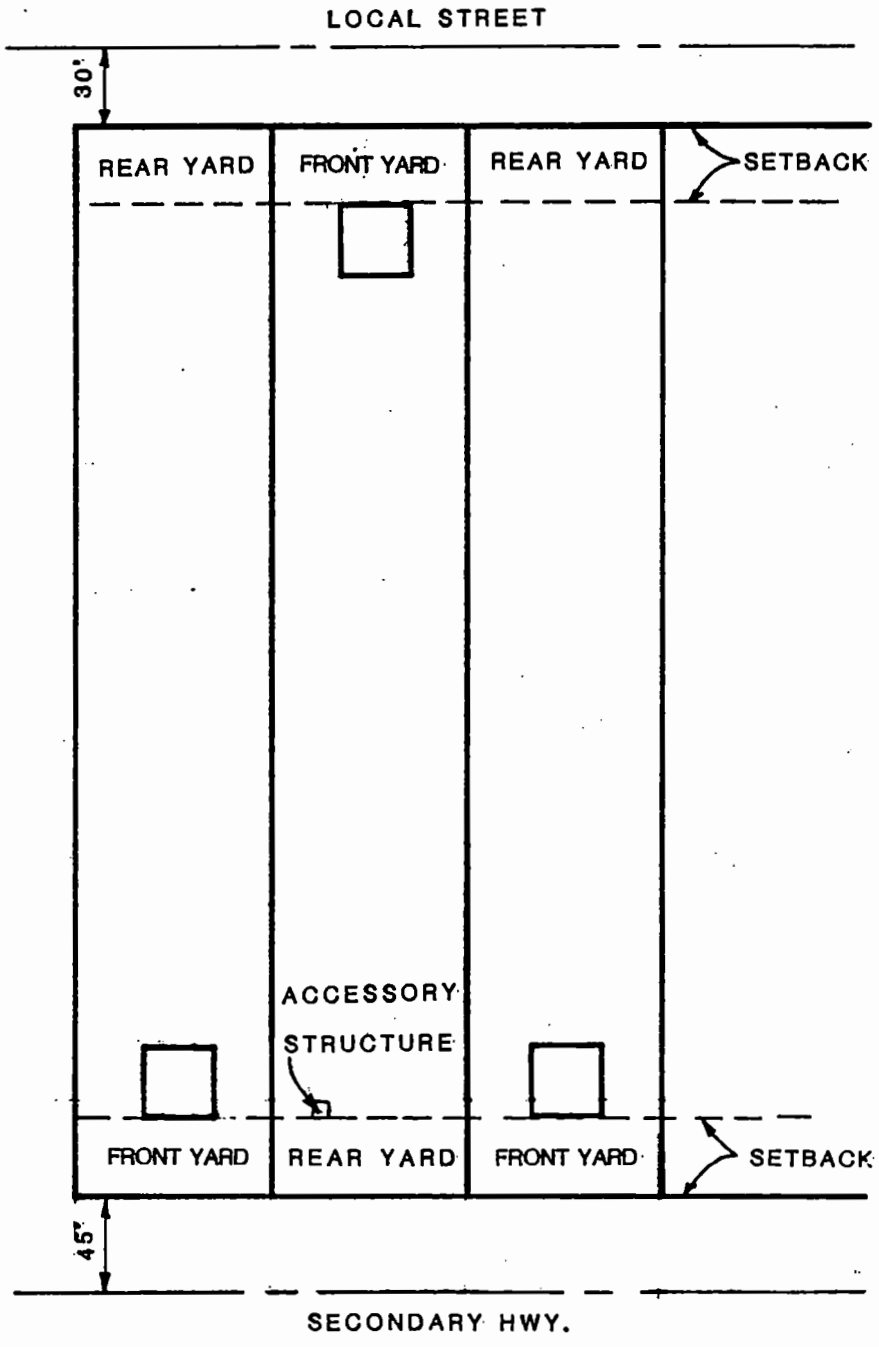
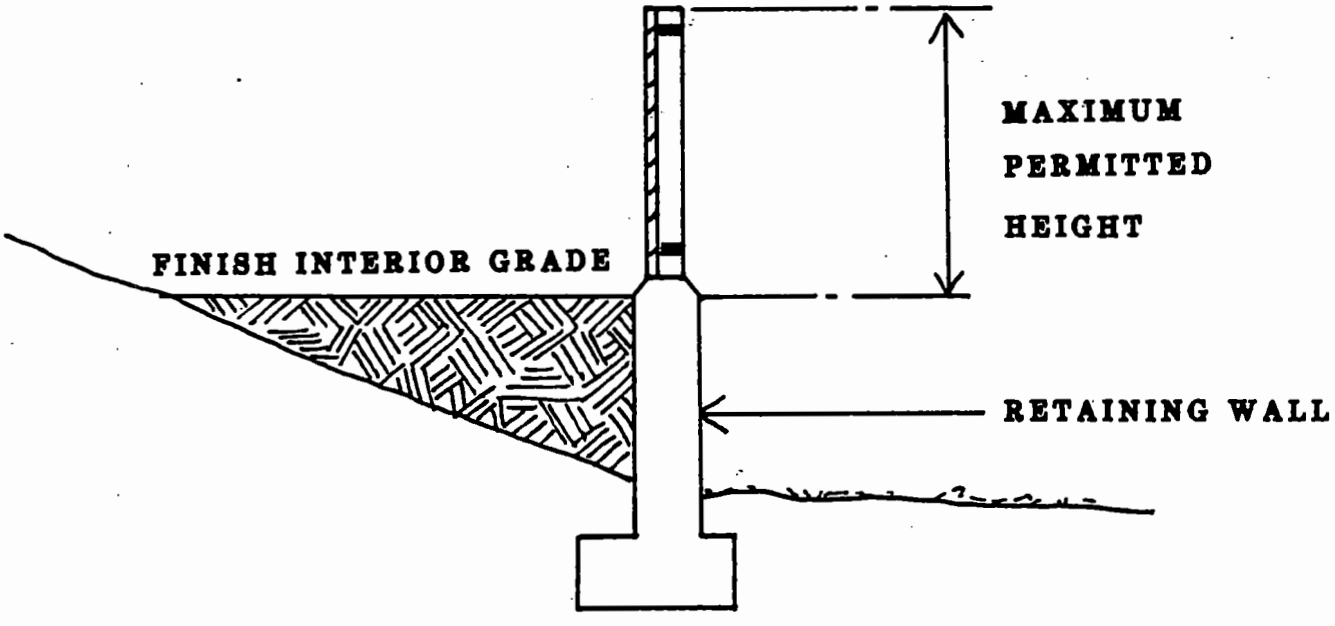


FIGURE 282 B

MAXIMUM FENCE HEIGHT



ARTICLE 7284

PERMIT PROCEDURES

SECTIONS:

7284.01 PURPOSE AND APPLICATION
7284.02 MINISTERIAL PERMITS ISSUED BY THE DIRECTOR OF PLANNING AND DEVELOPMENT SERVICES
7284.03 DISCRETIONARY PERMIT DECISIONS BY THE DIRECTOR OF PLANNING AND DEVELOPMENT SERVICES
7284.04 DISCRETIONARY PERMIT DECISIONS BY THE BOARD OF ZONING ADJUSTMENT
7284.05 DISCRETIONARY PERMIT DECISIONS BY THE BOARD OF SUPERVISORS
7284.06 PERMIT REVOCATION AND MODIFICATION
7284.07 TIME LIMITATIONS ON CHALLENGES

SECTION 7284.01 PURPOSE AND APPLICATION

The purpose of this article is to establish review and approval procedures for ministerial and discretionary permits provided for by this chapter. Application contents and development standards and conditions for the approval of permits are contained in the appropriate articles of this chapter.

SECTION 7284.02 MINISTERIAL PERMITS ISSUED BY THE DIRECTOR OF PLANNING AND DEVELOPMENT SERVICES

The ministerial permits specified in this chapter for review pursuant to this section shall be issued by the Director of Planning and Development Services upon submission of an application containing the information specified in applicable sections of this chapter and a determination by the Director of Planning and Development Services that the proposed use or development meets the development standards and conditions specified in the applicable section or sections of this chapter. These permits include:

1. Temporary animal permits plot plan review (Sections 7020.13 and 7135.13)

2. Extensions for temporary mobilehomes and recreational vehicles (Sections 7025.13 and 7030.13)

3. Mobilehome park plot plan review (Section 7050.13)

4. Minor plan modifications (Sections 7115.13, 7125.13, 7130.13, and 7265.03)

5. Temporary use permits (Section 7125.13)

6. Wind generator plot plan review (Section 7145.13)

7. Geologic hazard plot plan review (Section 7155.13)

8. Architectural design plot plan review (Section 7170.13)

9. Airport approach height approval (Section 7175.13)

10. Special development standards plot plan review (Section 7215.03)

11. Off-street parking plot plan review not in conjunction with a ministerial permit (Section 7220.10)

12. Landscaping plot plan review not in conjunction with a ministerial permit (Section 7230.03)

13. Hillside development plot plan review (Section 7235.04)

14. Density bonus permit (Section 7245.03)

15. Home occupation permit (Section 7250.05)

16. Production water injection wells for the purpose of disposing of production wastewater produced in the same oilfield in which the injection well is located (Section 7260.03)

17. Oil and gas plot plan review (Section 7260.03)

A. Application and Approval:

1. An applicant for a ministerial permit pursuant to this section shall submit an application to the Director of Planning and Development Services in the format and number of copies specified by the Director of Planning and Development Services. The application shall contain all the information specified for the application by the applicable section of this chapter, unless the Director of Planning and Development Services waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 7294.03.

2. The Director of Planning and Development Services shall inform the applicant either verbally or in writing within seven (7) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

3. Within seven (7) calendar days of determining the application is complete, the Director of Planning and Development Services shall issue the permit if he/she determines that the proposed use or development standards meets the development standards and conditions specified in the applicable section or sections of this chapter or deny the permit if he/she determines that the proposed use or development does not meet the standards and conditions specified in the applicable section or sections of this chapter.

B. Appeal:

If the Director of Planning and Development Services denies a permit pursuant to this section, the applicant may appeal such action to the Board of Zoning Adjustment.

1. The applicant may file with the Director of Planning and Development Services a notice of appeal to the action of the Director of Planning and Development Services indicating the basis of appeal within seven (7) calendar days of such action. The appeal shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 7294.03.

2. The Board of Zoning Adjustment shall consider the appeal within thirty (30) days of the filing of such appeal. No public hearing or notice shall be required.

3. The Board of Zoning Adjustment may reverse or affirm the action of the Director of Planning and Development Services. The action of the Board shall constitute a ministerial action and shall be based solely on whether or not the proposed use or development meets the development standards and conditions specified in or established pursuant to the applicable section or sections of this chapter.

4. The decision of the Board of Zoning Adjustment pursuant to Section 7284.02.B.3 may be appealed to the Board of Supervisors pursuant to Section 7284.04.D.1.

SECTION 7284.03 DISCRETIONARY PERMIT DECISIONS BY THE DIRECTOR OF PLANNING AND DEVELOPMENT SERVICES

The discretionary permits specified in this chapter for review pursuant to this section may be issued by the Director of Planning and Development Services following submission of an application containing the information specified in the applicable section of this chapter and a properly noticed public hearing. These permits include:

1. Precise development plan review (Section 7125.13)

2. Cluster combining site development plan review (Section 7130.13)

3. Large family day-care home permit (Section 7255.03)

4. Conditional use permits and variances when filed in conjunction with an application for a discretionary permit to be heard by the Director of Planning and Development Services (Articles 7286 and 7288)

5. Zone modifications (Article 7290)

6. Extensions of time

A. Application:

1. An applicant for a discretionary permit pursuant to this section shall submit an application to the Director of Planning and Development Services in the format and number of copies specified by the Director of Planning and Development Services. The application shall contain all the information specified for the application by the applicable section of this chapter, unless the Director of Planning and Development Services waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 7294.03.

2. The Director of Planning and Development Services shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

3. Upon acceptance of the application as complete and completion of an environmental document, if required, a public hearing shall be set in accordance with this article.

B. Notice and Hearing:

1. When an application has been accepted as complete in accordance with this article, the Director of Planning and Development Services shall set the application for a public hearing.

2. At least ten (10) calendar days before the date of any public hearing, the date, time, place of the hearing, identity of the hearing body, and the nature and location of the application shall be given by the following methods:

   a. Publishing such notice once in a newspaper of general circulation.

   b. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment roll of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth (1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice.

c. In lieu of the requirements set forth in Section 7284.03.B.2.a, notice may be given by posting notices not more than three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property.

3. Public Hearing:

A public hearing shall be held before the Director of Planning and Development Services at a time and place in accordance with the public notice. The Director of Planning and Development Services may establish his/her own rules for the conduct of such hearings. Evidence shall be offered or presented, and the name and address of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the Director of Planning and Development Services or his/her designee shall announce the time and place to which the hearing will be continued.

C. Decision:

1. The Director of Planning and Development Services may approve, conditionally approve, or deny any application following the close of the public hearing on the matter. Such decision shall include findings in accordance with the provisions of this chapter. The decision shall be final, subject to appeal in accordance with Section 7284.03.D.

2. Written notice of such decision shall be given by mail within seven (7) calendar days after the date of the decision to the applicant and any person filing a written request for notice of the decision.

3. The decision of the Director of Planning and Development Services shall be final on expiration of fourteen (14) calendar days from and including the date of decision, unless a notice of appeal is filed with the Director of Planning and Development Services within such time.

4. All conditions of approval shall be final, and a request to delete or to modify a condition to make it less restrictive shall only be considered at a properly noticed public hearing, unless said conditions are appealed pursuant to Section 7284.03.D.

D. Appeal:

1. Any decision of the Director of Planning and Development Services made pursuant to this section shall be subject to appeal to the Board of Supervisors.

2. The applicant or any other person aggrieved may appeal from such decision by filing a written notice of appeal with the Director of Planning and Development Services prior to the time the decision becomes final. The Director of Planning and Development Services shall furnish forms of notice of appeal. The appeal shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 7294.03.

3. Notice of the hearing on the appeal shall be given in the manner and time provided in Section 7284.05.B.

4. The Board of Supervisors may reverse, affirm wholly or partly, modify, or attach other or additional conditions to the decision appealed from.

5. The decision of the Board of Supervisors on any such appeal shall be final on adoption of an order or resolution containing its determination, and no notice thereof need be given.

E. Permit Issued:

No permit shall be issued prior to the expiration of any appeal period.

SECTION 7284.04 DISCRETIONARY PERMIT DECISIONS BY THE BOARD OF ZONING ADJUSTMENT

The permits specified in this section may be issued by the Board of Zoning Adjustment following submission of an application containing the information specified in the applicable section of this chapter and a properly noticed public hearing. These permits include:

1. Conditional use permits (Article 7286)

2. Variances (Article 7288)

3. Zone modifications when filed in conjunction with an application for a permit to be heard by the Board of Zoning Adjustment (Article 7290)

4. Surface mining permits and reclamation plans (Article 7265)

5. Extensions of time (Articles 7286, 7288, and 7290)

6. Secondary residential unit (Articles 7240 and 7286)

7. Density bonus permit, when filed in conjunction with an application for a permit to be heard by the Board of Zoning Adjustment (Section 7245.03)

A. Application:

1. An applicant for a discretionary permit pursuant to this section shall submit an application to the Director of Planning and Development Services in the format and number of copies specified by the Director of Planning and Development Services. The application shall contain all the information specified for the application by the applicable section of this chapter, unless the Director of Planning and Development Services waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 7294.03.

2. The Director of Planning and Development Services shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

3. Upon acceptance of the application as complete and completion of an environmental document, if required, a public hearing shall be set in accordance with this article.

B. Notice and Hearing:

1. When an application has been submitted in accordance with this article, the Director of Planning and Development Services shall set the application for a public hearing.

2. At least ten (10) days before the date of any public hearing, the date, time, place of the hearing, identity of the hearing body, and the nature and location of the application shall be given by the following methods:

   a. Publishing such notice once in a newspaper of general circulation.

   b. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to each member of the Board of Zoning Adjustment, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment roll of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth (1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice.

c. In lieu of the requirements set forth in Section 7284.04.B.2.a, notice may also be given by posting notices not more than three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property.

3. Public Hearing

A public hearing shall be held before the Board of Zoning Adjustment at a time and place in accordance with the public notice. The Board of Zoning Adjustment may establish its own rules for the conduct of such hearings. Evidence shall be offered or presented, and the name and address of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess the presiding officer shall announce the time and place to which the hearing will be continued.

C. Decision:

1. The Board of Zoning Adjustment may approve, conditionally approve, or deny any application following the close of the public hearing on the matter or within thirty-five (35) days thereafter by resolution. Such resolution shall include findings in accordance with the provisions of this chapter. The decision shall be final, subject to appeal in accordance with this article. In the event that the Board of Zoning Adjustment is unable to reach a majority decision, as evidenced by a tie vote, the applicant shall have the option of continuing the public hearing until such time as a majority vote can be obtained.

2. Written notice of such decision shall be given by mail within seven (7) calendar days after the date of the decision to the applicant and any person filing a written request for notice of the decision.

3. The decision of the Board of Zoning Adjustment shall be final on expiration of fourteen (14) calendar days from and including the date of the decision, as required by Section 7284.04.C.1, unless a notice of appeal is filed with the Director of Planning and Development Services within such time.

4. All conditions of approval shall be final, and a request to delete or to modify a condition to make it less restrictive shall only be considered at a properly noticed public hearing, unless said conditions are appealed pursuant to Section 7284.04.D.

D. Appeal:

1. Any decision of the Board of Zoning Adjustment made pursuant to this section shall be subject to appeal to the Board of Supervisors.

2. The applicant or any other person aggrieved may appeal from such decision by filing a written notice of appeal with the Director of Planning and Development Services prior to the time the decision becomes final. The Director of Planning and Development Services shall furnish forms of notice of appeal. The appeal shall be accompanied with the fee established by the Board of Supervisors pursuant to Section 7294.03.

3. Notice of the hearing on appeal shall be given in the manner and time provided in Section 7284.05.B. Notice of the hearing on appeal shall also be given not less than ten (10) days before such hearing to each person entitled to notice of the preceding decision.

4. The Board of Supervisors may reverse, affirm wholly or partly, modify, or attach other or additional conditions to the decision appealed from.

5. A decision of the Board of Supervisors on any such appeal shall be final on adoption of an order or resolution containing its determination, and no notice thereof need be given.

E. Permit Issued:

No permit shall be issued prior to the expiration of any appeal period.

SECTION 7284.05 DISCRETIONARY PERMIT DECISIONS BY THE BOARD OF SUPERVISORS

The discretionary permits specified in this chapter for review pursuant to this section may be issued by the Board of Supervisors following submission of an application containing the information specified in the applicable section of this chapter and a properly noticed public hearing. These permits include:

1. SP site development plan review (Section 7115.13)

2. Precise development plan review, with associated variances, zone modifications, or conditional use permits, when filed in conjunction with an application for a change of zone classification or tentative tract map (Section 7125.13 and Articles 7286, 7288, and 7290)

3. CL site development plan review (Section 7130.13) when filed in conjunction with an application for change of zone classification or with a tentative subdivision map

4. Density bonus permit when filed in conjunction with an application for a change of zone classification or an application for a permit to be heard by the Board of Supervisors (Section 7245.03)

5. Appeals of discretionary decisions by the Director of Planning and Development Services (Section 7284.03.D.1)

6. Appeals of Board of Zoning Adjustment decisions (Section 7284.04.D)

7. Conditional use permits, variances, and zone modifications when filed in conjunction with an application for a change in zone classification or for a tentative subdivision map (Articles 7286, 7288, and 7290)

8. Amendments to this chapter (Article 7292)

9. Application for change of zone classification (Article 7292)

10. Agricultural preserve inclusion or exclusion requests, agricultural preserve contracts, contract cancellation, and contract amendments

A. Application:

1. An applicant for a discretionary permit pursuant to this section shall submit an application to the Director of Planning and Development Services in the format and number of copies specified by the Director of Planning and Development Services. The application shall contain all the information specified for the application by the applicable section of this chapter, unless the Director of Planning and Development Services waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 7294.03.

2. The Director of Planning and Development Services shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

3. Upon acceptance of the application as complete and completion of an environmental document, if required, a public hearing shall be set in accordance with Section 7284.05.B.

B. Notice and Hearing:

1. When an application has been submitted in accordance with Section 7284.05.A, the Director of Planning and Development Services shall set the application for a public hearing.

2. At least ten (10) days before the date of any public hearing, the date, time, place of the hearing, identity of the hearing body, and the nature and location of the application shall be given by the following methods:

   a. Publishing such notice once in a newspaper of general circulation.

   b. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment roll of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth (1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice.

   c. In lieu of the requirements set forth in Section 7284.05.B.2.a, notice may also be given by posting notices not more than three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property.

3. Public Hearing:

   A public hearing shall be held before the Board of Supervisors at a time and place in accordance with the public notice. The Board of Supervisors may establish rules for the conduct of such hearings. Evidence shall be offered or presented, and the name and address of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the presiding officer shall announce the time and place to which the hearing will be continued.

C. Decision:

1. The Board of Supervisors may approve, conditionally approve, or deny any application following the close of the public hearing on the matter or within thirty-five (35) days thereafter by resolution. Such decision may include findings in accordance with the provisions of this ordinance. The decision shall be final. An applicant, before a final vote is taken, may request a continuance until such time that all Board members are present to vote on the matter.

2. Written notice of such decision shall be given by mail within seven (7) calendar days after the date of the decision to the applicant and any person filing a written request for notice of the decision.

3. The decision of the Board of Supervisors shall be final on adoption of an order or resolution containing its determination.

D. Appeal:

There shall be no appeal from a decision by the Board of Supervisors under this chapter.

SECTION 7284.06 PERMIT REVOCATION AND MODIFICATION

Any permit, conditional use permit, variance, or zone modification issued pursuant to this article may be modified or revoked by the official or decisionmaking body that originally approved the permit by the same procedure under which the permit was issued for any of the following causes:

A. That any term or condition of the permit, conditional use permit, variance, or zone modification has not been complied with.

B. That the property or portion thereof subject to the permit, conditional use permit, variance, or zone modification is used or maintained in violation of any statute, ordinance, law, or regulation.

C. That the use for which the permit, conditional use permit, variance, or zone modification was granted has been so exercised as to be detrimental to the public health or safety or as to constitute a nuisance.

D. That changes in technology or in the type or amount of development in the vicinity of the use or other good cause warrants modification of the conditions of operation or imposition of additional conditions of operation to assure that the use remains compatible with existing and potential uses of other property within the general area in which the use is located.

SECTION 7284.07 TIME LIMITATIONS ON CHALLENGES

Any action or proceeding to attack, review, set aside, void, or annul any decision made pursuant to this article, or concerning any of the proceedings, acts, or determinations taken, done, or made prior to such decision, or to determine the reasonableness, legality, or validity of any condition attached thereto, shall not be maintained by any person unless the action or proceeding is commenced within thirty (30) days after the date of the decision and the legislative body is served within sixty (60) days after the date of the decision. Thereafter, all persons are barred from any such action or proceeding or any defense of invalidity or unreasonableness of that decision or of these proceedings, acts, or determinations.

ARTICLE 7286

CONDITIONAL USE PERMITS

SECTIONS:

7286.01 PURPOSE AND APPLICATION
7286.02 APPLICATION CONTENTS
7286.03 REVIEW AND APPROVAL PROCEDURES
7286.04 BASIS FOR APPROVAL
7286.05 TERMS AND CONDITIONS
7286.06 PERMIT REVOCATION AND MODIFICATION

SECTION 7286.01 PURPOSE AND APPLICATION

The purpose of this article is to establish procedures and general standards for the review and approval of conditional use permits authorized by various sections of this chapter. Whenever a use is listed in any section of this chapter as a use permitted subject to securing a conditional use permit, it shall be approved only if it is consistent with the General Plan and meets all requirements of this chapter and subject to any conditions deemed appropriate by the decisionmaking authority.

SECTION 7286.02 APPLICATION CONTENTS

An application for a conditional use permit shall include the following:

A. Name and address of applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A site development plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

1. Location of all existing buildings, structures, and improvements on the property

2. Location of all proposed buildings, structures, and improvements on the property

3. Existing and proposed streets and highways bordering and within the boundaries of the property

4. Location of existing and proposed parking areas

5. Proposed landscaping

6. North arrow

F. Elevations of proposed buildings or structures related to the conditional use permit

G. A narrative description of the proposed use or development including:

1. Description of the nature of the proposed use or development

2. Identification of the applicable zoning district or districts and the section of this chapter under which the conditional use permit is requested

3. Reasons applicant feels justify the granting of the conditional use permit

SECTION 7286.03 REVIEW AND APPROVAL PROCEDURES

The application for a conditional use permit shall be reviewed and approved, conditionally approved, or denied by the decisionmaking authority in accordance with the procedures set out in Article 7284 of this chapter.

SECTION 7286.04 BASIS FOR APPROVAL

The decisionmaking authority may approve or conditionally approve an application for a conditional use permit if it finds all of the following:

A. The proposed use is consistent with the goals and policies of the General Plan.

B. The proposed use is consistent with the purpose of the applicable district or districts.

C. The proposed use is listed as a use subject to a conditional use permit in the applicable zoning district or districts or a use determined to be similar to a listed conditional use in accordance with the procedures set out in Section 7282.03.

D. The proposed use meets the minimum requirements of this chapter applicable to the use and complies with all other applicable laws, ordinances, and regulations of the County of Kern and the State of California.

E. The proposed use will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity.

SECTION 7286.05 TERMS AND CONDITIONS

A. Any conditional use permit may include such terms and conditions deemed appropriate or necessary by the decisionmaking authority to make the findings specified in Section 7286.04. If no terms or conditions are specified, the use permit shall be considered unconditional and valid for an indefinite period.

B. If the development for which a conditional use permit has been approved pursuant to this article has not commenced, or permits for such development have not been issued, within one (1) year of the granting of the use permit, the use permit shall become null and void and of no effect, unless an extension has been granted by the Board of Zoning Adjustment, upon written request for an extension before the expiration of the one-(1-) year period. This provision shall not apply to applications approved in conjunction with another discretionary permit. In such cases, the expiration period shall coincide with that of the associated permit.

C. All conditions of approval shall be final, and a request to delete or to modify a condition to make it less restrictive shall only be considered at a property noticed public hearing, unless said conditions are appealed pursuant to Section 7284.04.D.

SECTION 7286.06 PERMIT REVOCATION AND MODIFICATION

Any conditional use permit issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7288

VARIANCES

SECTIONS:

7288.01 PURPOSE AND APPLICATION
7288.02 APPLICATION CONTENTS
7288.03 REVIEW AND APPROVAL PROCEDURE
7288.04 BASIS FOR APPROVAL
7288.05 TERMS AND CONDITIONS
7288.06 VARIANCE REVOCATION AND MODIFICATION

SECTION 7288.01 PURPOSE AND APPLICATION

Where special physical circumstances exist limiting the development of a particular property in accordance with development standards of a zoning district, relief from the development standards may be secured by the granting of a variance from those standards. The granting or denial of a variance will be based on whether the particular circumstances conform to the standards of this article. Under no circumstances will a variance from permitted or conditionally permitted uses be considered or granted.

SECTION 7288.02 APPLICATION CONTENTS

An application for a variance shall include the following:

A. Name and address of applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. Site development plan drawn at a scale specified by the Director of Planning and Development Services, which includes:

   1. Location of all existing buildings, structures, and improvements on the property

   2. Location of all proposed buildings, structures, and improvements on the property

   3. North arrow

F. Elevations of all buildings or structures related to the variance sought

G. A narrative description of the proposed use or development, including:

1. Description of the nature of the proposed use or development

2. Identification of the applicable zoning district or districts and section(s) of this chapter containing the standards from which variance is sought

3. Explanation of the variance sought

4. Reasons applicant feels justify the granting of the variance

SECTION 7288.03 REVIEW AND APPROVAL PROCEDURE

The application for a variance shall be reviewed and approved, conditionally approved, or denied by the decisionmaking authority in accordance with the procedures set out in Article 7284 of this chapter.

SECTION 7288.04 BASIS FOR APPROVAL

The decisionmaking authority may approve or conditionally approve an application for a variance if it finds all of the following:

A. Special circumstances exist applicable to the subject property, including size, shape, topography, location, or surroundings, such that the strict application of the Zoning Ordinance deprives such property of privileges enjoyed by other property in the vicinity and in the same zoning district or districts.

B. The granting of the variance does not constitute a grant of special privileges inconsistent with the limitations upon other properties in the vicinity and zoning district in which such property is located.

C. The granting of the variance will not be materially detrimental to the public health, safety, or welfare or to property or residents in the vicinity.

SECTION 7288.05 TERMS AND CONDITIONS

A. Any variance granted may include such terms and conditions as deemed necessary or appropriate by the decision making authority to effect the purpose of this chapter. If no additional terms or conditions are specified, the variance shall be considered unconditional and valid for an indefinite period.

B. If the development for which a variance has been approved pursuant to this article has not commenced, or permits for each development have not been issued, within one (1) year of the granting of the variance, the variance shall become null and void and of no effect, unless an extension has been granted by the decision making authority, upon the written request for an extension before the expiration of the one- (1-)

year period. This provision shall not apply to applications approved in conjunction with another discretionary permit. In such cases, the expiration period shall coincide with that of the associated permit.

C. All conditions of approval shall be final, and a request to delete or to modify a condition to make it less restrictive shall only be considered at a properly noticed public hearing, unless said conditions are appealed pursuant to Section 7284.04.D.

SECTION 7288.06 VARIANCE REVOCATION AND MODIFICATION

Any variance issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7290

ZONE MODIFICATIONS

SECTIONS:

7290.01 PURPOSE AND APPLICATION
7290.02 APPLICATION CONTENTS
7290.03 REVIEW AND APPROVAL PROCEDURE
7290.04 DEVELOPMENT STANDARDS SUBJECT TO MODIFICATION
7290.05 BASIS FOR APPROVAL
7290.06 TERMS AND CONDITIONS
7290.07 ZONE MODIFICATION REVOCATION AND MODIFICATION

SECTION 7290.01 PURPOSE AND APPLICATION

The purpose of this article is to provide limited relief from the strict application of development requirements specified in this chapter where the granting of the modification would promote uniform development or relieve an unreasonable hardship, but would not be detrimental to the public health, safety, or welfare or to property or residents in the area. A zone modification shall not be granted where the relief sought should more appropriately be sought through the variance procedure.

SECTION 7290.02 APPLICATION CONTENTS

An application for a modification shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. Site development plan drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

1. Location of all existing buildings, structures, and improvements

2. Location of all proposed buildings, structures, and improvements

3. North arrow

F. Elevations of all buildings or structures related to the modification sought

G. A narrative description of the proposed use or development, including:

1. Description of the nature of the proposed use or development

2. Identification of the applicable zoning district or districts and Section(s) of this Chapter containing the standards for which the zone modification is sought

3. Explanation of the zone modification sought

4. Reasons applicant feels justify the granting of the zone modification

SECTION 7290.03 REVIEW AND APPROVAL PROCEDURE

An application for a modification shall be reviewed and approved, conditionally approved, or denied by the decisionmaking authority in accordance with the procedures set out in Article 7284 of this chapter.

SECTION 7290.04 DEVELOPMENT STANDARDS SUBJECT TO MODIFICATION

The decisionmaking authority may approve a zone modification to any of the following standards:

A. Minimum lot size requirements, not to exceed fifteen (15) percent reduction in such requirements.

B. Yard and setback requirements, not to exceed twenty-five (25) percent reduction in such requirements.

C. Height limits, excluding signs, not to exceed twenty-five (25) percent in such requirements.

D. Height, location, or construction requirements for fences, walls, and hedges.

SECTION 7290.05 BASIS FOR APPROVAL

The decisionmaking authority may approve, conditionally approve, or deny an application for a modification if it finds all of the following:

A. The modification does not exceed the limits specified in Section 7290.04.

B. The granting of the modification will not be materially detrimental to the public health, safety, or welfare or to property or residents in the vicinity.

C. Either of the following:

1. The modification would promote uniformity in development on the lot or in the area.

2. The modification would alleviate an unreasonable hardship on the property owner or applicant imposed by the strict application of the requirements of this chapter.

SECTION 7290.06 TERMS AND CONDITIONS

A. Any zone modification granted may include such terms and conditions as deemed necessary or appropriate by the decision making authority to effect the purpose of this chapter. If no additional terms or conditions are specified, the zone modification shall be considered unconditional and valid for an indefinite period.

B. If the development for which a zone modification has been approved pursuant to this article has not commenced, or permits for such development have not been issued, within one (1) year of the granting of the zone modification, the zone modification shall become null and void and of no effect, unless an extension has been granted by the decision making authority upon the written request for an extension before the expiration of the one- (1-) year period. This provision shall not apply to applications approved in conjunction with another discretionary permit. In such cases, the expiration period shall coincide with that of the associated permit.

C. All conditions of approval shall be final, and a request to delete or to modify a condition to make it less restrictive shall only be considered at a properly noticed public hearing, unless said conditions are appealed pursuant to Section 7284.04.D.

SECTION 7290.07 ZONE MODIFICATION REVOCATION AND MODIFICATION

Any zone modification issued pursuant to this article may be revoked or modified pursuant to Section 7284.06 of this chapter.

ARTICLE 7292

AMENDMENTS TO THIS CHAPTER

SECTIONS:

7292.01 PURPOSE AND APPLICATION
7292.02 INITIATION OF AMENDMENTS BY THE BOARD OF SUPERVISORS
7292.03 INITIATION OF AMENDMENTS BY AN INTERESTED PERSON
7292.04 NOTICE OF PUBLIC HEARING
7292.05 PUBLIC HEARING
7292.06 DECISION
7292.07 TIME LIMITATIONS ON CHALLENGES

SECTION 7292.01 PURPOSE AND APPLICATION

The purpose of this article is to establish procedures for the amendment of this Zoning Ordinance and Official Zoning Maps. Amendments to this chapter may be initiated by the Board of Supervisors on its own motion or by the application of any interested person.

SECTION 7292.02 INITIATION OF AMENDMENTS BY THE BOARD OF SUPERVISORS

The Board of Supervisors may at any time and in any form deemed appropriate by the Board initiate an amendment to any portion of this chapter. An amendment may be any of the following types:

A. An amendment to the text of this chapter not changing regulations or standards affecting the use of any property.

B. An amendment to the text of this chapter changing regulations or standards affecting the use of property.

C. Amendment to the Official Zoning Maps reclassifying property from one district to another, including applying a combining district to, or removing a combining district from, property.

SECTION 7292.03 INITIATION OF AMENDMENTS BY AN INTERESTED PERSON

A property owner, his/her authorized representative, or any other interested person may initiate an amendment to the Official Zoning Maps to reclassify property from one district to another by submitting an application to the Director of Planning and Development Services.

A. An application for a reclassification of property shall include:

1. The name and address of the applicant

2. The name(s) and address(es) of the property owner(s)

3. Assessor's parcel number(s)

4. Legal description of the property

5. A map of the property

6. Identification of the zoning district reclassification being sought

7. Signatures or letter of consent from all property owners of record

The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 7296.02.

B. The Director of Planning and Development Services shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

SECTION 7292.04 NOTICE OF PUBLIC HEARING

A. At least ten (10) days before the date of any public hearing on a proposed amendment to the text of this chapter changing regulations or standards affecting the use of any property or on an amendment to the Official Zoning Maps reclassifying property from one district to another, notice of the hearing, identity of the hearing body, and the nature of the amendment, identification of affected properties, shall be given by the following methods:

1. Publishing such notice once in at least one (1) newspaper of general circulation.

2. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to each member of the Board of Zoning Adjustment, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment role of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth (1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice.

3. In lieu of the requirements set forth in Section 7292.04.A.1, notice may also be given by posting notices not more than three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property.

B. At least ten (10) days before the date of any public hearing on a proposed amendment to the text of this chapter not changing regulations or standards affecting the use of any property, notice of the hearing, including the date, time, place of the hearing, identity of the hearing body, and the nature of the amendment, shall be given by publishing such notice once in at least one (1) newspaper of general circulation.

SECTION 7292.05 PUBLIC HEARING

A public hearing shall be held before the Board of Supervisors at a time and place in accordance with the public notice. The Board of Supervisors may establish rules for the conduct of such hearings. The name and address of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the Board of Supervisors shall announce the time and place to which the hearing will be continued.

SECTION 7292.06 DECISION

A. The Board of Supervisors shall approve by ordinance or deny by order the proposed amendment within thirty-five (35) days following the close of the public hearing. The decision shall be final.

B. Where the amendment was initiated by an interested person pursuant to Section 7292.03, written notice of the decision shall be given by mail within seven (7) days after the date of the decision to the applicant and any person filing a written request for notice of the decision.

SECTION 7292.07 TIME LIMITATIONS ON CHALLENGES

Any action or proceeding to attack, review, set aside, void, or annul any decision made pursuant to this article, or concerning any of the proceedings, acts, or determinations taken, done, or made prior to such decision, or to determine the reasonableness, legality, or validity of any condition attached thereto, shall not be maintained by any person unless the action or proceeding is commenced within thirty (30) days after the date of decision, and the legislative body is served within sixty (60) days after the date of the decision. Thereafter, all persons are barred from any such action or proceeding or any defense of invalidity or unreasonableness of that decision or of these proceedings, acts, or determinations.

ARTICLE 7294

ADMINISTRATION

SECTIONS:

7294.01 PURPOSE AND APPLICATION
7294.02 DIRECTOR OF PLANNING AND DEVELOPMENT SERVICES DELEGATION
7294.03 FEES

SECTION 7294.01 PURPOSE AND APPLICATION

The purpose of this article is to establish general rules for the administration of this chapter.

SECTION 7294.02 DIRECTOR OF PLANNING AND DEVELOPMENT SERVICES DELEGATION

The Director of Planning and Development Services may delegate any responsibility or authority charged to him/her by any section of this chapter to any employee of the Kern County Department of Planning and Development Services, any employee of any department of the County of Kern, or a committee of employees of the County of Kern. Any employee or employees so designated may act on behalf of the Director of Planning and Development Services in a matter or proceeding specified in this chapter.

SECTION 7294.03 FEES

The Board of Supervisors may establish a reasonable fee for processing any application specified in this chapter, provided the fee does not exceed the estimated actual cost of processing such application. The Board of Supervisors shall adopt and may periodically revise a schedule of fees for processing such applications.

ARTICLE 7296

NONCONFORMING STRUCTURES, USES, LOTS, AND SIGNS

SECTIONS:

7296.01 PURPOSE AND APPLICATION
7296.02 NONCONFORMING STRUCTURES
7296.03 NONCONFORMING USES OF STRUCTURES
7296.04 NONCONFORMING USES OF LAND
7296.05 NONCONFORMING LOTS
7296.06 NONCONFORMING SETBACKS
7296.07 NONCONFORMING SIGNS
7296.08 DETERMINATION OF NONCONFORMING STATUS

SECTION 7296.01 PURPOSE AND APPLICATION

Within the zoning districts established by this chapter, or as subsequently amended, there exist structures, uses, lots, and signs which were lawful before this chapter was passed or amended but which would be prohibited or restricted under the conditions of this chapter or future amendments. The Board of Supervisors of Kern County declares that nonconforming structures, uses, lots, and signs are incompatible with permitted uses in the zoning districts involved and such nonconforming uses, lots, and signs shall not be enlarged, expanded, or extended. Such nonconforming structures, uses, and signs shall not be used as grounds for adding other structures or uses prohibited by this chapter.

SECTION 7296.02 NONCONFORMING STRUCTURES

A. Any nonconforming structure may be continued and maintained provided there is no physical change other than necessary maintenance and repair in such a structure, except as otherwise provided by this article.

B. A nonconforming structure shall not be enlarged in area, space, or volume.

C. Any nonconforming structure which is vacant for a period of one (1) year or more shall not again be used or occupied for a nonconforming use.

D. Any nonconforming structure may be reconstructed, repaired, or rebuilt when damaged by fire, earthquake, explosion, or act of God if the reconstruction and repair expense does not exceed one hundred and fifty (150) percent of the actual cash value of the building at the time such damage occurred and provided there is no expansion of the total area of the building as it existed prior to the damage. All such reconstruction shall be commenced within one (1) year from the date of damage.

SECTION 7296.03 NONCONFORMING USES OF STRUCTURES

A. Any nonconforming use may be maintained and continued provided there is no increase or enlargement of the area, space, or volume occupied or devoted to such nonconforming use, except as otherwise provided in this chapter.

B. Any part of a building, structure, facility, or land occupied by a nonconforming use that is changed to or replaced by a use conforming to the provisions of this chapter shall not thereafter be used or occupied by a nonconforming use.

C. Any part of a building, structure, facility, or land occupied by a nonconforming use that has been abandoned for a period of one (1) year or more shall not again be used or occupied for a nonconforming use.

D. If no structural alterations are made, a nonconforming use of a building may be changed to a similar or less intense nonconforming use.

SECTION 7296.04 NONCONFORMING USES OF LAND

A. A nonconforming use of land shall not be expanded or extended in any way.

B. A nonconforming use of land shall not be changed to or replaced by any other use except a use that complies with the regulations of the zoning district in which the subject property lies.

C. Any nonconforming use of land that has been abandoned for a period of one (1) year or more shall not be reestablished.

D. Nonconforming uses of land where no main building or facility has been established shall be discontinued within three (3) years of the effective date of this section.

E. The exploration for or development or production of oil, gas, or other hydrocarbon substances shall not be considered nonconforming uses of land.

SECTION 7296.05 NONCONFORMING LOTS

Any lot which was legally recorded prior to the effective date of this chapter may be used in conformance with the uses permitted by the zoning district in which it is located, provided that all yard and setback requirements are met.

SECTION 7296.06 NONCONFORMING SETBACKS

Any use permitted under the provisions of this chapter that currently exists with nonconforming setbacks may be replaced in the same location if damaged or destroyed by fire, earthquake, explosion, or act of God regardless of the cost of such reconstruction.

SECTION 7296.07 NONCONFORMING SIGNS

A. The provisions of this section shall apply to all signs in the unincorporated County not otherwise regulated by State or federal law. Except as otherwise provided in this article, any sign lawfully in use on the effective date of this chapter but made nonconforming thereby may continue to be used for a period of five (5) years. Any sign which becomes nonconforming because of an amendment to this chapter may continue to be used for a period of five (5) years from the effective date of such amendment.

B. Nonconforming signs in existence beyond five (5) years, as provided for in Section 7296.06.A, are hereby declared illegal signs and a public nuisance and shall be abated as provided for in Article 7298 of this chapter.

C. Nonconforming signs shall be kept in good repair during the five- (5-) year period the sign may be used. Alterations or modifications to any nonconforming sign are prohibited, except for structural repair resulting in the same size or shape.

D. A requirement for a nonconforming sign to be removed or altered so as to comply with the requirements of this chapter may be imposed as a condition on the approval of a subdivision, conditional use permit, variance, or other discretionary development approval.

SECTION 7296.08 DETERMINATION OF NONCONFORMING STATUS

Where there is doubt regarding the legal nonconforming status of structures, uses of structures, uses of land, parcel size, or signs, documentation shall be submitted to the Director of Planning and Development Services to establish legal nonconforming status.

ARTICLE 7298

ENFORCEMENT AND PENALTIES

SECTIONS:

7298.01 PURPOSE AND APPLICATION
7298.02 COMPLAINTS REGARDING VIOLATION
7298.03 INSPECTION
7298.04 MISDEMEANOR
7298.05 INJUNCTIVE RELIEF
7298.06 ABATEMENT PROCEEDING
7298.07 NONCOMPLIANCE WITH PERMIT CONDITIONS
7298.08 VALIDITY AND ISSUANCE OF PERMITS

SECTION 7298.01 PURPOSE AND APPLICATION

The purpose of this article is to establish provisions for enforcement of this chapter. The steps in the process are outlined as well as the penalties involved. This section puts all persons on notice as to the proceedings and penalties involved if any provision of this chapter is violated. The procedures contained in this article do not limit or modify the authority of the County of Kern to pursue enforcement under the provisions of Article 7265 of this chapter.

SECTION 7298.02 COMPLAINTS REGARDING VIOLATION

Whenever a violation of this chapter occurs or is alleged to have occurred, any person may file a complaint with the Building Official stating fully the causes and basis thereof. The complaint shall be investigated, and such action thereon as provided by this chapter taken as deemed appropriate.

SECTION 7298.03 INSPECTION

The Building Official may upon the presentation of proper credentials to the occupant or owner enter any premises, building, or structure at any reasonable time for the purpose of investigating and inspecting said premises, building, or structure to determine if the same are being used in compliance with the provisions of this chapter. If admission or entry is refused, the Building Official may apply to the District Attorney to obtain an inspection warrant.

SECTION 7298.04 MISDEMEANOR

Any person, firm, corporation, owner of the land, or possessor who violates or who causes permits or allows a violation of any provision of the Zoning Ordinance of Kern County shall be guilty of a misdemeanor and upon conviction thereof, by fine of not more than five hundred dollars ($500) or by imprisonment in the County Jail for not exceeding six (6) months, or by both

such fine and imprisonment. Each day the violation of this chapter continues shall be considered a separate offense.

SECTION 7298.05 INJUNCTIVE RELIEF

The County may seek injunctive relief in Superior Court to abate any violation of this chapter. Injunctive relief may be sought at any time, including prior to the issuance or compliance with the Notice of Violation if, in the opinion of the Building Official, an alleged violation of this chapter may be injurious to the public health or safety.

SECTION 7298.06 ABATEMENT PROCEEDING

Any building or structure, set up, erected, constructed, altered, enlarged, converted, moved or maintained contrary to the provisions of this chapter or any use of land, building, or premises conducted, operated, or maintained contrary to the provisions of this chapter or contrary to a permit or variance or the terms and conditions imposed therein shall be, and the same is hereby declared to be, unlawful and a public nuisance, and the District Attorney shall commence action or proceedings for the abatement and removal and enjoinment thereof in the manner provided by law and shall take such other steps and shall apply to such court or courts as may have jurisdiction to grant relief as will abate and remove such building or structure and restrain and enjoin any person, firm, or corporation from setting up, erecting, building, maintaining, or using any such building, structure, or vehicle or using any property contrary to the provisions of this chapter.

SECTION 7298.07 NONCOMPLIANCE WITH PERMIT CONDITIONS

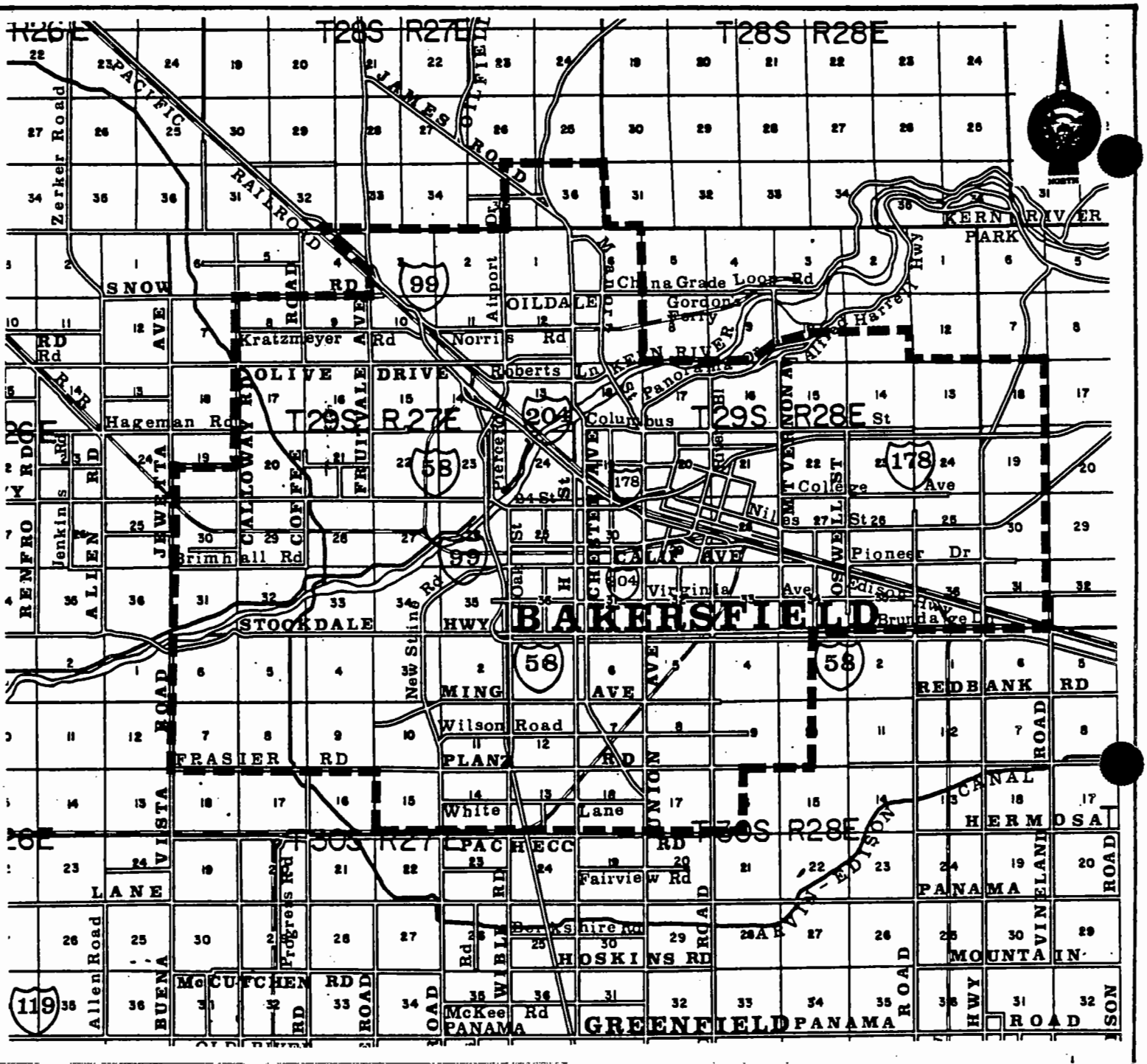
Whenever a complaint has been received or any County official believes that the conditions of a permit, variance, or other entitlement granted under the provisions of this chapter have been violated, the Building Official shall investigate such allegations. If such a violation, in the opinion of the Building Official, has occurred, an Official Notice to Comply and/or compliance letter may be given. If correction of the violation(s) does not occur within the specified period, the Building Official may initiate revocation proceedings in accordance with the provisions of Section 7284.06 of this chapter.

SECTION 7298.08 VALIDITY AND ISSUANCE OF PERMITS

No department, official, or employee of the County of Kern vested with the duty or authority to issue permits or licenses for buildings, structures, or uses subject to the requirements of this chapter shall issue a permit or license in conflict with the provisions of this chapter; any permit or license issued in conflict with any provision of this chapter shall be null and void. Further, no permit or license shall be issued by any department, official, or employee of the County of Kern for any building, structure, or use subject to the requirements of this chapter on a parcel of land where the department, official, or employee is aware that a violation of this chapter exists.

APPENDIX

KERN COUNTY ZONING ORDINANCE



BAKERSFIELD

DESIGNATED URBAN AREA

AMENDMENTS:

MAP NO. 81,102,103,104,123, 124,125

PARCEL MAP ORDINANCE SEC. 5851.20.1 4/8

KERN COUNTY ZONING ORDINANCE

K E R N C O U N T Y Z O N I N G O R D I N A N C E

LAND USES MASTER LIST

RESIDENTIAL USES

Accessory structures
Apartment
Boarding or rooming house
Community care facility
Condominium
Dwellings, when accessory or incidental to a permitted use
Duplex
Farm labor housing for on-site employees
Farm labor housing for contract labor
Fraternity or sorority house
Logging camp
Manager, caretaker, or proprietor quarters
Mobilehome
Mobilehome park
Mobilehome, temporary
Modular home
Quadruplex
Retirement or rest home
Residential hotel
Residential accessory structures
Secondary residential unit
Single-family dwelling
Townhouse
Triplex

AGRICULTURAL USES

Growing and Harvesting Crops

Berry crops
Bush crops
Christmas trees
Field crops, dryland
Field crops, irrigated
Flowers and horticultural specialties
Greenhouse
Growing of agricultural crops for domestic use of the resident occupant
Nursery, plant
Nut and fruit trees
Timber
Vegetables
Vine crops

Breeding and Raising Animals

Animal auction yard
Bee keeping
Beef cattle or livestock grazing
Beef cattle or livestock feed lot, or stockyard, auction, or sales yard
Birds, including show or racing pigeons and other small fowl
Dairy stock
Fish or frogs
Hogs
Horses, donkeys, or mules
Poultry
Rabbits or fur-bearing animals
Sheep or goats

Agricultural Industries

Agricultural services
Animal products processing
Alcohol distillery
Brewery
Biomass energy conversion
Cannery
Cold storage facility for agricultural products
Contract harvesting
Cotton compress
Cotton gin
Creamery
Dairy
Dead animal and fat rendering
Fertilizer manufacture and storage, for agricultural use only
Flour mill
Fruit, vegetable, and plant products processing
Garbage or offal reduction
Glucose processing
Grain elevator or storage
Harvesting, contract
Honey extraction
Lumber drying kiln
Oil extraction, nonmineral
Saw or planing mill
Tanning, curing, or storing animal hides
Tasting room
Tobacco processing
Winery
Wool pulling and scouring

RECREATIONAL, ENTERTAINMENT, AND TOURIST FACILITIES

Amusement park
Bingo parlor
Boat dock, private
Bowling alley
Camp
Campground
Card room
Circus or carnival
Circus or carnival, temporary
Community recreational facilities
Country club
Dance hall, ballroom, or discotheque
Equestrian establishment
Fishing or fly casting pond
Golf course
Golf driving range
Guest ranch
Health club
Hiking or equestrian trail
Hotel or motel
Marina
Miniature golf course
Movie theater, adult
Movie theater, drive-in
Movie theater, walk-in
Park or playground
Pool or billiard parlor
Private club
Race track, automobile, bicycle, horse, or motorcycle
Recreational vehicle park
Resort hotel
Roads or trails for motor driven vehicles
Shooting range or gun club
Skating rink, roller or ice
Sports arena, indoor
Sports arena, outdoor
Swimming pool, public
Tennis, swim, or athletic club
Theater, live
Video games arcade

COMMERCIAL USES

Offices

Business or professional
Financial institution, including bank, savings and loan, or credit union
Real estate
Research and development
Temporary on-site real estate tract sales

General Retail Sales

Antiques
Appliances
Art gallery
Auto leasing
Auto, new
Auto, used
Auto parts and accessories
Auto tire
Bicycle
Boat
Bookstore, adult
Bookstore, general
Building materials and lumber
Christmas tree, temporary
Clothing and apparel
Computer
Department store
Drugs and pharmaceuticals
Electric appliances
Electric equipment
Fertilizer
Feed
Firewood
Fireworks stand, temporary
Floor covering, drapery or upholstery
Florist
Furniture
Fruit stand
Gardening and landscaping supply
Gift and card
Gun
Hardware, general
Hobby supplies
Home or office furnishings
Jewelry and watches
Ice vending machine
Lapidary
Lawnmower
Leather goods and luggage
Locksmith or key and lock shop
Military surplus
Mobilehomes
Motorcycles
Musical instruments
Newspaper or magazine stand
Nursery, plant
Office machines and equipment
Paint and wallpaper
Pawn shop
Pet store

General Retail Sales (continued)

Photographic supply or camera
Picture framing
Plumbing supply
Portable swimming pool
Pottery
Records and tapes
Recreational vehicles
Shoes
Sporting goods and athletic equipment
Stamps and coins
Stationary and office supply
Tobacco
Toys
Truck
Used clothing and household goods
Variety

Food and Beverage Retail Sales

Bakery, small
Catering
Convenience market
Drive-in food market or dairy
Farmers market
Foodstore
Fruit stand, temporary
Liquor store
Specialized, including meat, vegetables, health foods, or candy
Supermarket

Eating and Drinking Establishments

Bar, tavern, or cocktail lounge
Cafeteria (as secondary use)
Ice cream parlor
Restaurant, cafe, or coffee shop
Restaurant, fast food
Restaurant, drive-in

Services

Ambulance
Animal hospital
Appliance repair
Artist studio
Auto body repair and painting
Auto rental
Auto service or repair
Auto service station
Auto towing

Services (continued)

Auto wash
Auto wash, self-service
Bath house, including sauna, spa, turkish, steam, or tanning
Barber or beauty shop
Carpet cleaning
Catering
Clinic, medical or physical therapy
Equipment, heavy, or truck or trailer rental
Furniture cleaning, refinishing, or upholstery
Interior decorator
Janitorial service
Laboratory, medical, dental, optical, or biological
Laboratory, testing, classifying, or experimental
Laundromat, self-service
Laundry, dry cleaning, pressing, or dying
Laundry, pick-up only
Mini-warehouse
Mortuary or funeral parlor
Pest control
Pet grooming
Photography studio
Picture framing
Printing, lithography, or blue-printing
Shoe shine stand
Shoe repair
Tailor or dressmaker
Taxidermist
Telegraph
Ticket agency
Travel agency
Truck rental
Truck fueling station
Truck service and repair
Veterinary
Wedding chapel

INDUSTRIAL USES

Industrial Manufacturing or Assembly

Acids
Aircraft
Ammonia or chlorine
Automobiles
Asphalt
Acetylene or other gas
Bag cleaning
Batteries
Blast furnace or smelting

Industrial Manufacturing or Assembly (continued)

Boiler works
Brick, tile, or terra cotta products
Building materials
Cabinet shop
Candle
Carbon
Carpet or mattress
Celluloid or pyroxlin
Cement
Ceramics
Chemical blending
Clothing, garments or shoes
Coal, wood, or tar distillation
Coke ovens
Concrete blocks
Cosmetics, perfumes, or toiletries
Creosote
Detergent
Disinfectant
Drugs and pharmaceuticals
Electric appliance
Electronic equipment
Explosives or ammunition, including storage
Fertilizer
Furniture
Glass
Glue
Ice
Iron, steel, or other metals
Linoleum or oiled products
Machinery
Musical instruments
Neon signs
Oil refining
Ore reduction
Paint, shellac, turpentine, or similar products
Paint mixing
Paper or pulp
Pesticide
Plastics
Potash
Prefabricated buildings, structures, or mobilehomes
Rolling mill
Rubber
Saw mills
Smelting
Soap
Sodium compounds
Starch
Stove or shoe polish

Industrial Manufacturing or Assembly (continued)

Tar products
Textiles
Trusses

Industrial Storage

Automobile
Bottled gas
Cargo containers
Chemical Storage
Cold storage
Contractor storage yard
Draying or freight
Equipment and building material
Feed and fuel
Lumber
Minerals and ore storage and loading
Moving and storage
Oil field equipment
Petroleum
Recreational vehicle
Salvage or junk yards
Truck and heavy equipment
Warehouse

Other Industrial Uses

Assaying
Bag cleaning
Bakery, large
Beverage bottling works
Billboard sign fabrication and storage
Boat building and major repair
Cabinet or carpenter shop
Concrete batch plant
Electroplating
Machine shop
Metal, glass, or paper recycling facility
Metal extrusion
Neon sign manufacturing
Newspaper, magazine, or book printing
Photographic processing plant or wholesale supply
Rock, gravel, sand, or soil crushing, processing, or distribution
Sandblasting
Sheet metal shop
Tire retreading
Well drilling service
Welding or blacksmith
Wholesale distribution

TRANSPORTATION FACILITIES

Airport, private
Airport, public use
Auto parking lot
Auto parking garage or lot
Bus depot
Heliport
Railroad freight classification or switching yard
Railroad station
Taxi depot

UTILITY AND COMMUNICATION FACILITIES

Communications equipment building
Microwave relay station
Radio, television, or commercial communications transmitter, receiver, or translator
Transmission lines, towers, poles, pipelines, and underground facilities for gas, water, electricity, telephone or telegraph service owned and operated by a public utility company under the jurisdiction of the California Public Utilities Commission
Utility substation

RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

Administrative offices, accessory structures and attendant equipment storage for natural resource extraction or processing uses
Assessory structures and storage for natural resource extraction or processing uses
Cogeneration facility
Concrete or asphalt batch plant
Dam, small hydro
Dam, large hydro
Disposal of nonhazardous oil field liquid waste and production water
Electrical distribution stations
Electrical power generating plant
Explosives storage
Mineral exploration
Mining and mineral extraction
Oil or gas exploration and production
Production water injection
Rock, gravel, sand, or soils crushing, processing, or distribution
Solar energy electrical generators
Wind-driven electrical generators

WASTE FACILITIES

Hazardous waste disposal facility
Nonhazardous oily waste disposal facility
Sanitary landfill
Septage disposal site
Sewage treatment plant
Transfer station, large volume
Transfer station, small volume
Waste-to-energy facility

INSTITUTIONAL USES

Art gallery, public or nonprofit
Auditorium, public
Cemetery, mausoleum, columbarium, or mortuary
Charitable or public service organization
Church
Club or lodge
Convalescent hospital
Community or senior citizens center
Crematory
Fire or police station
Government office or building
Hospital
Labor union hall
Library
Museum
Public agency or public utility buildings and facilities
Post office
Sanitarium
Water treatment plant
Zoo

EDUCATIONAL INSTITUTIONS AND SCHOOLS

General

Preschool
Elementary
Junior high school
Senior high school
College or university

Specialized Schools

Art, craft, or music school
Business or trade school
Dance school
Driving school
Martial arts school
Swim school

MISCELLANEOUS USES

Agricultural sign
Archaeological or paleontological excavation
Day care center
Construction trailer
Commercial coach
Day-care home, large family
Day-care home, small family
Dead storage
Drainage sump
Flood control facilities
Flea market or swap meet
Home occupation
Hunting or fishing club
Kennel
Massage parlor
Off-site advertising signs
Off-site directional sign
On-site day-care center
Restrooms and shelters
Revival
Scientific study sites for the systematic exploration and classification of archaeological, anthropological, or historic artifacts or remains
Studio, radio, TV, recording, or movie
Subdivision drainage sump
Water storage or groundwater recharge facilities
Water system, large
Water system, small
Wildlife or nature preserve
Wild animal keeping

BOARD OF SUPERVISORS

COUNTY OF KERN

Summary of Proceedings 2:00 P.M.
Board of Supervisors Regular Meeting 8/13/90

Supervisors: Ashburn, Austin, Larwood, Hettinger, Shell

Sue Lasiter, Clerk
Board of Supervisors

Sylvia Johnson
Assistant Clerk

==========

As-He *15)
4 Ayes
1 Ab/Sh
909067

Amendments to Kern County Zoning Ordinance - 1990; Kern County Department of Planning and Development Services; Countywide; a revision to the Kern County Zoning Ordinance text which includes various minor changes throughout the ordinance. No changes in zoning district classification are proposed. Zoning Ordinance text amendments include, but are not limited to, the addition of use categories to various zone district classifications, addition and modification of pertinent definitions, minor changes in sign regulations, and other changes as recommended by the Kern County Department of Planning and Development Services; DP&DS recommendation: Approve Zoning Ordinance text revisions as recommended; General Rule (SD All Districts) (All adjudicated newspapers) - (Tape 922) HEARING OPENED; NO ONE HEARD; HEARING CLOSED; ADOPTED RESOLUTION 90-699 AND ENACTED ORDINANCE G-5346 APPROVING KERN COUNTY ZONING ORDINANCE TEXT REVISIONS AS RECOMMENDED

FILE COPY

ORDINANCE NO. G-5346

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN, STATE OF CALIFORNIA, CONCERNING VARIOUS REVISIONS OF THE ZONING ORDINANCE TEXT, INCLUDING BUT NOT LIMITED TO ADDITIONAL WE CATEGORIES IN VARIOUS ZONE DISTRICT CLASSIFICATIONS. ADDITION AND MODIFICATION OF VARIOUS DEFINITIONS, MINOR CHANGES IN SIGN AND FENCE REGULATIONS, AND OTHER CHANGES

The following ordinance, consisting of one hundred seven (107) sections, was duly and regularly passed and adopted by the Board of Supervisors of the County of Kern, State of California, at a regular meeting of the Board of Supervisors held on the 13th day of August, 1990, by the following vote, to wit:

AYES: Ashburn, Austin, Larwood, Hettinger

NOES: None

ABSENT: Shell

Pauline Larwood

Chairman of the Board of Supervisors of the County of Kern, State of California

(SEAL)

ATTEST:

SUE LASITER
Clerk of the Board of Supervisors

By Kaaren Shatswell, Deputy Clerk

THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN ORDAINS AS FOLLOWS:

Section 1. This ordinance shall take effect and be in full force on and after the 12th day of September, 1990, and shall be published once in the Bakersfield Californian, a newspaper of general circulation, published in the County of Kern, State of California, together with the names of the members of the Board of Supervisors voting for and against the same.

COPIES FURNISHED:
Co Counsel, Planning
Tax Collector

909067
G-5346

Section 2. Section 19.04.264 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.264 FARM LABOR HOUSING, ON-SITE EMPLOYEE

"Farm labor housing, on-site employee" means living quarters, either single-family or group housing related to commercial agricultural uses, provided for full-time, year-round farm laborers employed on the site or on lands owned or leased by the owner of the living quarters, and who derive their primary source of yearly income from this employment.

Section 3. Section 19.04.331 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.331 HEAVY EQUIPMENT

"Heavy equipment" means equipment normally utilized in heavy construction projects and includes, but is not limited to, earthmoving equipment, road work and paving equipment, cranes, dump trucks, large tractors, water trucks, cement trucks, back hoes, excavators, compactors, zoom booms, concrete saws, forklifts, vibrators, platform lifts, and any other piece of equipment determined by the Director of the Department of Planning and Development Services as belonging to the heavy equipment category.

Section 4. Section 19.04.624 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.624 RESIDENTIAL ACCESSORY STRUCTURES

"Residential accessory structures" means buildings and structures normally associated with dwellings, such as detached garages, carports, greenhouses, storage buildings, and swimming pools, but excluding cargo containers, barns, or other structures intended exclusively for agriculture-related uses. Residential accessory structures shall be clearly subordinate to the residential use of the property and in no case shall the gross floor area of a residential accessory structure exceed the gross floor area of the primary residence.

Section 5. Section 19.04.684 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.684 SIGN

"Sign" means any object, device, display, or structure, or part thereof, situated outdoors or indoors, which is used to advertise, identify, display, or direct attention to an object, person, institution, organization, business, product, service, event, or location by any means, including words, letters, logos, figures, design, symbols, fixtures, colors, illumination, or projected images.

Section 6. Subsection 19.08.200(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.200 YARD ENCROACHMENTS

A. Cornices, canopies, eaves, fireplaces, or other similar architectural features not containing vertical supports and not providing additional floor space within the building may extend into a required front, side, or rear yard no more than three (3) feet.

Section 7. Subsections 19.08.200(B), (C), and (D) remain unchanged.

Section 8. Section 19.08.210 is hereby amended to read as follows:

19.08.210 FENCES, WALLS, AND HEDGES

A. In the MS, E (1/4), E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the rear or side yards shall exceed a height of six (6) feet, except when a higher fence, wall, or hedge is required as a condition of approval of a discretionary permit except when approved by the Director in the manner contained in Subparagraph (F) below.

B. In the MS, E (1/4), E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the required front yard shall exceed a height of four (4) feet except when a higher fence, wall, or hedge is required as a condition of approval of a discretionary permit or except when approved by the Director in the manner contained in Subparagraph (F) below.

C. Maximum fence, wall, or hedge height shall be measured from the finished interior grade. That portion of a wall or fence functioning as a retaining wall shall not be counted in determining overall fence or wall height. (See Figure 19.08.210)

D. In the MS, E (1/4), E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no barbed wire shall be used or maintained as part or on any fence, wall, or hedge located along the front, side, or rear lines of any lot, or within three (3) feet of said lines, and no sharp wire or points shall project at the top of any fence or wall less than six (6) feet in height. No electrified fences shall be permitted, regardless of location.

E. In the MS, E (1/4), E (1/2), E (1), E (2 1/2), E (5), E (10), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the rear twenty-five (25) feet of a through lot or a reversed corner lot shall exceed four (4) feet in height, except when a higher fence, wall, or hedge is required as a condition of approval of a discretionary permit, or except when approved by the Director in the manner contained in Subparagraph (F) below.

F. A public hearing is conducted using the procedure in Chapter 19.110, except that Section 19.110.050 shall not apply to such hearing. Heights exceeding the maximum heights otherwise permitted by this Section may be allowed if the Director makes the following findings:

1. The increased height will permit appropriate development on the property;

2. The increased fence height is compatible with development in the vicinity; and

3. The increased fence height will not create traffic hazards in the project vicinity.

Section 9. Section 19.08.220 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.220 STORAGE IN YARDS

Except as otherwise provided in Subsection (G) of Section 19.82.090 of this title, no portion of any required front yard or side yard on the street side of a corner lot shall be used for the permanent storage, defined as any forty-eight (48) hour period, of motor vehicles, trailers, airplanes, boats, parts of any of the foregoing, except that one (1) recreational vehicle designed for human occupancy or one (1) boat may be so stored, provided that the recreational vehicle or boat is fully operational and is currently licensed and/or registered. Additionally, no such areas shall be utilized for the storage of scrap metals or other scrap materials, machinery, appliances, furniture, or equipment or parts thereof, except for building materials and equipment for use on the premises stored thereon during the time a valid permit is in effect for construction on the premises.

Section 10. Section 19.08.225 of the Ordinance Code of the County of Kern is hereby added to read as follows:

19.08.225 STRUCTURES AND STORAGE IN PUBLIC ROADS

No structures shall be constructed, erected, or maintained within a County road right-of-way or public access easement, except where otherwise expressly authorized by law. Storage of any equipment or material shall be prohibited within a County road right-of-way or public access easement, except where otherwise expressly authorized by law.

Section 11. Section 19.08.252 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.252 TRUCK PARKING AS A RESIDENTIAL ACCESSORY USE

Truck parking, when accessory and incidental to an established residential use, shall be permitted provided that there is no more than one (1) truck which does not exceed a gross weight of two (2) tons and which is driven to and from the resident's place of employment on a regular basis or which is utilized in conjunction with an approved home occupation pursuant to Chapter 19.94 of this title. No commercial vehicle having a manufacturer's gross vehicle weight rating of ten thousand (10,000) pounds or more shall be parked or stored on any public or private street within a residential district.

Section 12. Section 19.08.290 of the Ordinance Code of the County of Kern is hereby added to read as follows:

19.08.290 TEMPORARY BATCH PLANTS

Temporary portable batch plants related to a specific construction project and for a one-time period of thirty (30) days or less may be authorized by the Director of the Department of Planning and Development Services in the A (Exclusive Agriculture), NR (Natural Resource), M-2 (Medium Industrial), and M-3 (Heavy Industrial) Districts after review and approval of a written request, which shall include an operations statement describing the equipment and processes to be utilized, the purpose of the temporary batch plant, and a plot plan.

Section 13. Section 19.08.300 of the Ordinance Code of the County of Kern is hereby added to read as follows:

19.08.300 PUBLIC ACCESS EASEMENTS

All setback requirements contained in this title shall apply to all public access easements, in addition to publicly-maintained streets or roads. All public access easements shall be kept free and clear of all obstructions.

Section 14. Subparagraph (2) of Subsection 19.12.020(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.12.020 PERMITTED USES

A. AGRICULTURAL USES

2. Breeding and Raising Animals

— Bee keeping

— Beef cattle or livestock grazing

— Birds, including show or racing pigeons and other small fowl

— Dairy stock grazing

— Fish and frogs

— Hogs, excluding a hog farm or ranch

— Horses, donkeys, llamas, or mules

— Poultry, including hatching, breeding, butchering, processing, or shipping of chickens, ostriches, turkeys, or other fowl or poultry, including eggs

— Rabbits or fur-bearing animals

— Sheep or goats

Section 15. Subsections 19.12.020(A)(1), (A)(3), (B), (C), (D), (E), and (F) remain unchanged.

Section 16. Subparagraph (2) of Subsection 19.12.030(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.12.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

A. AGRICULTURAL USES

2. Agricultural Industries

— Alcohol distillery

— Agricultural chemical storage and repackaging

— Agricultural trucking facilities

— Brewery

— Biomass energy conversion

— Cold storage facility for agricultural products

— Contract harvesting

— Cotton gin

— Creamery

— Dairy

— Farm machinery and equipment repair

— Fertilizer manufacture and storage for agricultural use only

— Flour mill

— Fruit, vegetable, and plant products processing, including freezing, packing, preserving, and shipping

— Glucose processing

— Grain elevator or storage

— Oil extraction, nonmineral

— Saw or planing mill

— Tasting room, when accessory to an existing winery or brewery

— Winery

— Wool pulling and scouring

Section 17. Subsection 19.12.030(D) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.12.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

D. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

— Equestrian establishment

— Golf course

— Guest ranch, when accessory to a commercial ranching operation

— Lakes, private, for recreational skiing or boating

— Park or playground

— Racetrack or test track, automobile, bicycle, horse, or motorcycle

— Recreational vehicle park

— Shooting range or gun club, simulated war games, or similar activities, outdoor only

— Trade fairs and exhibitions, temporary (fourteen- (14-) day maximum), excluding flea markets and swap meets

Section 18. Subsection 19.12.030(H) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.12.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

H. WASTE FACILITIES

— Hazardous waste disposal facility

— Nonhazardous oil production and/or oily waste disposal facility

— Sanitary landfill

— Septage disposal site

— Sewage sludge composting

— Sewage treatment plant

— Transfer station, large volume

— Transfer station, small volume

— Waste-to-energy facility

Section 19. Subsections 19.12.030(A)(1), (B)) (C), (E), (F), (G), (I), (J), and (K) remain unchanged.

Section 20. Subsection 19.12.090(B) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.12.090 MINIMUM DISTANCE BETWEEN STRUCTURES

B. There shall be at least six (6) feet between a residential building and any nonresidential structure, except that animals, pens, coops, stables, barns, corrals, other structures for housing livestock and buildings for processing, packing, or storing agricultural produce shall be at least one hundred (100) feet away from any residential building. There shall be a minimum setback of twenty (20) feet between an on-site residential building and an aviary.

Section 21. Subsection 19.12.090(A) remains unchanged.

Section 22. Subparagraph (2) of Subsection 19.14.020(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.020 PERMITTED USES

A. AGRICULTURAL USES

2. Breeding and Raising Animals

— Bee keeping

— Beef cattle or livestock grazing pursuant to Section 19.14.130 of this chapter

— Birds, including show or racing pigeons and other small fowl

— Dairy stock pursuant to Section 19.14.130 of this chapter

— Fish and frogs

— Hogs pursuant to Section 19.14.130 of this chapter

— Horses, donkeys, llamas, and mules pursuant to Section 19.14.130 of this chapter

— Poultry, for the domestic use of the resident/occupant only (not including poultry ranches)

— Rabbits and fur-bearing animals

— Sheep and goats pursuant to Section 19.14.130 of this chapter

Section 23. Subsection 19.14.020(E) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.020 PERMITTED USES

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Cogeneration facility or steam generators, primarily intended for steam production, used for production of oil and gas, excluding coal fired

— Mineral exploration

— Oil or gas exploration and production pursuant to Chapter 19.198 of this title, including the temporary installation of commercial coaches as accessory to this activity, not to exceed a two- (2-) year period

— Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity

— Wind-driven electrical generator for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

Section 24. Subsections 19.14.020(A)(1), (B), (C), (D), and (F) remain unchanged.

Section 25. Subparagraph (1) of Subsection 19.14.030(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

A. AGRICULTURAL USES

1. Breeding and Raising of Animals

— Poultry, including hatching, breeding, butchering, processing, or shipping of chickens, ostriches, turkeys, or other fowl or poultry, including eggs

Section 26. Subsection 19.14.030(K) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

K. MISCELLANEOUS USES

— Commercial coach, when incidental and accessory to a permitted use

— Day-care center, with or without extended overnight services

— Drainage sump

— Flood control facilities

— Kennel

— Railroad caboose and similar accessory structures

— Revival, temporary

— Skateboard ramps, noncommercial

— Water storage or groundwater recharge facilities

— Water system, large

— Wild animal keeping

Section 27. Subsections 19.14.030(A)(2), (B), (C), (D), (E), (F), (G), (H), (I), and (J) remain unchanged.

Section 28. Subsection 19.14.090(B) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.090 MINIMUM DISTANCE BETWEEN STRUCTURES

B. There shall be at least six (6) feet between a residential building and a nonresidential structure, except that pens, coops, stables, barns, corrals, and other structures for housing livestock and buildings for processing, packing, or storage of agricultural produce shall be at least one hundred (100) feet away from any residential building. There shall be a minimum setback of twenty (20) feet between an on-site residential building and an aviary.

Section 29. Subsection 19.14.090(A) remains unchanged.

Section 30. Subparagraph (1) of Subsection 19.16.030(D) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.16.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

D. COMMERCIAL USES

1. Offices

— Temporary on-site real estate sales/construction, including commercial coaches

Section 31. Subsection 19.16.030(L) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.16.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

L. MISCELLANEOUS USES

— Community septic disposal system

— Day-care center, with or without extended overnight services

— Drainage sump

— Flood control facilities

— Railroad caboose and similar accessory structures

— Skateboard ramps, noncommercial

— Veterinary

— Water storage or groundwater recharge facilities

— Water system, large

Section 32. Subsections 19.16.030(A), (B), (C), (E), (F), (G), (H), (J), and (K) remain unchanged.

Section 33. DELETED

Section 34. Subsection 19.16.090(B) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.16.090 MINIMUM DISTANCE BETWEEN STRUCTURES

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, or other structures for housing animals shall be at least thirty (30) feet away from any residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution. There shall be a minimum setback of twenty (20) feet between an on-site residential building and an aviary.

Section 35. Subsection 19.16.090(A) remains unchanged.

Section 36. Subparagraph (1) of Subsection 19.18.030(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.18.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

C. COMMERCIAL USES

1. Offices

— Temporary on-site real estate sales/construction, including commercial coaches

Section 37. Subsection 19.18.030(I) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.18.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

I. MISCELLANEOUS USES

— Community septic disposal system

— Day-care center, with or without extended overnight services

— Drainage sump

— Flood control facilities

— Railroad caboose and similar accessory structures

— Skateboard ramps, noncommercial

— Water storage or groundwater recharge facilities

— Water system, large

Section 38. Subsections 19.18.030(A), (B), (C)(2), (D), (E), (F), (G), and (H) remain unchanged.

Section 39. Subparagraph (1) of Subsection 19.20.030(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.20.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

C. COMMERCIAL USES

1. Offices

— Temporary on-site real estate sales/construction, including commercial coaches

Section 40. Subsections 19.20.030(A), (B), (D), (E), and (F) remain unchanged.

Section 41. Subparagraph (1) of Subsection 19.22.030(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.22.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

C. COMMERCIAL USES

1. Offices

— Temporary on-site real estate sales/construction, including commercial coaches

Section 42. Subsections 19.22.030(A), (B), (C)(2), (D), (E), (F), (G), (H), (I), and (J) remain unchanged.

Section 43. Subsection 19.24.130(B) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.24.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

B. Each mobilehome shall have a permanent foundation system or be recessed in the ground so that no portion of the undercarriage is visible. If the foundation system used results in exposed areas between the foundation and the mobilehome, then aluminum skirting shall be installed and maintained in place around the base of the mobilehome at all times. Skirting of equal material durability and design may be approved by the Director of Planning and Development Services. A mobilehome shall not be recessed if the site is located in an FPS or FP District.

Section 44. Subsections 19.24.130(A), (C), (D), (E), and (F) remain unchanged.

Section 45. Section 19.26.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.26.110 SIGNS

The following types of signs are permitted in the MP District in accordance with the requirements of Chapter 19.84 of this title:

A. Temporary real estate signs advertising the mobilehome for sale or rent, not to exceed six (6) square feet each, excluding the area of any vertical and/or horizontal support members

B. Permanent subdivision identification signs

C. Temporary construction signs

D. Temporary political, religious, or civic campaign signs

E. One (1) pole sign pursuant to Section 19.84.030

Section 46. Subparagraph (2)(a) of Subsection 19.26.150(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.26.150 DEVELOPMENT STANDARDS AND CONDITIONS

C. Public Street and Highway Dedications and Improvements

2. Improvements may be required by the Director of Planning and Development Services, at no cost to the County, in accordance with the following standards:

a. All developments within Type A Improvement Areas (see Appendix) shall provide road or street improvements to Type A Subdivision Standards. Developments in all other areas shall provide road or street improvements to Type B Subdivision Standards, unless Type A Subdivision Standards are required by any adopted Specific Plan in which the development is proposed, in

which case Type A improvements shall be required. If the project site abuts a state highway, road improvements shall be provided as required by the California Department of Transportation.

Section 47. Subsections 19.26.150(A), (B), (C)(1), (C)(3), (D), (E), (F), (G) and (H) remain unchanged.

Section 48. Subsection 19.32.020(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.020 PERMITTED USES

A. RESIDENTIAL USES

— Bed and breakfast inn

— Manager, caretaker, or proprietor quarters

— Retirement or rest home

Section 49. Subsection 19.32.020(H) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.020 PERMITTED USES

H. MISCELLANEOUS USES

— Adult day-care

— Construction trailer, temporary, during construction activities only

— Day-care center, without extended overnight services

— Studio, radio, television, broadcasting

— Water system, small

Section 50. Subsections 19.32.020(B), (C), (D), (E), (F), and (G) remain unchanged.

Section 51. Subsection 19.32.030(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

A. RESIDENTIAL USES

— Apartment

— Boarding or rooming house

— Community care facility

— Fraternity or sorority house
— Mobilehome

— Residential accessory structures

— Residential hotel

— Single-family dwelling

Section 52. Subsection 19.32.030(D) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

D. INDUSTRIAL USES

— Contractor's storage yard, when accessory and incidental to a contractor's business office and wholly enclosed within a solid screening fence as approved by the Director of Planning and Development Services

— Feed and fuel, excluding wood yards

— Photographic processing plant or wholesale supply

Section 53. Subsection 19.32.030(I) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

I. INSTITUTIONAL USES

— Cemetery, mausoleum, or columbarium

— Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary

— Zoo

Section 54. Subsections 19.32.030(B), (C), (E), (F), (G), (H), (J), and (K) remain unchanged.

Section 55. Section 19.32.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. All development in the C-2 District shall comply with the minimum standards set out in Chapter 19.80 of this title.

B. Development in the C-2 District shall comply with the interpretations and provisions of Chapter 19.08 of this title.

C. Residential development shall be subject to the High-density Residential (R-3) District requirements as specified in Chapter 19.22 of this title.

D. No outside storage shall be permitted except for company vehicles and items for retail sales, lease, or rental and which are clearly associated with an on-site business. This requirement shall not apply to those uses requiring a conditional use permit (Section 19.32.030), provided that outside storage was addressed as part of the permit application.

Section 56. Subparagraph (2) of Subsection 19.36.020(D) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.36.020 PERMITTED USES

D. INDUSTRIAL USES

2. Industrial Storage

— Automobile

— Bottled gas

— Cargo containers

— Chemical storage when accessory to a permitted use

— Cold storage

— Contractor's storage yard

— Draying or freight

— Equipment and building material

— Feed and fuel, including wood yards

— Lumber

— Moving and storage, yards or warehouse

— Petroleum

— Recreational vehicle

— Recyclable materials, collection and storage, provided there is no more than three thousand (3,000) square feet of outside storage and all compression and bailing operations are conducted wholly within an enclosed structure

— Truck and heavy equipment

— Warehouse

Section 57. Subsections 19.36.020(A), (B), (C), (D)(1), (D)(3), (E), (F), (G), (H), (I), and (J) remain unchanged.

Section 58. Subsection 19.36.030(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.36.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

C. INDUSTRIAL STORAGE

— Chemical storage as main use

— Recyclable materials, collection and storage

Section 59. Subsection 19.36.030(H) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.36.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

H. INSTITUTIONAL USES

— Cemetery, mausoleum, or columbarium

— Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary

— Zoo

Section 60. Subsections 19.36.030(A), (B), (D), (E), (F), (G), and (I) remain unchanged.

Section 61. Subparagraph (2) of Subsection 19.38.020(E) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.38.020 PERMITTED USES

E. INDUSTRIAL USES

2. Industrial Storage

— Automobile

— Bottled gas

— Cargo containers

— Chemical storage, when accessory to a permitted use

— Cold storage

— Contractor's storage yard

— Draying or freight

— Equipment and building materials

— Feed and fuel, including wood yards

— Lumber

— Moving and storage

— Petroleum

— Recreational vehicle

— Recyclable materials, collection and storage, provided there is no more than three thousand (3,000) square feet of outside storage and all compression and bailing operations are conducted wholly within an enclosed structure

— Truck and heavy equipment

— Warehouse

Section 62. Subsections 19.38.070(A), (B), (C), (D), (E)(1), (E)(3), (F), (G), (H), (I), and (J) remain unchanged.

Section 63. Subparagraph (2) of Subsection 19.38.030(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.38.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

C. INDUSTRIAL USES

2. Industrial Storage

— Chemical storage as a main use

— Explosives, permanent

— Log storage

— Minerals and ore storage and loading

— Recyclable materials, collection and storage

— Salvage or junk yard

— Vehicle wrecking yard

Section 64. Subsection 19.38.030(G) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.38.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

G. WASTE FACILITIES

— Community septic disposal system

— Nonhazardous oil production water disposal facility

— Nonhazardous oilfield waste treatment or recycling

— Sanitary landfill

— Septage disposal site

— Sewage treatment plant

— Transfer station, large or small

— Waste-to-energy facility

Section 65. Subsections 19.38.030(A), (B), (C)(1), (C)(3), (D), (E), (F), (H), and (I) remain unchanged.

Section 66. Subparagraph (2) of Subsection 19.40.020(E) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.40.020 PERMITTED USES

E. INDUSTRIAL USES

2. Industrial Storage

— Automobile

— Bottled gas

— Cargo containers

— Chemical storage

— Cold storage

— Contractor's storage yard

— Draying or freight

— Equipment and building materials

— Feed and fuel, including wood yards

— Lumber

— Moving and storage

— Petroleum

— Recreational vehicle

— Recyclable materials, collection and storage

— Truck and heavy equipment

— Warehouse

Section 67. Subsections 19.40.020(A), (B), (C), (D), (E)(1), (E)(3), (F), (G), (H), (I), and (J) remain unchanged.

Section 68. Subection 19.42.030(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.42.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

— Boat dock, private

— Camp, private

— Campground

— Community recreational facilities

— Equestrian establishments

— Golf course

— Golf driving range

— Lakes, private, for recreational skiing or boating

— Marina, public

— Racetrack or test track, automobile, bicycle, horse, or motorcycle

— Recreational vehicle park

— Shooting range, gun club, simulated war games, or similar activities

— Trade fairs and exhibitions, temporary (fourteen- (14-) day maximum), excluding flea markets and swap meets

— Whitewater rafting launch or landing site

Section 69. Subsection 19.42.030(J) of the Ordinance Code of the County of Kern is hereby added to read as follows:

19.42.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

J. MISCELLANEOUS USES

— Drainage sump

— Hunting or fishing club

— Railroad caboose and similar accessory structures

— Water system, large

— Wild animal keeping

Section 70. Subsections 19.42.030(A), (B), (D), (E), (F), and (G) remain unchanged.

Section 71. Section 19.44.010 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.44.010 PURPOSE AND APPLICATION

The purpose of the Open Space (OS) District is to designate lands in public or private ownership that are essentially unimproved and should remain in open space use for the preservation of identified scenic values, habitat for endangered plants or animals, unique geologic features, natural resources, passive recreational values, or for the protection of public health and safety. The OS District may also be utilized as an Interim District in conjunction with County-initiated changes in zoning district classification for those properties designated as "Commercial" or "Industrial" by the Kern County General Plan or adopted Specific Plan, where the current zoning district classification for those properties is inconsistent with said "Commercial" or "Industrial" designations.

Section 72. Subsection 19.44.030(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.44.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES

— Park

— Roads or trails for motor driven vehicles, excluding race courses

Section 73. Subsection 19.44.030(B) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.44.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

B. INSTITUTIONAL USES

— Public service uses

Section 74. Subsection 19.44.030(C) remains unchanged.

Section 75. Subsection 19.46.030(H) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.46.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

H. WASTE FACILITIES

— Hazardous waste disposal facility

— Nonhazardous oil production and/or oily waste disposal facility

— Nonhazardous oilfield waste treatment or recycling

— Sanitary landfill

— Sewage treatment plant

— Transfer station, large

— Transfer station, small

Section 76. Subsections 19.46.030(A), (B), (C), (D), (E), (F), (G), (I), (J), and (K) remain unchanged.

Section 77. Section 19.56.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.56.130 SITE DEVELOPMENT PLAN REVIEW — REQUIRED

No use shall be established, changed, or altered, no development shall occur and no building or grading permit shall be issued for any use or development in the PD Combining District, except for one (1) single-family residential dwelling on a single lot, until an application for site development plan review has been submitted to and approved by the Director of Planning and Development Services or the Board of Supervisors in accordance with the procedures set out in Chapter 19.102 of this title.

Section 78. Subsection 19.60.090(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.60.090 MINIMUM DISTANCE BETWEEN STRUCTURES

Requirements for minimum distance between structures in an RS District are as follows:

A. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, other structures for housing animals, and the animals themselves shall be at least thirty (30) feet away from any residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution. There shall be a minimum setback of twenty (20) feet between an on-site residential building and an aviary.

Section 79. Subsection 19.60.090(B) remains unchanged.

Section 80. Section 19.62.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.62.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. In the Bakersfield Type A Improvement Area, each mobilehome shall be placed on a permanent foundation system or recessed into the ground so that no part of the undercarriage is visible. If the foundation system used results in exposed areas between the foundation and the mobilehome, then skirting which is compatible with the exterior siding of the mobilehome shall be installed and maintained in place around the base of the mobilehome at all times.

B. Regardless of where the mobilehome is located, if the method of installation results in the exposure of the undercarriage, a continuous perimeter skirting compatible with the mobilehome siding shall be installed.

C. No special architectural or size requirements shall apply to mobilehome installations in the MH District, except as may be specifically required by Sections 19.62.020 or 19.62.030.

Section 81. Subsection 19.72.040(D) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.72.040 PROHIBITED USES

D. Storage of junk, or salvage operations.

Section 82. Subsections 19.72.040(A), (B), (C), (E), (F), (G), (H), and (I) remain unchanged.

Section 83. Subsection 19.80.020(B) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.80.020 DEVELOPMENT STANDARDS — MULTIFAMILY RESIDENTIAL DISTRICTS

B. All developments within Type A Improvement Areas (see Appendix) shall provide road or street improvements to Type A Subdivision Standards. Developments in all other areas shall provide road or street improvements to Type B Subdivision Standards, unless Type A Subdivision Standards are required by any adopted Specific Plan in which the development is proposed, in which case Type A improvements shall be required. Street improvements shall include base and pavement tie to existing pavement. Existing pavement shall be saw cut at match point. If the project site abuts a state highway, road improvements shall be provided as required by the California Department of Transportation.

Section 84. Subsections 19.80.020(A), (C), (D), (E), (F), (G), (H), (I), (J), (K), (L), (M), (N), (O), (P), (Q), (R), (S), and (T) remain unchanged.

Section 85. Subection 19.80.030(B) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.80.030 DEVELOPMENT STANDARDS — COMMERCIAL AND INDUSTRIAL DISTRICTS

B. All developments within Type A Improvement Areas (see Appendix) shall provide road or street improvements to Type A Subdivision Standards. Developments in all other areas shall provide road or street improvements to Type B Subdivision Standards, unless Type A Subdivision Standards are required by any adopted Specific Plan in which the development is proposed, in which case Type A improvements shall be required. Street improvements shall include base and pavement tie to existing pavement. Existing pavement shall be saw cut at match point. If the project site abuts a state highway, road improvements shall be provided as required by the California Department of Transportation.

Section 86. Subsections 19.80.030(A), (C), (D), (E), (F), (G), (H), (I), (J), (K), (L), (M), (N), (O), (P), (Q), (R), and (S) remain unchanged.

Section 87. Subparagraph (6) of Subsection 19.82.020(G) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.020 REQUIRED PARKING SPACES

G. Institutional Uses:

1. Cemetery: One (1) per three and one-half (3 1/2) seats in the chapel plus one (1) per two hundred and fifty (250) square feet of office space

2. Church: One (1) per three and one-half (3 1/2) seats

3. Auditorium: One (1) per three and one-half (3 1/2) seats

4. Convalescent hospital or sanitarium: One (1) per four (4) patient beds

5. Hospital: One (1) per two (2) patient beds

6. Library or museum: One (1) per two hundred (200) square feet of office space

Section 88. Subsections 19.82.020(A), (B), (C), (D), (E), (F), (H), (I), (J), (K), (L), (M), and (N) remain unchanged.

Section 89. Subsection 19.82.050(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.050 HANDICAPPED PARKING

A. Parking spaces for the handicapped shall be provided and designed in accordance with the requirements of Chapter 2-71 of Title 24 of the California Administrative Code.

The following table establishes the number of handicapped parking spaces required:

Total Number of Parking Spaces	Number of Handicapped Parking Spaces Required
1-40	1
41-80	2
81-120	3
121-160	4
161-300	5
301-400	6
401-500	7
over 500	1 for each 200 additional spaces provided

When less than five (5) total parking spaces are provided, one (1) of these spaces shall be fourteen (14) feet wide and lined to provide a nine- (9-) foot parking area and a five- (5-) foot loading and unloading area. However, there is no requirement that the space be reserved exclusively for handicapped use.

Section 90. Subsection 19.82.050(B) remains unchanged.

Section 91. Subsection 19.82.090(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.090 PARKING AREA DESIGN AND DEVELOPMENT STANDARDS

Off-street parking areas required to be provided by this chapter shall be designed and developed in accordance with the following standards:

A. All off-street parking areas and ingress and egress to parking areas shall be surfaced with the following materials:

1. For all residential, recreation, entertainment and tourist facilities, commercial, industrial, institutional, and other high intensity uses in any Type A Improvement Area (see Appendix), parking areas shall be surfaced with one (1) of the following materials on a prepared base:

a. Two (2) inches of asphaltic concrete

b. Three and one-half (3 1/2) inches of Portland Cement concrete

2. Except as specified by Chapter 19.80 of this title, for all uses in any other area, the required parking areas shall be surfaced with one of the following materials:

a. Three (3) inches of bituminous road mix

b. Two (2) inches of asphaltic concrete

c. Three and one-half (3 1/2) inches of Portland Cement concrete

d. Three (3) inches of decomposed granite

e. Three (3) inches of compacted rock dust

f. Three (3) inches of gravel

Section 92. Subsections 19.82.090(B), (C), (D), (E), (F), (G), (H), (I), (J), and (K) remain unchanged.

Section 93. Subsection 19.84.020(C) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.84.020 DESIGN AND DEVELOPMENT STANDARDS — MONUMENT SIGNS

C. Monument signs shall be a minimum of twenty (20) feet apart, including from existing monument signs on adjacent lots.

Section 94. Subsections 19.84.020(A), (B), and (D) remain unchanged.

Section 95. Subsection 19.84.030(D) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.84.030 DESIGN AND DEVELOPMENT STANDARDS — POLE SIGNS

D. Pole signs be a minimum of (20) feet apart, including from existing pole signs on adjacent lots.

Section 96. Subsections 19.84.030(A), (B), (C), and (E) remain unchanged.

Section 97. Subsection 19.90.020(E) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.90.020 ESTABLISHMENT

A secondary residential unit may be established by any one (1) of the following methods:

A. Alteration of interior space of an existing dwelling

B. Conversion of an attic, basement, garage, or other previously uninhabited portion of a dwelling or accessory structure

C. Addition of a separate unit onto an existing dwelling

D. Construction of a separate structure on a lot in addition to an existing principal dwelling

E. Conversion of an existing dwelling to a secondary residential unit in conjunction with the construction of a new principal dwelling

Section 98. Section 19.90.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.90.030 DEVELOPMENT STANDARDS

No secondary residential unit may be established unless it complies to the following standards:

A. The lot upon which the secondary residential unit is to be established shall be a minimum of seven thousand five hundred (7,500) net square feet in area and shall not be subdivided unless it meets the minimum requirements for subdivision.

B. The principal dwelling on the lot shall contain a minimum gross area of one thousand one hundred (1,100) square feet.

C. Only one (1) secondary residential unit may be created per legal lot.

D. The total floor area of the secondary residential unit may not exceed nine hundred (900) square feet or fifty percent (50%) of the total floor area of the principal dwelling, whichever is greater.

E. The secondary residential unit shall contain separate kitchen and bathroom facilities and have a separate entrance.

F. The principal dwelling on the lot shall be occupied by the property owner.

G. The secondary residential unit shall comply with the development standards for the zoning district in which it is located, including front-yard, rear-yard, and side-yard setbacks, minimum distance between structures, and height limits, but excluding minimum lot area per dwelling unit standards.

H. Off-street parking for the secondary residential unit shall be provided in accordance with Chapter 19.82 of this title.

I. The secondary residential unit shall be constructed in accordance with the provisions of the latest adopted edition of the Uniform Building Code.

J. The secondary residential unit shall be constructed in such a manner as to be compatible with the principal dwelling unit and neighborhood in terms of design, height, material, and landscaping.

K. The principal entrance to the secondary residential unit shall not be visible from the street.

L. The secondary residential unit shall comply with applicable health standards and shall be approved by the Kern County Director of Health.

M. Mobilehomes shall not be utilized as secondary residential units nor shall secondary residential units be permitted for lots where the existing principal dwelling is a mobilehome.

Section 99. Section 19.90.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.90.050 CONDITIONAL USE PERMIT — APPLICATION — CONTENTS

An application for a conditional use permit for a secondary residential unit shall include the following:

A. Name and address of the applicant

B. Name and address of the property owner

C. Address of the principal dwelling on the lot on which the secondary residential unit is to be established

D. Assessor's parcel number

E. Legal description of the property

F. Floor area of the principal dwelling and of the proposed secondary residential unit

G. Plot plan drawn at the scale specified by the Director of Planning and Development Services, including the following:

1. Property lines and lot dimensions

2. Location of all existing buildings and structures

3. Location of the proposed secondary residential unit

4. Location of all easements

5. Location of existing and proposed parking areas

6. North arrow

H. Elevations showing the height of the proposed secondary residential unit in relation to existing buildings on the subject property

I. Photographs accurately showing property on which the secondary residential unit is to be constructed and properties adjacent to side property lines

Section 100. Subsection 19.98.040(A) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

Section 101. Subsections 19.98.040(B) and (C) remain unchanged.

Section 102. Section 19.102.015 of the Ordinance Code of the County of Kern is hereby added to read as follows:

19.102.015 COMPLIANCE WITH CONDITIONS OR DEVELOPMENT STANDARDS

Development standards and conditions required in conjunction with the approval of a ministerial or discretionary permit shall be satisfied or bonded for prior to the final inspection of any related structure for which a building permit is required, except as otherwise specified by the applicable development standards and conditions. Where no building permits are required in conjunction with a use authorized by a ministerial or discretionary permit, all development standards and conditions shall be satisfied or bonded for prior to the commencement of said use, except as otherwise specified by the applicable development standards and conditions.

Section 103. Subsection 19.102.040(S) of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.040 GENERAL REQUIREMENTS — PERMIT TYPES

S. Temporary batch plant (thirty (30) days or less) plot plan review (Section 19.08.290)

Section 104. Subsections 19.102.040(A), (B), (C), (D) (E), (F), (G), (H), (I), (J), (K), (L), (M), (N), (O), (P), (Q), and (R) remain unchanged.

Section 105. Section 19.108.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.108.080 DETERMINATION OF NONCONFORMING STATUS

Where there is doubt regarding the legal nonconforming status of structures, uses of structures, uses of land, parcel size, or signs, documentation shall be submitted to the Director of Planning and Development Services to establish legal nonconforming status. The burden of proof in submitting adequate documentation for determination of legal nonconforming status shall rest entirely on the party making said request. The Director of the Department of Planning and Development Services shall grant legal nonconforming status only when the preponderance of information submitted clearly establishes the legality of the applicable use, structure, or parcel size.

Section 106. Section 19.114.065 of the Ordinance Code of the County of Kern is hereby added to read as follows:

19.114.065 NOTICE OF ZONING VIOLATION

Whenever the Director of the Department of Planning and Development Services or his designee has knowledge of a violation of Title 19 of this code, he may cause a notice of intent to record a notice of violation to be mailed by certified mail to the then current owner of record of the property. The notice shall state that within thirty (30) days of the date of the notice, the owner may request a meeting with the Director of the Department of Planning and Development Services or his designee to present evidence that a violation does not exist. The notice shall further describe the property and violation in detail.

Following the sending of the notice of intent to record a notice of violation and prior to recording the notice, if it is determined that no violation exists, the Director of the Department of Planning and Development Services or his designee shall mail a clearance letter by certified mail to the then owner(s) of record.

In the event that a meeting is not requested and the violation has not been corrected, or in the event that after consideration of evidence, it is determined by the Director of the Department of Planning and Development Services, or the Board of Supervisors upon appeal pursuant to the procedure specified by Section 19.102.110, that a Zoning Ordinance violation in fact exists, the Director of the Department of Planning and Development Services may record, without fee, a notice of violation in the Office of the County Recorder.
Upon request, the Director of the Department of Planning and Development Services or his designee shall issue the affected property owner a notice of expungement of violation upon correction of all violation(s) noticed hereunder.

Section 107. Subsection 19.110.040(D) is hereby deleted. Subsections 19.110.040(A), (B), and (C) remain unchanged.

BD:drb/wl

ORDINANCE NO. G-5885

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN, STATE OF CALIFORNIA, AMENDING VARIOUS SECTIONS OF CHAPTERS 2.16, 2.23, 2.24, 2.36, 2.56, 2.82, 8.28, 9.08, 10.04, 10.08, 10.12, 10.16, 10.20, 10.32, 12.12, 12.16, 12.20, 12.24, 14.32, 15.04, 15.08, 15.24, 17.44, 17.60, 18.05, 18.10, 18.15, 18.25, 18.45, 18.55, 18.65, 18.70, 19.04, 19.80, 19.88, 19.98 AND 19.100 AND ADDING A NEW CHAPTER 2.86 TO THE ORDINANCE CODE OF THE COUNTY OF KERN RELATING TO THE CREATION OF THE ENGINEERING AND SURVEY SERVICES DEPARTMENT, THE SOLID WASTE MANAGEMENT DEPARTMENT, THE TRANSPORTATION MANAGEMENT DEPARTMENT AND THE TRANSFER OF FUNCTIONS AND DUTIES FORMERLY PERFORMED BY THE PUBLIC WORKS DEPARTMENT AND AIRPORTS DEPARTMENT

The following ordinance, consisting of one hundred thirty nine (139) sections, was duly and regularly passed and adopted by the Board of Supervisors of the County of Kern, State of California, at a regular meeting of the Board of Supervisors held on the 5th day of January , 1992, by the following vote, to wit:

AYES: Ashburn, Austin, Larwood, Peterson, Shell

NOES: None

ABSENT: None

Chairman of the Board of Supervisors of the County of Kern, State of California

(SEAL)

ATTEST:

SUE LASITER-PICKETT
Clerk of the Board of Supervisors

By Sylvia Johnson, Deputy Clerk

THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN ORDAINS AS FOLLOWS:

Section 1. This ordinance shall take effect and be in full force on and after the 4th day of February , 1993, and shall be published in the Bakersfield Californian , a newspaper of general circulation, published and printed in the County of Kern, State of California, together with the names of the members of the Board of Supervisors voting for and against the same.

Book No. 9210566

Ord. No. G-5885

Section 2. Chapter 2.16 of Title 2 of the Kern County Code is hereby repealed and a new Chapter 2.16 is hereby adopted to read as follows:

Chapter 2.16

Engineering and Survey Services Department

2.16.010 Engineering and survey services department - Created

The engineering and survey services department is hereby established and shall be a component of the resource management agency of the county. The department shall provide the drainage design, subdivision review and county surveyor functions of the formerly existing public works department. All existing directives and instructions which are applicable to the functions previously performed by the public works department shall be applicable to and binding upon the director and/or the engineering and survey services department.

2.16.020 Engineering and survey services department - Director

The position of director of engineering and survey services is hereby created. The director shall be appointed by and serve under the direction and authority of the resource management agency director. The director shall, subject to the civil service system of the county, employ such assistants and/or employees as are from time to time provided for the department by the ordinances of the county.

2.16.030 County surveyor

Pursuant to the provisions of section 27550 of the Government Code, the county surveyor shall be appointed by the board of supervisors, to serve at its will.

2.16.040 Engineering functions related to subdivisions

A. All engineering functions related to subdivisions which are assigned to the county surveyor by any provision of this code, including but not limited to review and approval of subdivision plans and profiles, water and sewer plans, subdivision improvement agreements and bonds, and subdivision drainage plans and facilities, are assigned to and shall be performed by, the director of engineering and survey services.

B. No provision of this section shall be construed as affecting any statutory functions of the county surveyor relating to subdivisions.

Section 3. Section 2.23.010 of Chapter 2.23 of Title 2 of the Kern County Code is hereby amended to read as follows:

2.23.010 Resource management agency - Created as comprehensive county agency - Component departments

The resource management agency of the County of Kern is created as a comprehensive local agency for the coordination of county policies and regulations concerning air quality, land use planning and regulation, transportation management, solid and liquid waste disposal, and administration of county service areas. The resource management agency acts to provide administration and coordination with respect to the efforts, powers and duties of the planning and development services department, the engineering and survey services department, the building inspection department, the air pollution control district, the transportation management department, and the waste management department. The powers and duties of these departments are as enumerated in state law and in Chapters 2.16, 2.34, 2.36, 2.82 and 2.86 of Title 2 of the Kern County Code herein.

Section 4. Section 2.24.010 of Chapter 2.24 of Title 2 of the Kern County Code is hereby amended to read as follows:

2.24.010 Environmental health services department - Created - Transfer of powers and duties.

The environmental health services department is created as a comprehensive environmental agency as defined in the California Code of Regulations, Title 17, section 1351 and has transferred to it, pursuant to this ordinance, with the concurrence of and appropriate delegation of authority from the county health officer and upon the concurrence of the director of health services of the California State Department of Health Services, as authorized by Health and Safety Code Section 1155.5, the function of providing environmental health and sanitation services. The functions so transferred shall be maintained at levels of quality and efficiency equal to or higher than formerly provided by the environmental health services division of the county health department. All personnel of the department charged with enforcement of orders, quarantines, rules, regulations and laws related to public health shall be qualified under and meet the minimum standards required by state law.

Section 5. Section 2.24.030 of Chapter 2.24 of Title 2 of the Kern County Code is hereby amended to read as follows:

2.24.030 Environmental health services director - Qualifications

The environmental health services director shall be appointed by and serve under the direction of the board of supervisors. The director shall possess the minimum qualifications required by state law. The director shall have additional staff and managerial responsibilities as directed and authorized by the board of supervisors to assist in the performance of the duties of the department.

Section 6. Section 2.36.010 of Chapter 2.36 of Title 2 of the Kern County Code is hereby amended to read as follows:

2.36.010 Established - Organization - Functions

A. A building inspection department is established which shall be a division of the engineering and survey services department, a component of the resource management agency of the county. The director of the resource management agency shall exercise the authority and perform the duties provided by law for the director of building inspection of the county and may delegate such authority to employees of the engineering and survey services department to administer and implement the functions of his office.

B. The building inspection department shall administer and enforce all of the provisions of Title 17 of this code, chapter 2, part 3, division 13 of the California Health and Safety Code, and all other ordinances, codes and statutes heretofore or hereafter delegated to it for such purposes.

C. Pursuant to the provisions of California Penal Code Section 836.5, any of the following officers and employees of the building inspection department may arrest a person without a warrant whenever he has reasonable cause to believe that the person to be arrested has committed an infraction or misdemeanor in his presence which is a violation of an ordinance, code or statute which he has the duty to enforce:

1. Director of the resource management agency;
2. Assistant director of the resource management agency;
3. Director of engineering and survey services department;
4. Chief building inspector;
5. Building inspector V;
6. Building inspector IV;

7. All building inspectors and/or engineers assigned to the investigation section of the engineering and survey services department.

An officer or employee making an arrest under the authority of this section shall follow the citation-release procedures prescribed in Chapter 5C, Title 3, Part 2 of the California Penal Code or such procedures hereafter enacted by the State of California.

Section 7. Section 2.56.030 of Chapter 2.56 of Title 2 of the Kern County Code is amended to read as follows:

2.56.030 Membership

The committee shall be composed of twenty-three (23) members, including two (2) members of the board of supervisors and the resource management agency director (who shall also provide the committee with secretarial services from his office staff) or his designee. Members shall be appointed by majority vote of the board of supervisors. Each supervisor shall nominate four (4) persons to membership on the committee (not including the two (2) supervisor members and the resource management agency director).

Section 8. Section 2.56.040 of Chapter 2.56 of Title 2 of the Kern County Code is amended to read as follows:

2.56.040 Terms of members.

The terms of ten (10) members (except the supervisors and resource management agency director serving thereon) shall expire December 31, 1993 and the terms of the remaining ten (10) members shall expire on December 31, 1994. The terms of members thereafter appointed shall be for two (2) years from and after the expiration of the term of their predecessors, but in no event shall continue beyond the expiration of the term of the nominating member of the board of supervisors or such time as he or she ceases to hold office, whichever first occurs. Appointees filling vacancies shall serve the unexpired portion of the term of their predecessors. Members of the committee may be removed from office at any time upon majority vote of the board of supervisors. The resource management agency director and the supervisors who are members of the committee shall serve at the pleasure of the majority of the board.

Section 9. Chapter 2.82 of Title 2 of the Kern County Code is hereby repealed and a new Chapter 2.82 of Title 2 of the Kern County Code is hereby added to read as follows:

Chapter 2.82

Transportation Management Department

Section 2.82.010 Established.

A department of transportation management is hereby established and which shall be a component of the resource management agency of the county. The department replaces and supercedes the heretofore existing department of airports, the roads division of the public works department, and those functions of the public works department relating to transportation. All existing directives and instructions which are applicable to the functions previously performed by the public works department and department of airports shall be applicable to and binding upon the director and/or department of transportation management.

Section 2.82.020 Director.

The position of director of the department of transportation management is hereby created. The county road commissioner, appointed by the board of supervisors pursuant to Streets and Highways Code Section 2006, shall serve as the director of the

department. The director of transportation management shall, subject to the civil service system of the county, employ such assistants and/or employees as are from time to time provided for the department by the ordinances of the county.

Section 10. Chapter 2.86 is hereby added to Title 2 of the Kern County Code to read as follows:

Waste Management Department

2.86.010 Waste Management Department - Created

The waste management department is hereby established and shall be a component of the resource management agency of the county. The department shall undertake to perform the solid waste management, liquid waste management, sanitation district and county service area administration functions heretofore performed by the public works department. All existing directives and instructions which are applicable to the functions previously performed by the public works department shall be applicable to and binding upon the director and/or department of waste management.

2.86.020 Director of waste management department

The director of the waste management department shall be appointed by and serve under the direction and authority of the resource management agency director. The director of the waste management department shall, subject to the civil service system of the county appoint such assistants and/or employees as are from time to time provided for the department by the ordinances of the county.

Section 11. Subsections (C) and (E) of Section 8.28.150 of Chapter 8.28 of Title 8 of the Kern County Code are hereby amended to read as follows:

C. A copy of any regulations so adopted by the board shall be kept posted at each refuse transfer station, and shall also be kept on file in the offices of the clerk of the board, the waste management department and the health department, where the same may be examined by any interested person at any time during regular business hours.

E. The waste management director is authorized to revoke the privilege of any person, firm or corporation to use any refuse transfer station established by the county, for a period of not more than six (6) months, and the board of supervisors is authorized to revoke such privilege for a period of not more than one (1) year, if it is determined such person, firm or corporation has violated such regulations or engaged in any conduct prohibited therein, after a hearing conducted by the waste management director or the board of supervisors, as the case may be, after not less than fifteen (15) days written notice to such person, firm or corporation. Notice of such hearing shall be given by certified mail, or by personal delivery to such person, firm or corporation or his or its agents, or by leaving a copy thereof at his usual place of residence or place of business, at the option of the waste management director or the board of supervisors, as the case may be.

Section 12. Subsections (A), (B) and (D) of Section 8.28.150 shall remain the same.

Section 13. Subsection (G) of Section 9.08.010 of Chapter 9.08 of Title 9 of the Kern County Code is hereby amended to read as follows:

G. "Director of transportation" means the director of the county transportation management department.

Section 14. Subsections (A), (B), (C), (D), (E), (F), (H) and (I) of Section 9.08.010 shall remain the same.

Section 15. Subsection (O) of Section 9.08.050 of Chapter 9.08 of Title 9 of the Kern County Code is hereby amended to read as follows:

> O. A consent to the entry at any time in the course of his duties of any peace officer, and any employee of the planning director, director of transportation, sheriff, health officer and any other county officer in the performance of his duties, including but not limited to inspection;

Section 16. Subsections (A), (B), (C), (D), (E), (F), (G), (H), (I), (J), (K), (L), (M), (N), and (P) of Section 9.08.050 shall remain the same.

Section 17. Section 9.08.340 of Chapter 9.08 of Title 9 of the Kern County Code is hereby amended to read as follows:

> **9.08.340 Accessways.**
> The licensee shall provide all exterior and interior accessways which the sheriff, fire chief and director of transportation find necessary for the use of spectators, customers and participants at the outdoor festival. All exterior and interior accessways shall be clearly delineated by means of curbs or buffers on the ground. A person shall not occupy any such accessway except for the purpose of access or to cross the same. A permit from the director of transportation shall be required for any encroachment onto a county road. The approval of such access plans by the sheriff, fire chief and the director of transportation is a prerequisite to the issuance of any license for an outdoor festival.

Section 18. Section 10.04.010 of Chapter 10.04 of Title 10 of the Kern County Code is hereby amended to read as follows:

> **10.04.010 Authority to post signs.**
> The enactment of any section of this chapter wherein the local speed limit is increased or decreased is, and shall be, the authority of the director of transportation of the county to erect, place and maintain appropriate signs giving notice of the prima facie speed limit declared in such section upon the street or highway or portion therein designated.

Section 19. Subsections (C) and (D) of Section 10.08.040 of Chapter 10.08 of Title 10 of the Kern County Code are hereby amended to read as follows:

> C. The director of transportation of the county is authorized and directed to cause signs, indicating the maximum gross weight capacity so established, to be erected at each end of that portion of any alley upon which the permissible gross weight is established, as hereinafter provided.
> D. In the event that any person, firm or corporation finds it necessary to move or transport over any alley, upon which a weight limitation has been fixed, any vehicle or vehicle and load, the weight of which is in excess of the fixed weight limitations, and it is impossible to divide such load or reduce the weight thereof, application may be made to the board of supervisors and hearing conducted by the board of supervisors for a special permit to move such load over or upon such alley, in substantially the same manner and mode as prescribed by Sections 10.08.060 and 10.08.080 of this chapter. In lieu of an application presented to the board of

supervisors, the application may be made to the director of transportation of the county, in substantially the same manner and mode as prescribed by Section 10.08.070 of this chapter.

Section 20. Subsections (A), (B), (E), (F) and (G) of Section 10.08.040 shall remain the same.

Section 21. Section 10.08.070 of Chapter 10.08 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.08.070 Permit to move indivisible loads - Transportation director authority.

The application mentioned in Section 10.08.060 for a special permit to move indivisible loads or to move loads without reducing the weight thereof, may be made to the county director of transportation in lieu of to the board of supervisors, and the director of transportation shall then have the power to give approval to said application and grant the permit to move if he finds that the load is indivisible and that it is necessary to move it as stated in the application and if, considering the structural strength of the road involved, the weight of the vehicle and load, and the precautions to be used to prevent damage to the road and any bridge therealong he believes that no damage to such road or bridge is likely to occur; or he may grant approval on such conditions as he sees fit to impose for the protection of such road or bridge. All such findings and permits shall be reported to the board and the application and permit filed with the board.

Section 22. Subsection (A) of Section 10.08.090 of Chapter 10.08 of Title 10 of the Kern County Code is hereby amended to read as follows:

A. The county director of transportation shall, upon application in writing and if good cause appears, issue a special permit in writing authorizing the applicant to operate or move over county roads a vehicle or combination of vehicles or special mobile equipment whose load exceeds the stated legal maximums for the purpose of moving perishable and semiperishable raw agricultural products from the fields to processing plants when the applicant has a valid extralegal weight permit issued by the State Department of Transportation, Division of Highways for hauling such overweight agricultural loads on state roads or would otherwise be eligible for such a permit.

Section 23. Subsections (B) and (C) of Section 10.08.090 shall remain the same.

Section 24. Subsection (B) of Section 10.12.020 of Chapter 10.12 of Title 10 is hereby amended to read as follows:

B. "Transportation management department" means that person or persons of the county of Kern, transportation management department.

Section 25. Subsections (A), (C) and (D) of Section 10.12.020 shall remain the same.

Section 26. Subsections (A) and (B) of Section 10.12.030 are hereby amended to read as follows:

A. Any interested person requiring terminal access for interstate trucks from the federally designated highway system shall

submit an application, on a form to be provided by the transportation management department, together with such information as may be required by the department along with the required fees to the county.

B. Upon receipt of the application, the transportation management department shall cause an investigation to be made to ascertain whether or not the proposed terminal facility meets the requirements for an interstate truck terminal. Upon the approval of that designation, they will then determine the capability of the route requested and alternate routes, whether requested or not. Determination of route capability will include, without limitation, a review of adequate turning radii and lane widths of ramps, intersections and highways and general traffic conditions such a sight distance, speed and traffic volumes and congestion. No access off the federally designated highway system shall be approved without the approval of Caltrans.

Section 27. Subsection (C) of Section 10.12.030 shall remain the same.

Section 28. Subsection (B) of Section 10.12.040 of Chapter 10.12 of Title 10 of the Kern County Code is hereby amended to read as follows:

B. Upon the approval of the terminal designation and route by the county and by Caltrans, the applicant shall deposit with the county sufficient funds as estimated by the transportation management department to pay for the purchase and installation of terminal trailblazer signs. Trailblazer signs shall be required at every decision point in the county en route to the terminal. Upon completion of the installation of the signs, the actual cost shall be computed and any difference between the actual and the estimated cost shall be billed or refunded to the applicant, whichever the case may be. No terminal or route may be used until such signs as may be required are in place. Costs for trailblazer signs may be proportioned in accordance with the procedures in Section 10.12.050 of this chapter.

Section 29. Subsection (A) of Section 10.12.040 shall remain the same.

Section 30. Section 10.12.050 of Chapter 10.12 of Title 10 is hereby amended to read as follows:

10.12.050 Retrofitting.

A. If all feasible routes to a requested terminal are found unsatisfactory by the transportation management department, the applicant may request retrofitting to mitigate or eliminate the deficiencies. All costs of engineering, construction and inspection shall be the responsibility of applicant. Except when such retrofitting is within the jurisdiction of Caltrans, the actual construction will be done by the county or by a contractor, and pursuant to plans and specifications acceptable to it.

B. When the work is to be done by the county, the applicant shall deposit with the transportation management department the estimated costs of retrofitting. Adjustments between the estimated and actual cost shall be made after completion of the work and any difference between the actual and the estimated cost shall be billed or refunded to the applicant, as the case may be. When the work is done by the applicant, the applicant shall file with the transportation management department, on a form satisfactory to the department, a statement detailing the actual costs of the retrofitting.

C. If at any time within five (5) years from the date of completion of the retrofitting by or paid for by the applicant, should any applicant seek terminal approval which would use the route upon which such retrofitting was accomplished, any such

applicant's fee may include that applicant's proportionate share of the retrofitting, as determined by the transportation management department, which fee shall be disbursed by the county to the applicant who paid for the retrofitting as well as to any applicant who contributed to the cost of retrofitting under this subsection. Nothing herein shall require the payment of a proportionate fee if the applicant doing the work failed to file the report with the transportation management department required by subsection (B) of this section.

Section 31. Section 10.12.060 of Chapter 10.12 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.12.060 Revocation of route.

The transportation management department may revoke any approved terminal or route if the terminal or route becomes a traffic hazard for vehicular or pedestrian traffic. A traffic hazard includes the inability of interstate trucks to negotiate the route or such vehicles causing unsafe operating conditions for other vehicular or pedestrian traffic.

Section 32. Section 10.12.070 of Chapter 10.12 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.12.070 Denial or revocation - Appeal process.

A. If the transportation management department denies terminal designation or route feasibility or revokes a previously approved terminal or route, the applicant/terminal owner, within ten (10) days following the date of receipt of the decision of the transportation management department, may appeal such decision to the county board of supervisors in writing. An appeal shall be made on a form prescribed by the transportation management department and shall be filed with the clerk of the board of supervisors. The appeal shall state specifically wherein there was an error or abuse of discretion by the transportation management department or wherein its decision is not supported by available evidence. Within five (5) days of the filing of an appeal, the department shall transmit to the clerk of the board of supervisors the terminal application and/or the sketches of the revoked route and all other data filed therewith, the report of the department and its decision on the application/revocation.

B. The clerk of the board of supervisors shall make copies of the data provided by the transportation management department available to the applicant and to the appellant (if the applicant is not the appellant) for inspection and may give notice to any other interested party who requested notice of the time when the appeal will be considered by the county board of supervisors.

C. If Caltrans and not the transportation management department denies or revokes terminal access from federally designated highways, no appeal may be made to the county board of supervisors, but must be made to Caltrans as may be permitted by Caltrans.

Section 33. Section 10.16.020 of Chapter 10.16 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.16.020 Regulation of crosswalk and safety zones.

The director of transportation of the county, after taking into consideration sound, basic and standard engineering and safety practices, is authorized and empowered to fix, regulate and determine the location of crosswalks and safety zones, and to place and maintain, or cause to be placed and maintained, signs or lettering at or near said zones or crosswalks prohibiting or regulating the driving across or in said crosswalks or zones by

vehicles on a roadway. All signs placed or maintained by the director of transportation pursuant to this section shall conform with any applicable provision of the Vehicle Code of the State of California.

Section 34. Section 10.16.030 of Chapter 10.16 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.16.030 Markings.

The director of transportation of the county is empowered and it shall be his duty and responsibility to place, or cause to be placed, proper and appropriate markings as prescribed by Section 21458 of the Vehicle Code and other applicable provisions of the Vehicle Code for all of the no-parking, limited parking, bus, freight, passenger, taxi and angle parking zones created and established under this chapter.

Section 35. Section 10.16.155 is hereby added to Chapter 10.16 of Title 10 of the Kern County Code to read as follows:

10.16.155 Placement and maintenance of signs and markings.

As used in this Article, "road commissioner" shall also mean the director of transportation for the county, who shall be responsible for the placement and maintenance of the appropriate signs and for causing the curbs to be painted appropriately so as to give notice of the loading zones designated herein.

Section 36. Subsection (B) of Section 10.20.010 of Chapter 10.20 of Title 10 of the Kern County Code is hereby amended to read as follows:

B. "Director" means the director of transportation for the county.

Section 37. Subsections (A), (C) and (D) of Section 10.20.010 shall remain the same.

Section 38. Section 10.20.050 of Chapter 10.20 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.20.050 Signs and markings.

It is the duty and responsibility of the director to place and maintain, or cause to be placed and maintained, signs of lettering declaring and indicating the foregoing regulations prescribed in this article. It is also the duty of the director to cause the passenger loading zones herein created to be painted as provided by Section 21458 of the Vehicle Code.

Section 39. Subsection (A) of Section 10.20.060 of Chapter 10.20 of Title 10 of the Kern County Code is hereby amended to read as follows:

A. "Director" means the director of transportation of the county of Kern.

Section 40. Subsections (B) and (C) of Section 10.20.060 shall remain the same.

Section 41. Section 10.20.090 of Chapter 10.20 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.20.090 Signs and Markings.

It is the duty and responsibility of the director to cause the bus loading zones established by this article to be appropriately

posted and maintained in accordance with Section 21458 of the Vehicle Code of the State of California.

Section 42. Section 10.32.060 of Chapter 10.32 of Title 10 of the Kern County Code is hereby amended to read as follows:

10.32.060 Posting of signs.

Enactment of any section of this chapter describing a designated road or adopting a new or different rule or regulation shall be the authority of the director of transportation for the county to erect, place and maintain appropriate signs giving notice of such rules and regulations upon the designated roads while such rules and regulations are in effect.

Section 43. Subsection (D) of Section 12.12.010 of Chapter 12.12 of Title 12 of the Kern County Code is hereby amended to read as follows:

D. "Director" means the director of transportation for the county of Kern.

Section 44. Subsections (A), (B), (C) and (E) of Section 12.12.010 shall remain the same.

Section 45. Subsections (A), (D), and (E) of Section 12.12.030 of Chapter 12.12 of Title 12 are hereby amended to read as follows:

A. An application for a permit pursuant to the provisions of this chapter shall be made in writing and filed with the director with the following information:

1. Name, address and telephone number of applicant;
2. Time, place and duration of the event, including the portion of the highway affected;
3. Estimated number of persons and/or vehicles which will participate;
4. The purpose and description of the event;
5. Any services of county employees desired or required on location during any event.

D. Unless waived by the board of supervisors, prior to the event the applicant shall pay to the director such amount as the director shall then estimate to be sufficient to reimburse the county for all cost of processing the application, and should the county elect to provide any event-related service or materials, the applicant shall also pay the county's estimated cost of providing such materials or services. The applicant shall, within thirty (30) days after the event, pay the director any additional amounts necessary to fully reimburse the county for actual event-related costs. Any overpayment by the applicant shall be promptly repaid.

E. To ensure cleanup and restoration of the site of the proposed event, an applicant will be required to post a refundable faithful performance bond or cash deposit in amount determined by the director to be sufficient for such purpose prior to the event. Upon completion of the event and inspection by the county, the bond may be returned to the applicant.

Section 46. Subsections (B) and (C) of Section 12.12.030 shall remain the same.

Section 47. Subsections (A), (C) and (D) of Section 12.12.040 of Chapter 12.12 of Title 12 of the Kern County Code are hereby amended to read as follows:

A. Applications shall be filed at least forty-five (45) days prior to the event for those events for which the board of

supervisors is the issuing authority. Applications to the director as the issuing authority shall be made at least thirty (30) days prior to the event or at such time as the director in his discretion deems adequate to process the application.

C. The director may issue permits, as provided in this chapter, whenever the event consists of commercial, motion picture, television, videotape or still photography production. In all other cases the board of supervisors is the issuing authority.

D. Any condition or requirement imposed on any permit issued by the director may be appealed to the board of supervisors, whose decision shall be final.

Section 48. Subsection (B) of Section 12.12.040 shall remain the same.

Section 49. Subsection (B) of Section 12.16.020 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

B. Exceptions for repairs as to unimproved roads.

1. Notwithstanding the foregoing, as to any unimproved highway as defined herein, any person, firm or corporation maintaining gas pipes or water mains under franchise or lawful authority may excavate in the highway for purpose of repair of said pipes, without first obtaining a permit, but as soon as possible there must be filed a written statement with the director of transportation for the county containing the same information as is required in an application for permit under this chapter.

2. After any of the work mentioned in paragraph (1) of this subsection is begun, the doing thereof and the repairing and restoring of the highway shall be prosecuted with reasonable diligence and in a manner that will not obstruct the highway or travel thereon more than is absolutely necessary.

Section 50. Subsection (A) of Section 12.16.020 shall remain the same.

Section 51. Section 12.16.040 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.16.040 Cattle guards - Encroachment permit required - Conditions.

Pursuant to the provisions of Section 985 of the Streets and Highways Code of the State of California, it is made unlawful for any person, firm or corporation to construct, install and/or maintain a cattle guard on any county highway or county right-of-way, except if an encroachment permit therefor has first been obtained from the director of transportation for the county pursuant to this chapter. No such permit shall be issued unless and until the board of supervisors has approved the specifications for the construction of such cattle guard, and the applicant has furnished such bond, if any, as may be required by the board of supervisors.

Section 52. Section 12.16.050 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.16.050 Permit issuance - Limitations.

Notwithstanding any provision in this chapter to the contrary, the director of transportation for the county shall not issue an encroachment permit pursuant to the provisions of this chapter to any person, firm or corporation for any use of any public highway in the county for which a franchise may be issuable under Article 1 of Chapter 1 of Division 3 (commencing with section 6001) of the Public Utilities Code, unless such person, firm or corporation has been granted a franchise by the county pursuant to the Public Utilities Code; provided, still further, that no encroachment permit shall be issued under this chapter if such permit shall unduly

interfere with the rights and privileges of any person, firm or corporation which has been issued a franchise pursuant to the Public Utilities Code; and the grantee of any such franchise shall have the prior right to make full use of the county streets and county highways, as provided in the franchise, as against all persons applying for an encroachment permit under this chapter who have not been issued such a franchise.

Section 53. Section 12.16.060 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.16.060 Permit - Application.

Any person, firm or corporation desiring to obtain a permit as mentioned in subsection (A) of Section 12.16.020 of this chapter for any work that penetrates the surface of the highway, shall file with the director of transportation for the county a written application therefor, describing specifically the location, nature and extent of the proposed work and the purpose thereof, and the nature of the right, if any, of the applicant to do such work. Any applicant for permission to lay any gas or water pipes, electrical conduits, or any other pipes or conduits of any kind or nature whatsoever shall file with the application a diagram showing the route, terminals and location in the highway of such gas or water pipes, electrical conduits or pipes or conduits of any kind or nature.

Section 54. Section 12.16.070 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.16.070 Permit - Issuance.

If it appears that the applicant is lawfully entitled under any franchise, or as the owner of the abutting land, or otherwise has a legal right to do said work in the highway at the place and in the manner proposed, the director of transportation shall, upon being also satisfied that such work is necessary and will be properly done, grant a written permit for the work or such part thereof as he may find proper, except that where the work falls within the class mentioned in Section 12.16.030 of this chapter, he shall first follow the provisions thereof. The permit shall require that the permittee install and maintain a permanent mark at the point of installation identifying such installation. The director of transportation shall thereupon file all such applications and diagrams, together with a memorandum of his action thereon, with the clerk of the board of supervisors.

Section 55. Section 12.16.080 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.16.080 Permit application - Surface obstruction only.

Any person desiring to obtain a permit for work mentioned in subsection (A) of Section 12.16.020 of this chapter which does not penetrate the surface of the highway, but only constitutes the placing of an obstruction or the piling of material upon the surface thereof, shall make an application in writing to the director of transportation, stating the exact location in the highway where it is desired to place such obstruction or pile such material, the length of time it will remain, and the amount of highway space it will cover. If it appears to the director of transportation that the placing of the obstruction or the piling of the material therein as specified in the application filed under the preceding section will not unduly interfere with traffic in the road or endanger the safety of persons using it, and that it is necessary, he may grant it for a reasonable period of time.

Section 56. Section 12.16.090 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.16.090 Curbs, gutters, sidewalks and driveway approaches - Permits - Construction standards.

Whenever an application for an encroachment permit under subsection (A) of Section 12.16.020 of this chapter is made for the purpose of construction of curbs, gutters, sidewalks or driveway approaches, the director of transportation shall specify the type that is to be permitted, and the installation thereof shall conform to line and grade as established by the county surveyor. The standards and specifications for such curbs, gutters, sidewalks and driveway approaches shall be according to the standards and specifications adopted by the board of supervisors under the Subdivision of Land Ordinance of the county, Title 18 of this code.

Section 57. Section 12.16.100 of Chapter 12.16 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.16.100 Encroachment permits in new subdivisions.

No permit is required in roads in new subdivisions for the purpose of making the improvements designated by the board of supervisors under the Subdivision of Land Ordinance of the county, Title 18 of this code, and which improvements are a part of the improvement contract between the county and the subdivider; but for any improvement of or encroachment on any road for purposes not designated in the improvement contract, a permit must first be secured from the director of transportation under this chapter. Failure to secure an encroachment permit prior to beginning the work for which one is required, or construction in violation of the terms of such permit, constitutes a violation of this chapter.

Section 58. Section 12.16.130 of Chapter 12.16 of Title 12 is hereby amended to read as follows:

12.16.130 Refilling of excavations.

It shall be the duty of any person, firm or corporation, digging, excavating, plowing up, tearing up, filling, disturbing or changing any portion of the traveled part of the public highway, or the surface thereof, to repair the highway wherever disturbed or affected by the doing of said work, and to restore the highway and the surface thereof to as good condition as the same was in before such work as begun, all of which shall be done to the satisfaction of the director of transportation. The refilling of all such excavations shall be made in the following manner: the dirt shall be replaced and carefully tamped in layers, not exceeding two (2) feet in thickness, and each layer shall be well flooded with water before the next layer is put on, and the top layer shall be well flooded with water and tamped, although the same may be less than two (2) feet in thickness. The surface of such refilling shall, when completed, be smooth and even, and flush with the surrounding surface of the highway, without bumps or depressions. If any person, firm or corporation doing any work hereinbefore mentioned, on any highway, fails to repair such highway and restore the same to its former condition, as herein directed, within a reasonable time, the director of transportation shall report the matter to the board of supervisors and may, upon their order, do or complete the work or repair and restoration; and the person, firm or corporation by whom such digging, excavating, plowing, tearing up, filling, disturbing or changing was done shall be liable to the county for the cost of such work.

Section 59. Section 12.20.080 of Chapter 12.20 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.20.080 Relocation - Demand by director of transportation.

The director of transportation for the county shall specify in a written demand to the person placing or maintaining such pole, poleline, pipe, pipeline, railroad track or other such structure or fixture a reasonable time within which the work of relocation must

be commenced, and such person must commence such relocation within the time specified in the demand and thereafter diligently prosecute the same to completion.

Section 60. Section 12.20.100 of Chapter 12.20 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.20.100 Violation - Penalty.

The director of transportation of the county shall maintain an action in any court of competent jurisdiction in the name of the county to abate the encroachment as a nuisance. If a judgment is recovered in favor of the county, he may, in addition to having the nuisance abated, recover a penalty of ten dollars ($10.00) for each day such nuisance remains after service of notice to remove, and also the costs in the action.

Section 61. Section 12.20.110 of Chapter 12.20 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.20.110 Deposit of recovered penalties.

The director of transportation of the county shall pay all penalties recovered into the county road fund.

Section 62. Section 12.24.030 of Chapter 12.24 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.24.030 Stop intersections - Designation - Marking.

A. Pursuant to the provisions of Section 21354 of the Vehicle Code, the board of supervisors may from time to time by ordinance designate any intersection under its exclusive jurisdiction as a stop intersection, and it may order the director of transportation of the county to erect stop signs at one (1) or more entrances thereto.

B. Notwithstanding any other provision in this section to the contrary, the director of transportation of the county, after taking into consideration sound, basic and standard engineering and traffic safety practices, may erect stop signs at one (1) or more entrances of any intersection under the exclusive jurisdiction of the county if he determines such stop signs are necessary in order to protect the traveling public.

C. As to any intersection of two (2) or more boulevards, the director of transportation, after taking into consideration sound, basic and standard engineering and traffic safety practices, shall determine whether or not any stop signs are necessary, and if he determines that stop signs are necessary, he shall erect such stop signs at one (1) or more entrances thereto as he determines proper to protect the traveling public.

Section 63. Section 12.24.040 of Chapter 12.24 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.24.040 Stop intersections - Locations.

Pursuant to the provisions of Section 21354 of the Vehicle Code, and pursuant to Section 12.24.030 of this chapter, the following intersections are declared to be stop intersections, and the director of transportation of the county shall erect stop signs at one (1) or more entrances thereto, as hereinafter more particularly set forth for each such intersection:

1. Washington Avenue. On Washington Avenue at the intersection of Washington Avenue and Potomac Street, stopping northbound and southbound traffic.

Section 64. Section 12.24.050 of Chapter 12.24 of Title 12 of the Kern County Code is hereby amended to read as follows:

12.24.050 Stop signs.

The director of transportation of the county is authorized to place and maintain, or cause to be placed or maintained, appropriate stop signs upon each and every street or road intersecting a boulevard, at or near the property line of said boulevard. All stop signs erected under the provisions of this section, with the exception of stop signs which were erected prior to January 1, 1957, shall conform with the provisions Section 21400 of the Vehicle Code. All stop signs erected prior to January 1, 1957 shall conform either to the requirements of said Section 21400 or to the statutory requirements in effect at the time that the signs were erected.

Section 65. Subsection (B) of Section 14.32.020 of Chapter 14.32 of Title 14 of the Kern County Code is hereby amended to read as follows:

B. Prior to holding such hearing, the director of waste management shall consult with all affected utilities and shall prepare a report for submission at such hearing containing, among other information, the extent of such utilities' participation and estimates of the total costs to the county and affected property owners. Such report shall also contain an estimate of the time required to complete such underground installation and removal of overhead facilities.

Section 66. Subsection (A) of Section 14.32.020 shall remain the same.

Section 67. Subsection (A) of Section 14.32.060 of Chapter 14.32 of Title 14 of the Kern County Code is hereby amended to read as follows:

A. Any county facilities or equipment installed under the supervision and to the satisfaction of the director of waste management;

Section 68. Subsections (B), (C), (D), (E), (F), (G) and (H) of Section 14.32.060 shall remain the same.

Section 69. Subsection (B) of Section 14.32.090 of Chapter 14.32 of Title 14 of the Kern County Code is hereby amended to read as follows:

B. In the event any person owning, operating, leasing, occupying or renting such property does not comply with the provisions of subsection (A) of this section within the time provided for in the resolution enacted pursuant to this chapter, the director of waste management shall give notice in writing to the person in possession of such premises, and a notice in writing to the owner thereof as shown on the last equalized assessment roll, to provide the required underground facilities and thirty (30) days thereafter shall have the authority to order the disconnection and removal of any and all overhead service wires and associated facilities supplying utility service to such property.

Section 70. Subsection (A) of Section 14.32.090 shall remain the same.

Section 71. Section 15.04.110 of Chapter 15.04 of Title 15 of the Kern County Code is hereby amended to read as follows:

15.04.110 Director

"Director" means the director of transportation management for the county or his authorized representative.

Section 72. Section 15.08.050 of Chapter 15.08 of Title 15 of the Kern County Code is hereby amended to read as follows:

15.08.050 Airport use - Compliance with regulations required.

Any permission granted by the county or director, either directly or indirectly, expressly or by implication to any person to enter upon or use an airport is conditioned upon compliance with the rules and regulations governing airports. Entry upon an airport by any person constitutes an agreement by the person to comply with all applicable rules and regulations of the United States, the state of California, the county of Kern, and the orders and regulations of any officer thereof.

Section 73. Section 15.08.240 of Chapter 15.08 of Title 15 of the Kern County Code is hereby amended to read as follows:

15.08.240 Additional or revised regulations.

The board of supervisors may adopt additional or revised rules and regulations for the safe and orderly conduct of the airport. In the event of an urgent need for additional or revised rules or regulations, the director shall proceed immediately to adopt such rule or regulation and report his action to the board of supervisors at its next regular meeting for the board's ratification, revision or repeal. Such emergency rules or revisions shall be effective and in force for thirty (30) days or until such earlier time as presented to and acted on by the board of supervisors. It is the responsibility of all airport users to acquaint themselves with all rules and regulations governing county-operated airports.

Section 74. Section 15.24.020 of Chapter 15.24 of Title 15 of the Kern County Code is hereby amended to read as follows:

15.24.020 Restricted areas.

The director shall develop security plans for the protection of health and safety of persons and the safety of property at Kern County airports which may include regulations restricting access to certain designated areas to persons having lawful business within such restricted areas, and for the issuance, revocation and suspension of permits allowing authorized persons and vehicles to enter such restricted areas. The airport security regulations may be amended, revised or repealed at any time by the board of supervisors or the director. Such security regulations shall become effective when filed with the clerk of the board of supervisors and upon posting the designated restricted areas with signs which read "Restricted Area - Authorized Personnel Only" or similar language.

Section 75. Subsection (A) of Section 15.24.030 of Chapter 15.24 of Title 15 of the Kern County Code is hereby amended to read as follows:

A. No person, corporation or organization of any kind shall bring or cause a motor vehicle to be brought into an area restricted pursuant to Section 15.24.020 of this chapter unless such vehicle has a permit issued under the security regulations of the director. Violation of this section is a misdemeanor and punishable in the manner prescribed in Section 1.12.030 of this code.

Section 76. Subsection (B) of Section 15.24.030 shall remain the same.

Section 77. Subsection (A) of Section 15.24.040 of Chapter 15.24 of Title 15 of the Kern County Code is hereby amended to read as follows:

A. No person shall enter or remain in an area designated as a restricted areas pursuant to Section 15.24.020 of this chapter

without permission of the director given in the manner prescribed in the security regulations of the director. Violation of this section is a misdemeanor punishable in the manner prescribed in Section 1.12.030 of this code.

Section 78. Subsection (B) of Section 15.24.040 shall remain the same.

Section 79. Section 15.24.050 of Chapter 15.24 of Title 15 of the Kern County Code is hereby amended to read as follows:

15.24.050 Permit denial, suspension or revocation - Grounds - Appeal.

A. The director may revoke, suspend or refuse to issue a permit for a person or vehicle to enter a restricted area for the following reasons:

1. Because the permittee or applicant does not have lawful business in such area or cannot otherwise justify the necessity for having such permit;

2. For violation of airport rules or regulations;

3. For commission of acts threatening airport safety or security; or

4. Adverse information on the past conduct or prior record of the applicant or permittee.

B. An aggrieved party may appeal the director's revocation, suspension, or denial of a permit to the board of supervisors, whose decision shall be final. The director's ruling shall not be stayed during any appeal to the board of supervisors except on the order of the board of supervisors.

Section 80. Section 17.44.020 of Chapter 17.24 of Title 17 of the Kern County Code is hereby amended to read as follows:

17.44.020 Administration and enforcement.

The building inspection department shall administer and enforce the provisions of this chapter, as well as the regulations contained in Chapter 2 of Part 1 of Title 25 of the California Code of Regulations, relating to mobile homes located outside a mobile home park, travel-trailer park, recreational trailer park or temporary trailer park, as now in effect or as amended from time to time.

Section 81. Subsection (A) of Section 17.60.030 of Chapter 17.60 of Title 17 of the Kern County Code is hereby amended to read as follows:

A. "Administrator" means the director of transportation or his designee.

Section 82. Subsections (B), (C), (D), (E), (F) (G), (H) and (I) of Section 17.60.030 shall remain the same.

Section 83. Section 18.05.070 of Chapter 18.05 of Title 18 of the Kern County Code is hereby amended to read as follows:

18.05.070 Relationship to other regulations and requirements.

The regulations of this title and requirements or conditions imposed pursuant to this title shall not supersede any other regulations or requirements adopted or imposed by the Kern County board of supervisors, the Kern County fire department, the Kern County environmental health services department, the Regional Water Quality Control Board, the Air Pollution Control District, the Kern County engineering and survey services department, the Kern County water agency, or any other local, state, or federal agency that has jurisdiction by law over uses and development authorized by this title. All uses and development authorized by this title shall

comply with all other such regulations and requirements. Where two (2) or more ordinances regulate the same use or activity, the more restrictive ordinance shall apply unless a variance has been specifically granted.

Section 84. Subsection (A) of Section 18.10.030 of Chapter 18.10 of Title 18 of the Kern County Code is hereby amended to read as follows:

A. Membership.

The subdivision review committee shall be composed of the director of planning and development services, the environmental health services director, the fire chief, the director of engineering and survey services, the director of transportation management, and the sheriff, or their designated representatives. The board of supervisors may also appoint the head of any other county department or agency to membership on the committee. The director of planning and development services or his/her designated representative shall act as chair of the committee. In the absence of both, the committee shall elect a temporary chairperson. By acting as chairperson, a member shall not be disqualified to vote.

Section 85. Subsection (B) of Section 18.10.030 shall remain the same.

Section 86. Section 18.10.060 of Chapter 18.10 of Title 18 of the Kern County Code is hereby amended to read as follows:

18.10.060 Engineering and survey services department.

A. It shall be the responsibility of the engineering and survey services department to recommend to the subdivision review committee approval, conditional approval, or disapproval of any tentative tract map in relation to improvement facilities. The department's recommendations shall address, among other matters, the following:

1. Adequacy of all tentative map survey, if submitted;
2. Adequacy of any lot use feasibility study;
3. Adequacy of solid waste disposal services and facilities;
4. Review of flood protection facilities intended for public maintenance.

B. It shall be the responsibility of the engineering and survey services department to recommend to the director of planning and development services approval, conditional approval, or disapproval of any tentative parcel map. The department's recommendation shall address, as appropriate, the matters listed in subsection (A) of this section.

C. It shall be the responsibility of the engineering and survey services department to review all final maps for compliance with conditions of approval, compliance with the requirements of the California Subdivision Map Act and this title, to approve all improvement plans and/or improvement agreements, and to carry out other responsibilities imposed upon it by this title.

Section 87. Section 18.10.065 is hereby added to Chapter 18.10 of Title 18 of the Kern County Code to read as follows:

18.10.065 Department of transportation management.

It shall be the responsibility of the Kern County department of transportation management to recommend to the department of planning and development services approval, conditional approval, or disapproval of any tentative tract in relation to the engineering feasibility of street alignments and widths and traffic safety concerns, with particular regard to sight distances, turning maneuvers, and intersection traffic controls.

Section 88. Subsection (J) of Section 18.15.030 of Chapter 18.15 of Title 18 of the Kern County Code is hereby amended to read as follows:

J. Additional Reports and Data. Except where waived by the appropriate department or agency noted, every tentative tract map submittal shall be accompanied by the documents noted in the subsequent subsections. Further, it shall be the responsibility of the subdivider or his/her authorized agent to determine the necessity of such documents prior to submittal of the proposed tract map to the department of planning and development services, and the responsibility of the applicable department or agency to furnish such waiver to the department of planning and development services in writing prior to submittal of the proposed tract to the Subdivision Review Committee. A copy of such waiver shall also be furnished the subdivider or his/her agent.

1. A lot use feasibility study which demonstrates to the environmental health services department, engineering and survey services department, and department of planning and development services that the proposed subdivision and its design and access roads are suitable to serve the intended use of the property and will not have any adverse effect upon the probable future use, development, or subdivision of other property in the surrounding area. The lot use feasibility study shall be considered only as an informational document or guide, and shall not be deemed to regulate any future use, development, or subdivision of other property.

2. A flood hazard study/drainage plan shall be required for a tentative tract map and parcel map. This study shall be prepared by a registered civil engineer and shall address the following items:

a. Provisions of the National Flood Insurance Regulations,

b. Evaluation and mitigation of potential flood hazards as a result of occurrence of the base flood, as required by the flood damage protection ordinance,

c. Suitability of the site for the intended use where a special flood hazard condition exists. This includes the ability to receive off-site floodwaters and discharge them as nearly as possible in the manner and location which existed prior to development,

d. Effect of the proposed improvements on the carrying capacity of existing natural drainage channels and flood control facilities or other appurtenances,

e. Provisions for erosion control, including the prevention of sedimentation or other damage to property or improvements within or without the subdivision,

f. A drainage plan which proposes mitigation measures for any increase of the flow of runoff resulting from the proposed development shall be submitted when required by Kern County departments.

3. A geologic hazards report prepared and signed by a registered geologist or engineering geologist which demonstrates conditions of the site, including description of the geology of the site. This report shall include conclusions and recommendations for mitigation measures with regard to the effect of the geologic conditions on the proposed development. It shall include, but not be limited to, the consideration of:

a. Maximum credible earthquake and maximum expected bedrock acceleration,

b. Faulting,

c. Landslides/rock falls,

d. Land subsidence,

e. Liquefication, as required.

Such report shall be reviewed and approved by the director of planning and development services. No final tract map shall be approved, certified, or recorded if any geologic report required as a condition of approval of the tentative tract map has not been furnished or has been determined to be inadequate by the director of planning and development services. Where a geologic report has been required and furnished in conformity with this subsection, a

notice shall be placed on the tract map as recorded in substantially the following form:

> NOTICE IS HEREBY GIVEN that all or part of the area within the subdivision shown on this map lies within a Special Studies Zone (hazardous fault zone) delineated by the State Geologist, pursuant to the Alquist-Priolo Special Studies Zones Act (commencing with Section 2621 of the California Public Resources Code), the boundaries of which are delineated on this map. In accordance with said Act, a geologic report has been prepared by a registered geologist (showing his name and address) defining and delineating a hazard of surface fault rupture and directed to the problem of potential surface fault displacement, if any, within the boundaries of the subdivision. A copy of such report is on file with the department of planning and development services. Under the Building Code of Kern County, no building permit or installation permit may be issued for any dwelling, mobile home, or other structure for human occupancy located in any hazardous areas as shown in such geologic report.

4. Additional details regarding the proposed water supply, including proposed fire flows as required by the environmental health services department and fire department. Typically, a valid "will serve letter" from the provider of such service will satisfy this submittal requirement,

5. Additional details regarding the proposed sewage disposal systems as required by the environmental health services department. Typically, a valid "will serve letter" from the provider of such service will satisfy this submittal requirement,

6. A soils report, based on adequate test borings, prepared and signed by an engineer with the authority to use the title "soils engineer," shall address the suitability of the site as required by the environmental health service department and the department of planning and development services,

7. Sufficient number of "blue line" prints of the proposed map, as determined by the department of planning and development services, folded to eight and one-half (8 1/2) inches by eleven (11) inches; one (1) legible reduction of the proposed map to eight and one-half (8 1/2) inches by eleven (11) inches; and one (1) sepia (or reproducible) print of the map, unless waived by planning and development services,

8. Hazardous waste verification statement, as required by Section 65962.5 of the California Government Code;

Section 89. Subsections (A), (B), (C), (D), (E), (F), (G), (H), (I) and (K) of Section 18.15.030 shall remain the same.

Section 90. Subsection (J) of Section 18.25.030 of Chapter 18.25 of Title 18 of the Kern County Code is hereby amended to read as follows:

J. Additional Reports and Data. Except where waived by the appropriate department or agency noted, every tentative parcel map submittal shall be accompanied by the documents noted in the subsequent subsections. Further, it shall be the responsibility of the subdivider or his authorized agent to determine the necessity of such documents prior to submittal of the proposed tentative parcel map to the department of planning and development services, and the responsibility of the applicable department or agency to furnish such waiver to the director of planning and development services in writing prior to submittal of the proposed parcel map to the director of planning and development services. A copy of such waiver shall also be furnished to the subdivider or his/her agent.

1. A lot use feasibility study which demonstrates to the environmental health services department, engineering and survey

services department, and department of planning and development services that the proposed subdivision and its design and access roads will not have any adverse effect upon the probable future use, development, or subdivision of other property in the surrounding area. The lot use feasibility study shall be considered only as an informational document or guide, and shall not be deemed to regulate any future use, development, or subdivision of other property,

2. A geologic hazards study shall be required where any part of the land shown on a tentative parcel map is located within a special studies zone (hazardous fault zone), as delineated by the State Geologist pursuant to the Alquist-Priolo Special Studies Zones Act (commencing with Section 2621 of the Public Resources Code). In such cases, the subdivider shall file with the director of planning and development services, prior to approval, certification, or recordation of a subdivision map, a geologic report prepared by a geologist registered in the state of California, defining and delineating any hazard of surface fault rupture and directed to the problem of potential surface fault displacement within the boundaries of the subdivision. The report shall be in conformity with the Policies and Criteria of the State Mining and Geology Board (Title 14, Division 6, Chapter 8, Subchapter 1, California Code of Regulations) and the Guidelines for Evaluating the Hazard of Surface Fault Rupture, promulgated by the California Division of Mines and Geology (Appendix C, Special Publication 42, Revised January 1977), and as the same may be amended or revised from time to time. Such report shall be reviewed and approved by the director of planning and development services.

No final parcel map shall be approved, certified, or recorded if any geologic report required as a condition of approval of the tentative parcel map has not been furnished or has been determined to be inadequate by the director of planning and development services.

Where a geologic report has been required and furnished in conformity with this subsection, a notice shall be placed on the parcel map as recorded in substantially the following form:

> NOTICE IS HEREBY GIVEN that all or part of the area within the subdivision shown on this map lies within a Special Studies Zone (hazardous fault zone) delineated by the State Geologist, pursuant to the Alquist-Priolo Special Studies Zones Act (commencing with Section 2621 of the California Public Resources Code), the boundaries of which are delineated on this map. In accordance with said Act, a geologic report has been prepared by a registered geologist (showing his name and address) defining and delineating a hazard of surface fault rupture and directed to the problem of potential surface fault displacement, if any, within the boundaries of the subdivision. A copy of such report is on file with the Department of Planning and Development Services. Under the Building Code of Kern County, no building permit or installation permit may be issued for any dwelling, mobile home, or other structure for human occupancy located in any hazardous area as shown in such geologic report.

The foregoing requirements for a geologic report shall not apply in any of the following cases:

a. Where the director of planning and development services has determined, in the exercise of his/her reasonable discretion, that the tentative parcel map is not for a development which contemplates eventual construction of structures for human occupancy,

b. Where the director of planning and development services has determined, on the basis of evidence or recommendations provided by a registered geologist, that no undue hazard of surface fault rupture exists, and has waived the requirements for a geologic report, with approval of the

State Geologist, in accordance with Section 2623 of the California Public Resources Code,

c. In case of a parcel map designed and zoned solely for four (4) or fewer single-family dwellings or mobile homes, provided that the director of planning and development services shall require as a condition of the approval of the tentative parcel map that no building permit or installation permit will be issued for any dwelling, mobile home, or other structure for human occupancy on any parcel within such special studies zone, until the subdivider furnishes a geologic report made by a geologist registered in the state of California, and evaluated and approved by the director of planning and development services, defining and delineating a hazard of surface fault rupture and directed to the problem of potential surface fault displacement within such lot, if any, in conformity with the Policies and Criteria of the State Mining and Geology Board (Title 14, Division 6, Chapter 8, Subchapter 1 of the California Code of Regulations) and the Guidelines for Evaluating the Hazard of Surface Fault Rupture, promulgated by the California Division of Mines and Geology (Appendix C, Special Publication 42, Revised January 1977) and as the same may be revised from time to time,

3. Additional details regarding the proposed water supply, including proposed fire flows as required by the environmental health services department and the fire department,

4. Additional details regarding the proposed sewage disposal systems as required by the environmental health services department,

5. A soils report, based on adequate test borings, prepared and signed by an engineer with the authority to use the title "Soils Engineer," shall address the suitability of the site as required by the environmental health services department and the department of planning and development services,

6. Sufficient number of "blue line" prints of the proposed map, as determined by the department of planning and development services, folded to eight and one-half (8 1/2) inches by eleven (11) inches; and one (1) legible reduction of the proposed map to eight and one-half (8 1/2) inches by eleven (11) inches,

7. Hazardous waste verification statement, as required by Section 65962.5 of the California Government Code.

Section 91. Subsections (A) (B) (C) (D) (E) (F) (G) (H) and (I) of Section 18.25.030 shall remain the same.

Section 92. Subsections (A), (C) and (D) of Section 18.45.020 of Chapter 18.45 of Title 18 of the Kern County Code are hereby amended to read as follows:

A. Form. The final tract map shall be in the form and shall contain the data and information prescribed by the California Subdivision Map Act and this chapter.

1. Statements, certificates, and acknowledgments must be legibly stamped or printed upon the map with opaque ink. If polyester base film is used, such film shall have a minimum thickness of four-thousandths (0.004) of an inch. The map shall be prepared in a manner suitable for reproduction by direct print or other reproducing process. The director of engineering and survey services shall not accept any map that is not completely legible.

2. The exterior boundary of the land included within the subdivision shall be delineated by a distinctive border on the final map. Said border shall not obliterate or obscure any figure or other data appearing upon the final tract map.

3. The scale of the final tract map shall adequately depict the subdivision; however, the scale of the map shall not be

less than one (1) inch equals one hundred (100) feet, unless an alternate scale is authorized the director of engineering and survey services.

4. Sheet number and total number of sheets shall appear on the lower right hand corner of each sheet.

5. The tract map number, scale, and north arrow shall be shown on each sheet.

6. In final tract maps containing more than one (1) block, the blocks may be lettered in alphabetical order, commencing with the letter "A," with no omissions or duplications. Lot numbers shall begin with the numeral "1" in each block and shall continue consecutively (in sequence) with no omissions or duplications. If multiple map sheets are required, consecutive numbering shall be required from one (1) map sheet to the next. As an alternative to the foregoing, block letters may be omitted, in which case lot numbers shall begin with the numeral "1" and shall continue consecutively (in sequence) throughout the subdivision with no omissions or duplications. If maps are filed in phases, the lots within each phase shall begin with the numeral "1" or letter "A." All letters or figures shall be conspicuous and solid. They shall not obliterate any other information contained on the map. Circles shall not be drawn around letters or numbers.

7. All lots within a block shall be shown on a single sheet. This requirement may be waived where, in the opinion of the director of engineering and survey services, compliance is not practicable.

8. The title sheet or first map sheet may show the basis of bearings. If coordinates on the "California Coordinate System" are shown for points on the maps and used for basis of bearings, a detail map showing the control scheme through which the coordinates were determined from points of known coordinates shall be shown on a separate map sheet.

9. If more than three (3) map sheets are used, a key diagram showing the area covered by each sheet shall appear on the title sheet or first map sheet.

C. Information on Final Tract Map. The final tract map shall show:

1. The tract number, date of survey, scale, and north arrow;

2. The locations and names of streets; the centerlines thereof; the lengths, tangents, radii and central angle and radial bearings of curves; the total width of each street and width on each side of the centerline; the width of the portion of the street being dedicated; and the width of the existing dedication, if any;

3. The locations and widths of pedestrian ways, if any;

4. The locations and dimensions of public areas and the net acreage, to the nearest one-hundredth (1/100) of an acre, contained therein. If areas are less than one (1) acre, actual square footage shall be stated;

5. The centerlines, widths, boundaries, and dimensions of all easements to which the lots are subject. If the easement is not definitely locatable by record, a statement as to the existence of the easement shall appear on the title sheet. Easements shall be clearly labeled and identified, and if already of record, precise reference to the records shall be made. Easements for storm drains, sewers, building lines, and other purposes shall be denoted by broken lines. Limited or restricted access rights to adjacent highways shall be indicated by hatched lines of the same width as the lines denoting street boundaries;

6. Easements being dedicated shall be indicated in the instrument of dedication;

7. Locations and dimensions of drainage easements;

8. Locations and widths of utility rights-of-way and railroad rights-of-way;

9. Locations and widths of any other easements (slope, equestrian, etc.);

10. Locations and widths of lots or locations of access rights to be dedicated or conveyed to the county;

11. Locations, widths, and names of streets, alleys, and pedestrian ways adjacent to the proposed tract;

12. Locations of city boundary lines;

13. Sufficient data shown to accurately determine the bearing and length of every lot line, block line, and boundary line. Dimensions of lots shall be given as the net dimensions to the boundaries of the rights-of-way of the adjoining streets. No ditto marks shall be used. Length, radius, tangent, and total delta of each curve and the bearing of radial lines to each lot corner on a curve at street intersections and at the beginning and end of nontangent curves shall be shown.

a. Lots containing two and one-half (2 1/2) acres or more shall show gross acreage to the nearest one hundredth (1/100). Lots containing less than two and one-half (2 1/2) acres shall show actual net area expressed as net acreage for lots containing one (1) acre or more and net square footage for lots containing less than one (1) acre. Area shall be shown for irregular shaped lots;

14. The centerline and direction of flow of all natural drainage channels which are not offered for dedication on the map shall be shown by dashed lines terminating in arrows on a separate map sheet;

15. Location and dimensions of all applicable flood-plain zoning shall be shown on a separate map sheet;

16. All dimensions shall be shown in feet and decimals, to the nearest one hundredth (1/100) of a foot. Where the sum of a series must equal a total number, each distance in the series numbers may be expressed to the third decimal place;

17. The following survey data:

a. The radius, semitangent, arc length, and central angle of curves,

b. Suitable primary survey control points, including section corners and monuments existing outside the proposed subdivision,

c. The location of all permanent monuments within the proposed subdivision,

d. Ties to any recorded names or numbers of adjacent subdivisions,

e. Ties to any city and county boundary lines involved;

18. Distances and bearings on the side lines of lots which are crossed by an easement shall clearly indicate the actual lengths of the lot lines. The width, length, bearings, and sufficient ties shall be shown to accurately locate the easement with respect to the tract. The easement must be clearly labeled, and, if already of record, its recorded reference given. If the easement is being dedicated by the map, said dedication shall be properly set out in the owner's statement of dedication. All notes or figures pertaining to the easement shall be smaller and lighter than those relating to the tract itself;

19. The character, description, and positions of all stakes, monuments, or other evidence used to determine the boundaries of the tract shall be clearly shown. If necessary, this information shall be shown by means of a key map or a separately recorded record of survey map;

20. The final tract map shall show adjoining recorded maps, or portions thereof, by lot, parcel, or block number, map name or number, and place of record. The relation of the tract to adjoining maps shall be shown by ties;

21. Whenever the director of engineering and survey services or a city engineer has established the centerline of a street or alley, the data shall be shown on the final map, indicating all monuments found and making reference to a field book or map. If the points were reset by ties, the fact shall be stated;

22. The final tract map shall show all city boundaries crossing or adjoining the tract clearly designated and tied in;

23. City boundaries, and lines between registered (Torrens Title) and unregistered land, and between a separate ownership of registered land, shall be lot lines; that is, such a line shall not cut a lot, but shall be made a line of a lot, except where permitted by the director of engineering and survey services;

24. Any other notes required as a condition of tentative tract map approval shall be shown on the final tract map, title sheet, or on a separate map sheet.

D. Statements, Certificates, and Acknowledgments on Final Tract Map. The following statements, certificates, acknowledgments, and others required by the California Subdivision Map Act shall appear on the title sheet, or on other sheets as may be required:

1. A statement, signed and acknowledged by all parties having any record title or interest in the land subdivided, except as otherwise provided in Sections 66436 through 66439 of the California Government Code, consenting to the preparation and recordation of the final tract map offering for dedication all parcels of land, streets, alleys, pedestrian ways, drainage channels, easements, and other rights-of-way intended for public use, and offering for dedication rights of access to and from prescribed streets, lots, and parcels of land.

2. A statement of the registered civil engineer or licensed surveyor, signed, sealed, and dated, who prepared the survey and the tract final map (statement of civil engineer or surveyor).

3. A statement or certificate for execution by the director of planning and development services (statement or certificate of director of planning and development services).

4. A statement or certificate for execution by the county surveyor (statement or certificate of county surveyor).

5. A statement or certificate for execution by the board of supervisors (statement or certificate of board of supervisors).

6. A statement or certificate for execution by the county recorder on all sheets (statement or certificate of county recorder).

7. A statement or certificate for execution by the public entity for which a dedication is made, where applicable (statement or certificate of district).

8. A statement or certificate for execution by the California Department of Transportation, where applicable.

Forms for statements, certificates, or acknowledgments required by the California Subdivision Map Act and by this title shall be provided by the engineering and survey services department.

Section 93. Subsection (B) of Section 18.45.020 shall remain the same.

Section 94. Subsection (C) of Section 18.45.040 of Chapter 18.45 of Title 18 of the Kern County Code is hereby amended to read as follows:

C. Monuments.

1. Prior to submittal of the final tract map to the board of supervisors for approval, all exterior boundary monuments shall be placed, and the developer's engineer or surveyor of record shall submit a written request to the engineering and survey services department to verify in the field survey data and the existence of monuments as noted on the map. Allowable closure error shall be in accordance with accepted survey practice. The setting of interior monuments may be deferred in accordance with Section 18.55.110.

2. In making the survey for a subdivision, the engineer or surveyor shall set sufficient permanent monuments so that the survey or any part thereof may be readily retraced.

a. Permanent monuments of the type indicated in the development standards shall be placed at all points of intersection of street centerlines, at all angle points of street centerlines, and at all points of beginning and ending of curvature of street centerlines.

b. Permanent monuments of the type indicated in the development standards shall be placed at all angle points, curve points, and points of intersection of the exterior boundary lines of the tract.

c. Nonpermanent monuments of the type indicated in the development standards shall be set at all lot corners. Setting may be deferred in accordance with Section 18.55.110.

3. Survey Monument Encasements.

a. All survey monuments which are known to the surveyor and which lie or will lie within the paved portion of any highway, street, alley, way, or sidewalk within the tract shall be encased as shown in the development standards.

b. This section is applicable to any such area paved with road mix asphalt surfacing, asphalt concrete, or portland cement concrete.

c. There is excepted from the provisions of this section any survey monument which was in existence at the time of the filing of the tentative tract map, and which is located within any paved area which will not be improved or reconstructed in connection with the improvements for such subdivision.

d. The improvements required by this section shall be completed to the satisfaction of the county director of transportation.

e. When the survey point on the monument falls outside of, or at the edge of, the road mix asphalt surfacing or asphalt concrete surfacing of any part-width facility, the monument encasement need not be placed until the adjoining part-width facilities are completed. Sole responsibility for installing this monument encasement rests with the developer who installs the final portion of the adjoining improvements.

4. Notation of Monument on the Final Tract Map. The character, type, and positions of all monuments and encasements shall be noted on the final tract map. If any shortage or excess of distance is found on the ground between existing monuments, compared with the original record, any division of the total must bear its proportion of such shortage or excess. If a monument is replaced, indicate type and condition of monument found and the date of replacement.

5. Restoring Monuments. If any monument is found in a perishable condition, it shall be replaced with a permanent monument and so noted on the final tract map. The instructions as set forth in the "Manual of Instructions for the Survey of Public Lands of the United States" published by the commissioner of the General Land Office, Department of Interior, Washington, D.C., shall be followed for the subdivision of public lands and privately owned lands, in the restoration of lost or obliterated corners and the retracement of section lines.

Section 95. Subsections (A), (B) and (D) of Section 18.45.040 shall remain the same.

Section 96. Subsections (B) and (E) of Section 18.45.050 of Chapter 18.45 of Title 18 of the Kern County Code are hereby amended to read as follows:

B. No improvement work shall occur and no permit shall be issued for any improvement work on any land in a subdivision or on any improvement for a subdivision prior to approval and recordation of the final tract map, unless all of the following conditions are met:

1. The subdivider has made written application to the department of planning and development services and has obtained approval from the director of the department of planning and development services for such work. In making this determination, the director of the department of planning and development services shall submit the request to the engineering and survey services department for review and recommendation prior to taking action;

2. The tentative tract map has been approved or conditionally approved;

3. Any rezoning to make the lots conform to the Kern County zoning ordinance has been approved;

4. All improvement plans and grading plans have been approved and appropriately signed pursuant to this title; and

5. The director of the department of planning and development services determined that the approved work is not likely to cause substantial environmental damage, is not likely to substantially and avoidably injure fish or wildlife or their habitat, is not likely to cause serious public health problems, and is not likely to injure any nearby property, whether the subdivision is completed or abandoned.

E. Such improvement work shall be subject to inspection and approval by the engineering and survey services department, provided that the board of supervisors may designate another county department or public entity to inspect and approve such work.

Section 97. Subsections (A), ((C), (D), (F), (G), (H), (I), (J), (K), (L), (M), (N), (O) and (P) of Section 18.45.050 shall remain the same.

Section 98. Subsections (A), (C) and (D) of Section 18.45.060 of Chapter 18.45 of Title 18 of the Kern County Code are hereby amended to read as follows:

A. Form. The final parcel map shall be in the form and shall contain the data and information prescribed by the California Subdivision Map Act and this chapter.

1. Statements, certificates, and acknowledgments must be legibly stamped or printed upon the map with opaque ink. If polyester base film is used, such film shall have a minimum thickness of four thousandths (0.004) of an inch. The map shall be prepared in a manner suitable for reproduction by direct print or other reproducing process. The director of engineering and survey services shall not accept any map that is not completely legible.

2. The exterior boundary of the land included within the subdivision shall be delineated by a distinctive border on the final map. Said border shall not obliterate or obscure any figure or other data appearing upon the final map.

3. The scale of the final map shall adequately depict the subdivision; however, the scale of the map shall not be less than one (1) inch equals one hundred (100) feet, unless an alternate scale is authorized by the director of engineering and survey services.

4. Sheet number and total number of sheets shall appear on the lower right hand corner of each sheet.

5. The parcel map number, scale, and north arrow shall be shown on each sheet, if necessary.

6. In final parcel maps containing more than one (1) block, the blocks may be lettered in alphabetical order, commencing with the letter "A," with no omissions or duplications. Parcel numbers shall begin with the numeral "1" in each block and shall continue consecutively (in sequence) with no omissions or duplications. If multiple map sheets are required, consecutive numbering shall be required from one (1) map sheet to the next. As an alternative to the foregoing, block letters may be omitted, in which case parcel numbers shall begin with the numeral "1" and shall continue consecutively (in sequence) throughout the subdivision with no omissions or duplications. If maps are filed in phases, the lots within each phase shall begin with the numeral "1" or letter "A." All letters or figures shall be conspicuous and solid. They shall not obliterate any other information contained on the map. Circles shall not be drawn around letters or numbers.

7. All parcels within a block shall be shown on a single sheet. This requirement may be waived where, in the opinion of the director of engineering and survey services, compliance is not practicable.

8. The title sheet or first map sheet may show the basis of bearings. If coordinates on the "California Coordinate System"

are shown for points on the maps and used for basis of bearings, a detail map showing the control scheme through which the coordinates were determined from points of known coordinates shall be shown on a separate map sheet.

9. If more than three (3) map sheets are used, a key diagram showing the area covered by each sheet shall appear on the first map sheet.

C. Information on Final Parcel Map. The final parcel map shall show:

1. The parcel map number, date of survey if any, scale, and north arrow;

2. The locations and names of streets; the centerlines thereof; the lengths, tangents, radii and central angle and radial bearings of curves (when such curve data is pertinent to the establishment of the exterior map boundary or for the calculation of net areas, when required); the total width of each street and the width on each side of the centerline; the width of the portion of the street being dedicated; and the width of the existing dedication, if any;

3. The locations and widths of pedestrian ways, if any;

4. The locations, dimensions, and area of each parcel. Gross area shall be shown for those parcels containing two and one-half (2 1/2) acres or larger. Net area shall be shown for those parcels containing less than two and one-half (2 1/2) acres. If parcel area is less than one (1) acre, then area shall be expressed as net square feet. Acreage shall be shown to the nearest one-hundredth (1/100) of an acre, and square footage shall shown to the nearest square foot;

5. The centerlines, widths, boundaries, and dimensions, where necessary, of all easements to which the parcels are subject. If the easement is not definitely locatable by record, a statement as to the existence of the easement shall appear on the title sheet. Easements shall be clearly labeled and identified, and if already of record, precise reference to the records shall be made. Easements for storm drains, sewers, building lines, and other purposes shall be denoted by broken lines. Limited or restricted access rights to adjacent highways shall be indicated by hatched lines of the same width as the lines denoting street boundaries;

6. New easements being dedicated on the final map shall be indicated in the owner's statement;

7. Locations and widths of parcels or location of access rights to be dedicated or conveyed to the county;

8. Locations, widths and names of streets, alleys and pedestrian ways adjacent to the proposed parcel map;

9. The centerline and direction flow of all natural drainage channels which are not offered for dedication on the map shall be shown by dashed lines terminating in arrows;

10. Sufficient data shown to accurately determine the bearing and length of every parcel line, block line and boundary line. Survey data shall also include: the radius, semitangent, arc length, and central angle of curves (when such curve data is pertinent to the establishment of the exterior map boundary or for calculation of net areas when required); suitable primary survey control points, including section corners and monuments existing outside the proposed subdivision; the location of all permanent monuments within the proposed subdivision; and ties to any recorded names or number of adjacent subdivisions. All dimensions shall be shown in feet and decimals, to the nearest one hundredth (1/100) of a foot. The sum of a series must equal a total number;

11. The character, description and positions of all stakes, monuments, or other evidence used to determine the boundaries of the parcel map shall be clearly shown. If necessary, this information shall be shown by means of a key map;

12. Whenever the director of engineering and survey services or a city engineer has established the centerline of a street or alley, the data shall be shown on the final map, indicating all monuments found, if by field survey, and making reference to a field book or official map. If the points were reset by ties, the fact shall be stated;

13. The map shall show all city boundaries crossing or adjoining the parcel map clearly designated and tied in;

14. Any other notes or additional information required as a condition of tentative parcel map approval describing conditions regarding the parcel map as to the date of filing which do not affect record title interest shall be shown on an additional map sheet of the final parcel map.

D. Statements, Certificates, and Acknowledgements on Final Parcel Map. The following statements, certificates, and acknowledgements required by the California Subdivision Map Act shall appear on the title sheet, or on other sheets as may be required:

1. A statement, signed and acknowledged by all parties having any record title or interest in the land subdivided, except as otherwise provided in Sections 66346 through 66439 of the California Government Code, and excepting holders of mineral rights, consenting to the preparation and recordation of the final parcel map; and may include offering for dedication all parcels of land, streets, alleys, pedestrian ways, drainage channels, easements and other rights-of-way intended for public use, offering for dedication rights of access to and from prescribed streets, lots and parcels of land (Owner's Statement). The subdivider may furnish the owner's statement in a separate document in form approved by the advisory agency.

2. A statement of the registered civil engineer or licensed surveyor, signed, sealed, and dated, who prepared the survey and the final parcel map (Statement of Civil Engineer or Surveyor);

3. A statement and/or certificate for execution by the director of planning and development services (Statement and/or Certificate of director of planning and development services);

4. A statement for execution by the county surveyor (Statement of County Surveyor);

5. A statement and/or certificate for execution by the county recorder on all sheets (Statement and/or Certificate of County Recorder);

6. A statement for execution by the public entity for which a dedication is made, where applicable (Statement of District);

7. A statement for execution by the California Department of Transportation, where applicable.

Forms for statements, certificates, and acknowledgements required by the California Subdivision Map Act and by this title shall be provided by the engineering and survey services department.

Section 99. Subsection (B) of Section 18.45.060 shall remain the same.

Section 100. Subsection (E) of Section 18.45.090 of Chapter 18.45 of Title 18 of the Kern County Code is hereby amended to read as follows:

E. Such improvement work within existing and proposed rights-of-way shall be subject to inspection and approval by the engineering and survey services department or other public entity, as appropriate.

Section 101. Subsections (A), (B), (C), (D), (F), (G), (H), (I), (J), (K), (L), (M), (N), (O) and (P) of Section 18.45.090 shall remain the same.

Section 102. Subsection (B) of Section 18.55.020 of Chapter 18.55 of Title 18 of the Kern County Code is hereby amended to read as follows:

B. No final tract map shall be presented to the board or final parcel map to the director of planning and development services for

approval until the subdivider either completes the required improvements, with the agreement for guarantee of improvements constructed or furnished prior to recordation of the final tract or parcel map, or enters into an agreement with the county agreeing to do such work. In the case where the improvement work is completed and accepted prior to recordation and the work is of a minor nature, as determined by the director of engineering and survey services, the requirement for entering into an agreement for guarantee of improvements constructed or furnished prior to recordation may be waived by the director of engineering and survey services.

Section 103. Subsections (A) (C) (D) (E) and (F) of Section 18.55.020 shall remain the same.

Section 104. Subsection (A), (B), (C), (D), and (G) of Section 18.55.030 of Chapter 18.55 of Title 18 of the Kern County Code are hereby amended to read as follows:

A. Street and Highway Improvements.

1. The subdivider shall improve all streets, highways, alleys, public ways, and easements as follows:

a. All street improvements shall be made in accordance with the Kern County development standards.

b. The location, type, character, and dimensions of all structures and grades of work shall be subject to approval by the engineering and survey services department.

c. All required road improvements shall be subject to inspection and approval by the director of engineering and survey services or appropriate public entity.

d. Except as otherwise expressly provided, the alignment criteria for all roads shall be in accordance with the Kern County development standards.

e. In those cases where approved plans and profiles are required, the same shall be filed with and approved by the engineering and survey services department.

f. All required road improvements shall be located within road easements which conform to the requirements of this chapter.

g. For Type C subdivisions, the director of engineering and survey services and fire chief are authorized to allow maximum grades in excess of that specified for short distances, by limited exception.

h. Street and highway improvements shall conform to the following standards (if a conflict arises in determining the "type" of subdivision, the higher "type" improvements shall be applicable):

(1) Type A Subdivisions.

(a) Type A subdivisions will be required in the following circumstances:

(i) Divisions of land located entirely or partially within the boundaries of any map contained in Appendix A, where any parcel to be created is less than twenty (20) gross acres in size;

(ii) All multifamily residential, commercial, or industrial development;

(iii) All other divisions of land which do not qualify as Type B or Type C subdivisions;

(iv) Any division of land which would otherwise qualify as Type B or Type C subdivisions, but which the subdivider, at his/her option, elects to use Type A improvements;

(v) Any division of land located within the boundaries of an adopted specific plan requiring Type A improvements;

(b) Street improvement standards for Type A subdivisions shall be in accordance with the Kern County development standards.

(2) Type B subdivisions.

(a) Type B subdivisions will be required in the following circumstances:

(i) Divisions of land involving five (5) or more parcels and located entirely outside of the boundaries of the maps contained in Appendix A, where any parcel to be created is less than twenty (20) gross acres in size;

(ii) Divisions of land located entirely outside of the boundaries of the maps contained in Appendix A, where any parcel to be created is one-half (1/2) net acre (twenty-one thousand seven hundred and eighty (21,780) square feet) or less in size;

(iii) Any division of land located within the boundaries of an adopted specific plan requiring Type B improvements.

(b) Street improvement standards for Type B subdivisions shall be in accordance with the Kern County development standards.

(3) Type C Subdivisions.

(a) Type C subdivisions will be required in the following circumstances:

(i) Divisions of land where each parcel created is twenty (20) gross acres or larger, except where:

- the site, or any portion thereof, is located within the boundaries of the maps contained in Appendix A, and
- the land use zoning of the site allows a minimum lot size less than twenty (20) acres, and
- the land use designation shown on the general plan or applicable specific plan allows a zone classification where the minimum lot size is less than twenty (20) acres,
- then the subdivider shall be in accordance with Type A improvements for parcel sizes less than twenty (20) acres as shown in Appendix B;

(ii) Divisions of land located entirely outside of the boundaries of the maps contained in Appendix A, where any parcel to be created is greater than one-half (1/2) net acre (twenty-one thousand seven hundred and eighty (21,780) square feet) or more in size.

(b) Street improvement standards for Type C subdivisions are as follows:

(i) Roads shall be graded to a minimum width of twenty (20) feet;

(ii) Maximum grade of roads shall be fifteen percent (15%);

(iii) Roads shall be traversable by standard passenger car;

(iv) Road surfacing is not required;

(v) Plans and profiles are not required.

(c) As an alternative to Section 18.55.030(A)(1)(h)(3)(b), roads may be designed utilizing the requirements of the Uniform Fire Code upon approval of a limited exception by the fire chief.

(d) The subdivider shall make all road improvements necessary to meet the standards in Section 18.55.030(A)(1)(h).

2. Dead End Streets.

a. Wherever a dead-end street more than two hundred (200) feet long, as measured from the centerline of the nearest intersection, is permitted, a "turnaround" shall be constructed in accordance with the Kern County development standards. If the "turnaround" is outside the tract boundary, an easement therefor

shall be offered for dedication to the county, and if Type A improvements are required and drainage is not affected, construction of curbs, gutters, and sidewalks shall not be required.

b. When an existing dead-end street with an existing "turnaround" is extended, the developer constructing the new street shall perform all work necessary to eliminate the existing "turnaround."

3. Street Adjacent Railroad. Where the subdivision is adjacent to a railroad right-of-way and topography permits, highways in the same direction as the railroad shall be adjacent to and as nearly parallel to such railroad right-of-way as practicable.

4. Street Railroad Crossing. If a street crosses railroad tracks, the subdivider shall pay all costs of construction and costs of protection devices as may be required by the county and/or the California Public Utilities Commission, except for any portion required by the California Public Utilities Commission to be paid by the railroad company.

5. Access Roads.

a. Each parcel created by any subdivision subject to this chapter shall be connected by means of an approved access road or roads to a public highway which is maintained by the county or other public entity or government agency.

b. The director of planning and development services may approve or require such additional access roads as may be needed for emergency purposes and for safe and adequate circulation within the subdivision.

c. Access roads shall be topographically feasible for travel by standard passenger cars and shall be made and kept open, clear, and free from obstructions, buildings or structures of any kind, as determined by the director of planning and development services. The minimum travel way width shall be twenty (20) feet if it serves more than one (1) parcel or twelve (12) feet if it serves no more than one (1) parcel.

d. Turnouts shall be required on all access roads in hazardous fire areas of Kern County where deemed necessary by the fire chief.

e. Access roads shall be improved in accordance with the Kern County development standards.

f. Required access shall be over public roads, provided that the director of planning and development services or the board of supervisors, as appropriate, may grant a variance authorizing access over a private road or over a road dedicated to a semipublic use by way of a dedication made for the exclusive use and benefit of all properties located within the subdivision or within a public district.

g. Except where access can be provided over an existing public road, access roads shall be dedicated or offered for dedication.

h. On-site access roads shall have a minimum easement width of sixty (60) feet, except that in case the road is along the boundary, it shall be a minimum width of forty (40) feet for local streets, forty-five (45) feet for secondary (collector) highways, and fifty-five (55) feet for major (arterial) highways.

i. For parcel maps, off-site access roads shall have a minimum easement width of forty (40) feet, except where a previously approved access road exists at a lesser width or along a major or secondary highway alignment where appropriate half-street easements shall be provided. If off-site improvements are required for a residential parcel map, said improvements shall consist of a part-width local street constructed from the project to the nearest county-maintained streets or highways and with a width not less forty (40) feet.

j. For tract maps, off-site access shall have a minimum width of sixty (60) feet, except where located along a major or secondary highway alignment where the appropriate minimum half-width easement shall be required.

k. Frontage roads shall be connected to local streets, major highways, and secondary highways in accordance with the Kern County development standards.

l. One (1) foot nonaccess strips shall be provided when a half-width or part-width street dedication where stub streets in excess of two hundred (200) feet are provided in a Type A or Type B subdivision abuts undeveloped land. However, this requirement may be waived by the director of the engineering and survey services department and the director of the department of planning and development services upon a determination that the zoning requirements of said abutting undeveloped land will ensure completion of the road once the property is developed

m. Cul-de-sac and bulb dedication and design shall be in accordance with the Kern County development standards.

n. Intersection design shall be in accordance with the Kern County development standards.

6. Removal of Obstructions.

a. All obstructions shall be removed from the streets, roadways, or right-of-way dedicated in the final map of a subdivision or which are deeded to the county in connection therewith which, in the determination of the engineering and survey services department, interfere with the use thereof or constitute a dangerous or hazardous condition to the traveling public.

b. All obstructions shall be removed which are located within existing county, state, or city streets or roadways lying immediately adjacent to streets, roadways, or rights-of-way which are dedicated in the final map or which are dedicated or deeded by the subdivider to the county in connection therewith and which obstructions, in the determination of the engineering and survey services department, interfere with the use of said existing county, state, or city streets or roadways, or constitute a dangerous or hazardous condition to the traveling public.

c. Said obstructions shall be relocated without expense to the county to such locations as specified by the engineering and survey services department or in the improvement plans for the subdivision. As used in this section, obstructions shall include, but shall not be limited to, structures, power poles, telephone or other communication poles, and appurtenances, pipelines, conduits, canals, and/or their rights-of-way and easements.

d. It shall be the responsibility of the subdivider to contact the utility companies or other owners of said obstructions to advise them of proposed improvement, and make direct arrangements for the relocation of and compensation for the cost of relocating any conflicting obstructions. Evidence of such completed arrangements shall be presented by the subdivider to the engineering and survey services department prior to the final approval of the improvement plans by the county.

e. Removal of obstructions shall include, but is not limited to, the quitclaim or subordination of rights to the county by all interest and easement holders having the right to place facilities or otherwise obstruct the free use of the road right-of-way. Where major facilities exist, a common use agreement may be allowed when determined necessary by the director of engineering and survey services.

f. All easements which affect the intended and/or permitted use of a lot or parcel shall be quitclaimed, abandoned, or relocated prior to recordation of any final map.

B. Water Supply.

1. The subdivider shall install a water system for the land division, where a final map is required, together with such equipment, pipelines, and facilities as may be necessary to ensure the land division with a minimum supply of water for domestic and fire protection purposes. However, in instances where the parcels being created will be served by individual on-site water wells, it is not necessary that said wells be constructed prior to recordation of the final map; except as otherwise required by the environmental health services department.

2. The water distribution system shall be designed in accordance with standards for the design and construction of water systems adopted by the board of supervisors.

3. The minimum supply of water which shall be required for the land division under Section 18.55.030(B)(1) shall be in accordance with the standards adopted by the board of supervisors.

4. If any part of the land division is located within or partially within a Type A improvement area, and if any parcel created by the subdivision is less than two and one-half (2 1/2) acres gross area, a domestic water supply and distribution system shall be furnished and constructed, subject to the Kern County development standards, to serve all lots in the subdivision.

5. Construction plans for such water supply and distribution system shall be supplied by the subdivider and shall be approved by the engineering and survey services department, the environmental health services department, and the fire department, consistent with the Kern County development standards.

C. Sanitary Sewers.

1. Where a proposed subdivision creates parcels of less than two and one-half (2 1/2) acres and is located within three hundred (300) feet of a sanitary sewer system or where required by an adopted general or specific plan, all of the lots within the subdivision shall be connected to the sanitary sewer system upon the following conditions:

a. The existing or proposed wastewater treatment plant for the system has or will provide the capacity to serve the subdivision.

b. The legal entity in charge of the sanitary sewer system has agreed to furnish its sewerage facilities to the subdivision, and annexation to the corporate limits of a city is not a condition of providing such service.

c. Connection to the sanitary sewer system is technically and economically feasible, as determined by the waste management department.

In any case, the subdivider shall provide sanitary sewer facilities for the subdivision under such circumstances as they are necessary in the opinion of the Kern County environmental health services department. The sewage collection and treatment system shall be designed by the subdivider's civil engineer, and shall be approved by the waste management department and the civil engineer for the entity responsible for the operation and maintenance of the system.

2. Dry sewer collection systems shall be installed when required by an adopted general or specific plan.

3. Septic monitoring shall be by means of the formation or annexation to a public entity when required by the waste management director and the environmental health services director.

D. Grading, Drainage, Flood Protection, and Erosion Control.

1. The subdivider shall be required to make those improvements deemed necessary by the director of planning and development services for proper grading of the land within the subdivision, drainage, flood protection, and erosion control, including the prevention of sedimentation or other damage to property or improvements within or outside the subdivision.

2. The subdivider shall be required to obtain or provide land dedication or easements on land within or outside the subdivision as deemed necessary by the director of planning and development services for improvements, access, and flowage ways. Dedications and/or easements on land outside the subdivision shall be obtained in accordance with the provisions of the Subdivision Map Act.

3. Grading shall be subject to the Kern County grading ordinance and shall be subject to the inspection and approval of the department of planning and development services.

4. All drainage improvements shall be subject to inspection and approval by the engineering and survey services department.

G. Solid Waste. For those subdivisions not located within the vicinity of an adequate existing solid waste disposal site, the subdivider shall provide a means satisfactory to the waste management department and environmental health services department for the disposal of solid waste from the subdivision.

Section 105. Subsections (E) and (F) of Section 18.55.030 shall remain the same.

Section 106. Subsections (B), (C), (D), (E), and (I) of Section 18.55.050 of Chapter 18.55 of Title 18 of the Kern County Code are hereby amended to read as follows:

B. Streets and Highways.

1. The following standards, together with the provisions of the Kern County standards for streets, are minimum requirements of this title. All roads shall be designed to allow for safe traffic movement, and higher standards may be required where reasonably necessary for such purpose.

a. Major highway rights-of-way shall not be less than one hundred ten (110) feet in width.

b. Secondary (collector) highway rights-of-way shall not be less than ninety (90) feet in width.

c. Local street rights-of-way shall not be less than sixty (60) feet in width.

d. Specific or official plan lines shall be the minimum width as specified by the applicable plan.

e. State highways shall be the minimum width as specified by the California Department of Transportation and/or the circulation element of the general plan.

f. Where a street is on the boundary of a subdivision or a development a part-width street of fifty-five (55) feet for a major highway, forty-five (45) feet for a secondary (collector) highway, or forty (40) feet for a local road is permitted. For Type C subdivisions, where a local street is on the boundary, the width may be reduced to thirty (30) feet. A dedication of access rights shall be made by the subdivider along such boundary when located in a Type A or Type B subdivision.

g. The maximum length of a cul-de-sac for Type A and B subdivisions shall be six hundred (600) feet.

h. Frontage road right-of-way widths shall be a minimum of forty-four (44) feet.

i. Streets (other than major highways) proposed for predominately industrial areas which will be used for heavy truck traffic or truck parking may be constructed according to Type A secondary highway width and standards with approval of the engineering and survey services director and the director of planning and development services. Cul-de-sacs shall have a minimum property line radius of seventy-five (75) feet. In other instances, subdivisions zoned for commercial or industrial purposes shall be improved to local street commercial standards.

j. If roadway turnouts are required within State Response Areas, said turnouts shall be a minimum of ten (10) feet in width and thirty (30) feet in length, with a minimum twenty-five foot taper on each end; or as approved by the Kern County fire department.

k. Dead-end roads within State Response Areas shall comply with the following criteria, unless otherwise approved by the Kern County fire department:

(1) The maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served:

Parcels zoned for less than one acre	800 feet
Parcels zoned for 1 acre to 4.99 acres	1,320 feet
Parcels zoned for 5 acres to 19.99 acres	2,640 feet
Parcels zoned for 20 acres or larger	5,280 feet

All lengths shall be measured from the edge of the roadway surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end road

crosses areas of differing zoned parcel sizes, requiring different length limits, the shortest allowable length shall apply.

(2) Where parcels are zoned five (5) acres or larger, turnarounds shall be provided at a maximum of one thousand three hundred and twenty (1,320) foot intervals.

(3) Each dead-end road shall have a turnaround constructed at its terminus.

C. Street Access.

1. Access to Lots.

a. Each lot shall have frontage on a public street or public access easement, except as provided in Section 18.55.050(C)(1)(h).

b. The primary means of vehicular access to each lot shall be by means of direct physical connection to the street which fronts upon the lot. The feasibility of such primary means of access must be demonstrated as provided in this section.

c. If access to the street which fronts upon the lot is prevented by a legal limitation imposed or approved by the county or state, such primary means of access may be a connection to any street adjacent to the lot, notwithstanding the provisions of Section 18.55.050(C)(1)(b).

d. If required due to topographic or other constraints, in conjunction with the design and approval of any tentative subdivision map, the subdivider shall demonstrate, by means of a lot use feasibility study, that prospective building sites and driveway locations are both feasible and probable and in conformity with the requirements of this title and other applicable ordinances and regulations of the county, including, but not limited to, the Uniform Fire Code.

e. Driveway improvements located on a lot, and not within a public right-of-way, shall be subject to the requirement of the Uniform Fire Code, the Uniform Building Code, and the zoning ordinance.

f. Driveway improvements located within a public right-of-way shall be subject to the Kern County development standards, standards for streets, and the reasonable requirements of the engineering and survey services department.

g. This section shall not be construed as requiring that a driveway constructed subsequent to the improvement work of the subdivision must be located in the manner demonstrated by the subdivider under Section 18.55.050(C)(1)(d), provided, however, that it shall be subject to the Uniform Fire Code, the Uniform Building Code, and the zoning ordinance provisions relating to driveways.

h. Upon approval of a variance, lots within a subdivision may have frontage on a private street which is an integral part of the overall design and use of the improvements, which shall be designed and improved according to the standards in this title, unless otherwise allowed by variance.

i. Type A or Type B subdivisions shall not be designed with single-family residential lots or parcels fronting on a major or secondary (collector) highway except as follows:

(1) All lots or parcels fronting on a secondary (collector) highway contain a minimum width of one hundred (100) feet; or

(2) The subdivision is designed so that all lots or parcels will obtain access from a local street, access rights to the major or secondary (collector) highway are relinquished, and a vehicular access control wall or fence, as approved by the director of planning and development services, is constructed; or

(3) A frontage road is provided.

2. Alleys.

a. An alley at least thirty (30) feet wide or access as approved by the fire department shall be provided for any lot proposed to be used for multifamily residential, commercial, or industrial purposes, and a plan of development shall be filed with the tentative map showing the method of circulation for service vehicles in such cases.

b. Where two alleys intersect, twenty-(20-) foot corner cutoffs along property lines or a twenty- (20-) foot radius shall be provided.

c. Where topography or other circumstances make the use of an alley impracticable, approval may be granted relative to any of the foregoing requirements of this section by the joint action of the director of planning and development services, the fire chief, and the director of engineering and survey services.

d. Alleys shall not be included in any single-family residential land division unless required to conform to existing adjacent uses.

e. Alleys are not permitted in Type B or Type C areas. Approval may be granted to allow alleys contrary to this paragraph by the joint action of the director of planning and development services, the fire chief, and the director of engineering and survey services.

D. Blocks. The following standards apply to Type A and Type B subdivision types:

1. Block lengths shall not exceed one thousand three hundred and twenty (1,320) feet, provided that approval may be granted by the director of planning and development services and the director of engineering and survey services where such lengths are precluded by existing adjacent development, canals, drainage channels, railroad rights-of-way, topographic feature, or other similar obstructions.

2. The width of each block shall be sufficient to allow for two (2) tiers of lots except where through or double-frontage lots are permitted.

3. Pedestrian easements shall be provided when required by the board of supervisors or the director of planning and development services, as appropriate, where such easements are necessary to provide access to schools, parks, playgrounds, shopping centers, transportation facilities, or other public use facilities. The board of supervisors or the director of planning and development services, as appropriate, may require such easements to be appropriately landscaped and lighted, and the design of each pedestrian easement shall be approved by the director of planning and development services and the director of engineering and survey services.

E. Block Corner Treatment. All property line corner radii at intersections for divisions of land shall be a minimum of twenty (20) feet, unless an alternate treatment is approved by the director of engineering and survey services.

I. Subdivision Design.

1. Where the keeping of equine animals is proposed as a use within a development, the subdivider shall provide adequate equestrian trails as an integral part of the development, and prior to approval of the final map, a means shall be provided for maintenance of any such ways and trails, as approved by the director of planning and development services; provided that a limited exception may be granted by the director of planning and development services for the establishment of equestrian trails where such trails are precluded by location and design of the proposed subdivision.

2. Within a development of urban density, as defined by the general plan, the subdivider is encouraged to provide pedestrian ways when appropriate, and shall provide bikeways as required by the bikeways element of the general plan as an integral part of the development, and in such cases, prior to approval of the final map, a means shall be provided for the maintenance of any such ways, as approved by the director of planning and development services and the director of engineering and survey services. Design of bikeways and pedestrian ways shall be in accordance with the California Department of Transportation standards.

3. The subdivider shall provide public utility easements as may be required for the various concerned utility companies or districts, as determined by the board of supervisors or the director of planning and development services, as appropriate.

4. All new utility services shall be placed underground for all Type A subdivisions creating five (5) or more lots or as

required by a specific plan and/or mitigation measure. Underground utility construction shall be in accordance with the provisions of Public Utility Commission General Order 95. Any above-ground cabinets or facilities shall be screened in a manner approved by the director of the Kern County department of planning and development services. Any above-ground cabinets or facilities located within the road right-of-way shall be permitted only upon approval by the director of the Kern County engineering and survey services department. Compliance with this requirement may result in the need to create public utility easements outside of the right-of-way.

5. The director of planning and development services, the director of engineering and survey services, or the board of supervisors may require dedication of nonaccess strips and/or waiver of vehicular access rights, wherever necessary, to regulate access and control future development.

6. Six (6-) foot-high solid masonry walls shall be constructed in accordance with the Kern County development standards for tracts as follows:

a. On all major (arterial) highway frontages for tracts with lot or parcel sizes of less than two and one-half (2 1/2) acres and located within a Type A subdivision.

b. On all secondary (collector) highway frontages for tracts with lot sizes of less than two and one-half (2 1/2) acres, located within a Type A subdivision, and where relinquishment of access rights are required.

c. On all rear and side property lines of tracts zoned for single-family residential purposes that are contiguous to property zoned for multifamily, commercial, or industrial purposes.

d. As recommended by the subdivision review committee and approved by the board of supervisors or the director of planning and development services, as appropriate.

7. Fences or walls for parcel maps shall be as required by the zoning ordinance and/or the director of planning and development services.

8. Fences and walls constructed in accordance with the Kern County development standards may be located one (1) foot within the road right-of-way. Fences and walls which do not conform to the Kern County development standards shall be permitted if located outside the road right-of-way and if a maintenance entity is established for the continual maintenance of the fence or wall.

9. Street lighting will be installed and a means shall be provided for contracting for public utility services as a condition of approval of all Type A final tract map subdivisions, commercial and industrial subdivisions, and other type subdivisions as required by the director of planning and development services. The lighting must meet the minimum maintained levels as recommended by the respective public utility servicing the area being developed. The lighting design must be based upon the illumination levels as required by the utility providing service. Maintenance of street lighting shall be by an existing entity or by formation of an entity, as approved by the director of engineering and survey services.

Section 107. Subsections (A), (F), (G), (H) and (J) of Section 18.55.050 shall remain the same.

Section 108. Subsections (A), (B), (C), (D), (F), (G), (H) and (I) of Section 18.55.060 of Chapter 18.55 of Title 18 of the Kern County Code are hereby amended to read as follows:

A. General. Improvement plans shall be prepared under the direction of and shall be signed, sealed, and dated by a registered civil engineer licensed by the state of California. Improvement plans shall include, but not be limited to, storm drains, streets, drainage plans, water systems, sewer systems, and related facilities. The engineering and survey services department will, along with other departments, review and approve all improvement

plans with the final approval provided by the director of engineering and survey services.

B. Form. The following specifications are intended to serve as a guideline for improvement plans. Regardless of the form, all improvement plans shall be legibly drawn.

1. Plans, profiles, and details shall be legibly drawn, printed, or reproduced on twenty-four (24) by thirty-six (36) inch sheets. A border shall be made on each sheet providing one-half (1/2) inch at top, bottom, and right side and one and one-half (1 1/2) inches on the left side.

2. A suitable title block shall be placed in the lower right corner or along the right edge and provide adequate space for approval by the director of engineering and survey services and for approval of plan revisions.

3. Plan and profiles shall be drawn to the scale of one (1) inch equals forty (40) feet (1"=40') or larger unless approved by the director of engineering and survey services. Details shall be drawn to a scale that clearly shows the facility being constructed. The scales for various portions of the plans shall be shown on each sheet.

4. A vicinity map shall be shown on the first sheet of all sets of plans.

5. A north arrow shall be shown on each sheet when applicable.

6. Plans shall be laid out to orient north to the top or right edge of the sheet unless approved otherwise by the director of engineering and survey services.

7. All lettering shall be one-eighth (1/8) inch minimum.

8. If the plans include three (3) or more sheets, a key map showing the streets, lots, easements, storm drains, index, and vicinity map shall be included.

9. In instances where uncertainty exists, the final form of all plans shall be approved by the director of engineering and survey services.

C. Contents. The improvement plans shall show complete plans, profiles, and details for all required improvements to be constructed, both public and private, including common areas, and shall be submitted with the appropriate fees. Improvement plans shall not be reviewed until the engineering and survey services department has determined that the submittal is complete.

D. Supplementary Plans and Calculations. Hydrology, hydraulic plans and calculations, paving design, feasibility studies, water system calculations, bond estimates, and any structural calculations, as may be required, shall be submitted with the improvement plans to the director of engineering and survey services. All calculations shall be legible, systematic, and signed, sealed, and dated by a registered civil engineer licensed by the state of California and in a form approved by the director of engineering and survey services or the director of planning and development services, as applicable.

F. Review by the Engineering and Survey Services Director. The subdivider shall submit the improvement plans, all computations, and appropriate improvement plan checking fees to the director of engineering and survey services for review. Upon completion of the review, one (1) set of the preliminary plans with the required revisions indicated will be returned to the subdivider's engineer.

G. Approval by the Engineering and Survey Services Director.

1. After completing all required revisions, the subdivider's engineer shall transmit the originals of the improvement plans to the director of engineering and survey services for signature.

2. Upon finding that all required revisions have been made and that the plans conform to all applicable county ordinances, standards, and conditions of approval of the tentative map, the director of engineering and survey services shall sign and date the plans.

3. Approval of the improvement plans shall not be construed as approval of the grading, street lighting, telephone, cable television, gas, electric service, or other utility plans.

4. Approval by the director of engineering and survey services shall in no way relieve the subdivider or the subdivider's engineer from responsibility for the design of the improvements and for any deficiencies resulting from the design or from any required conditions of approval of the tentative map.

H. Revisions to Approved Plans.

1. By Subdivider. Requests by the subdivider or the engineer for revisions to the approved plans appearing necessary or desirable during construction shall be submitted in writing to the director of engineering and survey services or authorized representative, shall be accompanied by revised cronars of the original drawings showing the proposed revision, and shall be signed, sealed, and dated by the subdivider's engineer. If the revision is acceptable, the revised cronars shall be submitted, with appropriate fees, to the director of engineering and survey services for approval. Construction related to revised improvement plans will not be permitted to commence until such plans have been approved by the director of engineering and survey services.

2. By the Engineering and Survey Services Director.

a. When revisions are deemed necessary by the director of engineering and survey services to protect public health and safety, or as field conditions may require, a request in writing shall be made to the subdivider and engineer. The subdivider's engineer shall revise the plans and transmit the originals signed, sealed, and dated, with appropriate fees, to the director of engineering and survey services for approval within the time specified by the director of engineering and survey services.

b. If revisions are deemed necessary by the director of engineering and survey services, construction of all or any portion of the improvements may be stopped until revised drawings have been submitted.

c. The subdivider may appeal revisions required by the director to the board of supervisors by filing an appeal with the clerk of the board following receipt of the request to revise the plans.

I. Plan Checking and Inspection Costs for Revisions. Fees for the checking of plans or calculations or inspection as a result of revisions to the approved plans shall be established by resolution of the board of supervisors. The fees shall be submitted, with revised tracings, prior to the approval of the revision by the director of engineering and survey services. Where minor changes are proposed by the subdivider, the director of engineering and survey services may approve the requested minor change, in a form approved by the director, and allow the change to be shown on the "record" drawings when the project is completed in conformance with Section 18.55.100(D)(1).

Section 109. Subsection (E) of Section 18.55.060 shall remain the same.

Section 110. Subsections (A), (C), (D), (E), (F), (G) and (I) of Section 18.55.070 of Chapter 18.55 of Title 18 of the Kern County Code are hereby amended to read as follows:

A. Completion Agreement Required.

1. The subdivider shall enter into an agreement for completion of improvement work, to be effective concurrently with approval of the final map by the board of supervisors or the director of engineering and survey services, as appropriate, which shall require faithful, proper, and full completion of all improvement work, required to be done under the provisions of this title, within one (1) year from the date of such approval of the final map, or within such extension of time as may be authorized under Sections 18.25.090 and 18.15.100 of this title. The subdivider shall furnish improvement securities and insurance certificates. The final map shall not be approved until such documents have been filed with the board of supervisors or the

director of engineering and survey services, as appropriate, and are in proper form and fully executed.

2. The board of supervisors or the director of engineering and survey services, as appropriate, shall have discretion to require each completion agreement to contain provisions, in addition to those mentioned in this title, as it may deem to be in the public interest, for the proper protection of the county, its governing board, officers, employees and agents, and necessary for the prompt and faithful completion of such improvement work.

3. The form of completion agreements, securities, and related documents shall be subject to approval by the county counsel.

4. The provisions contained in completion agreements shall conform substantially to the applicable provisions of this title.

5. The subdivider's surety shall endorse its consent on the completion agreement; provided, however, that failure of the surety to do so shall not affect the validity of such agreement nor the validity of the security.

6. No limitation upon the liability of a corporate surety shall be construed as a limitation on the liability of the subdivider.

7. The liability of the subdivider shall not be deemed limited to the amount of the improvement security in any case.

C. Contents of the Completion Agreement.

1. Specifications. All detailed specifications, plans, profiles, and general conditions as may be required by this title and the Kern County development standards, and as may otherwise be necessary for the improvement work to be completed shall be attached to and made a part of the completion agreement and shall be prepared at the expense of the subdivider.

2. Maintenance of Improvements Pending Acceptance or Approval. The subdivider shall maintain all of the improvement work and shall repair or replace any improvement work which may deteriorate or be damaged or destroyed from any cause, subject to release from such obligation by acceptance of such work. The subdivider shall so covenant in the completion agreement.

3. Repair of Damage by Subdivider to Accepted Work. The subdivider shall repair or replace any damage to any of the work which has been accepted or approved by the board of supervisors as may be caused by any other work undertaken by the subdivider or his surety. The subdivider shall so covenant in the completion agreement.

4. Guarantee Against Defects. With respect to improvement work which has been accepted or approved by the board of supervisors or the director of engineering and survey services, as appropriate, the subdivider shall guarantee and maintain the same against any defective work or labor done, or defective materials furnished, in the performance of the completion agreement within one (1) year after the operative date of acceptance or approval of such work by the board of supervisors or the director of engineering and survey services, as appropriate. The subdivider shall, within fourteen (14) days of receiving a notice of defect, correct, repair, or replace any and all such defects on demand. The subdivider shall so covenant in the completion agreement.

5. Provisions Not Limitation on Liability. None of the provisions of Sections 18.55.070(C)(2) through 18.55.070(C)(4) inclusive, nor any related covenant in the completion agreement, shall be construed as limiting the scope or extent or any liability of the subdivider under the law for any willful or negligent act or omission of the subdivider, his contractors, agents, or employees.

6. Covenant for Drainage Facility Completion. With respect to drainage facilities, the board of supervisors is empowered to require the subdivider to covenant in the completion agreement to carry out any changes or alteration in the design of construction thereof as may appear necessary to the board to protect life or property at any time prior to acceptance of approval thereof.

7. Limited Changes may be Required. With respect to improvement work, including drainage facilities, that may not have been subject to an express agreement, the subdivider shall agree to carry out changes or alterations in the design or construction thereof as may appear necessary to the board of supervisors for the accomplishment of the purposes of this title and the Kern County development standards. The net aggregate cost of such changes or alterations shall not exceed ten percent (10%) of the original estimated overall cost of the improvements described in the improvement agreement. Changes in cost shall take into account the aggregate of additive and deductive changes, and exclude such changes or alterations as may be required under any express agreement.

D. Changes Requested by Subdivider.

1. The subdivider shall not change or alter the design, specifications, or mode of accomplishment of the improvement work as provided in said agreement, except as authorized by order of the board of supervisors or the director of engineering and survey services, as appropriate.

2. If any such change or alteration requested by the subdivider shall cause the estimated cost of all work to be done to exceed the liability of his/her surety or security, such security shall be commensurately increased.

E. Increase in Liability on Security Relative to Changes or Alterations.

1. With respect to such changes or alterations as may be approved by a corporate surety, the amount of its liability on the bond to secure faithful performance shall be deemed increased by the amount of the cost thereof, and the bond shall so provide.

2. With respect to such changes or alterations as to which the consent of a corporate surety is not obtained, the amount of its liability on the bond to secure faithful performance shall be deemed increased by the amount of the cost thereof, subject to the limitations in Section 18.55.070(F), and the bond shall so provide.

3. The liability of a corporate surety shall be deemed increased in an amount which is that proportion of the respective amount of increase due to changes or alterations as the original security for payments bears to the original amount of the security for faithful performance, subject to the limitations described in Section 18.55.070(F), and the bond shall so provide.

4. If the improvement security is in a form other than a corporate surety bond, the subdivider shall increase the amount of such security in accordance with Sections 18.55.070(E)(2) and 18.55.070(E)(3) as a condition to authorization of any such change or alteration.

5. If a corporate surety bond lacks any or all of the provisions described in this section, the board of supervisors or the director of engineering and survey services, as appropriate, shall require the bond to be amended to so provide, or the amount of the bond to be increased, or additional security to be furnished by the subdivider in conformity with this section, as a condition of authorization of any such change or alteration.

F. Limitations on Liability of Corporate Surety Relative to Changes or Alterations not Approved by Surety. With respect to such changes or alterations as to which the consent of a corporate surety is not obtained, the amount of increase in its liability under its improvement security for faithful performance and for security for payment to contractors shall not exceed in the aggregate ten percent (10%) of the original amount of such security as fixed by the board of supervisors or the director of engineering and survey services, as appropriate, in any case taking into account both additive and deductive changes and excluding such changes or alterations as may be requested by the subdivider and expressly approved by the surety.

G. Failure to Timely Complete Work or Covenants.

1. If the subdivider or his/her surety shall fail to complete the improvement work or perform his/her covenants faithfully, properly, and in full accordance with the completion agreement, all within one (1) year from the date of approval of the final map by the board of supervisors or the director of engineering

and survey services, as appropriate, or within any extension of time as may be authorized, the county shall be entitled to exercise its right of recovery upon any corporate surety bond given to secure faithful performance. If the improvement security is in a form other than a corporate surety bond, the county shall be entitled to draw against such security. In either case, action by the county shall be without any prior notice and without prejudice to any other remedy the county may have in the premises at law or in equity, including, but not limited to, the option to cause the work to be completed or to cause any covenant to be performed under any other applicable provisions of this title.

2. If the board of supervisors determines that any one of the following circumstances exists, the board shall be entitled to give the subdivider or his/her surety fourteen (14) days written notice to begin the work or perform such covenant and/or to diligently and continuously perform such work or covenant:

a. That the subdivider has failed or neglected to begin the work or any feature of the work within a time which will reasonably allow its completion within the time (or any valid extension of time) provided in the agreement;

b. That the subdivider has abandoned any of the work;

c. That the subdivider has failed to keep the work under the direct control of a superintendent, manager, engineer, or other competent agent;

d. That the subdivider (if he/she is a natural person) has been declared incompetent, placed under the care of a guardian or conservator, has disappeared, or is deceased;

e. That the subdivider has filed a petition in bankruptcy or has been declared bankrupt;

f. That the subdivider has failed or neglected to timely perform any of his/her covenants in the agreement;

g. That there are any other circumstances showing that the county is not reasonably secure in the proper and timely performance of such agreement or any covenant therein.

3. If the subdivider or his/her surety shall fail to perform within such fourteen (14) day period, the county shall be entitled to exercise its right of recovery upon any corporate surety bond given to secure faithful performance. If the improvement security for faithful performance is in a form other than corporate surety bond, the county shall be entitled to draw against such security. In either case, action by the county shall be without any additional notice and without any prejudice to any other remedy the county may have in the premises, either at law or in equity, including, but not confined to, the option to cause the work to be completed as provided in Section 18.55.070(H) or to cause any covenant to be performed under any other applicable provisions of this title.

I. Insurance.

1. The subdivider shall agree to secure, maintain, and timely pay all premiums on, and cause its contractors and subcontractors to secure, maintain, and timely pay all premiums on, Workers' Compensation Insurance as required by the California Labor Code and amendments thereto, at all times until their respective work is completed, and furnish to county satisfactory evidence thereof on request.

2. The subdivider shall agree to secure, maintain, and timely pay all premiums on a policy or policies of broad form comprehensive liability insurance in the amounts, and with the coverage and endorsements set forth below, in form and with insurance companies satisfactory to the director of engineering and survey services and county counsel, by the terms of which the named insured and additional insureds are indemnified against liability for any bodily injury or death of any person, or any damage to or loss of any property sustained by any person, firm or corporation, and for which the subdivider is legally liable.

3. Said policy or policies shall contain provisions or endorsements as follows:

a. Showing the county, its governing board, officers, employees, and agents as additional insureds.

b. Providing blanket contractual liability coverage for the subdivider's indemnity obligations for personal injury or death of any person, or for any damage to or loss of property, and for which the subdivider is legally liable.

c. Providing broad form property damage liability coverage, including, but not confined to, damage caused by blasting, collapse, structural injuries, and to underground utilities. Such policy or endorsement shall not contain the so-called "x," "c," or "u" exclusions.

d. Providing coverage of the subdivider's products and completed operations.

e. Providing "cross liability" or "severability of interest" coverage for all said additional insureds.

f. Providing that any other insurance maintained by the county, its governing board, officers, employees, or agents is excess and not contributing insurance with respect to the insurance carried by the subdivider.

g. Providing that the coverage afforded said additional insureds shall not be prejudiced by any failure of the subdivider or any other person to comply with any notice requirements of such policy.

h. Providing that such policy may not be canceled nor may the coverage thereof be reduced, nor may any provision or endorsement thereof be amended or revised in any manner detrimental to the interests of said additional insureds, until expiration of thirty (30) days after written notice thereof has been delivered to the director of engineering and survey services.

4. The subdivider shall maintain the insurance coverage required in this section and pay all premiums promptly when due, at all times until expiration of one (1) year after all improvement work mentioned in the agreement has been accepted or approved.

5. Prior to presentation of the final map to the board of supervisors or the director of engineering and survey services, as appropriate, for approval, the subdivider shall file with the county surveyor a certificate of insurance showing the insurance coverage required under this section.

6. Within thirty (30) days after approval of the final map, the subdivider shall file the following with the county surveyor:

a. A true copy, certified by the insurance carrier of said policy (or policies) and all endorsement thereon, showing the insurance coverage required under this section; and

b. A true copy of a receipt showing payment of all premiums on such policy or policies.

7. At all times during which the subdivider is required to maintain insurance coverage under this section, there shall be filed with the county surveyor promptly after issuance, a true copy, certified by the insurance carrier, of:

a. Any endorsement of certificate showing renewal of any policy or policies required under this section; or

b. Any policy which renews or replaces any such policy with all endorsements thereon. The filing of any such policy, endorsement, or certificate shall not be deemed to excuse the carrier from furnishing any notices required in Section 18.55.070(I)(3)(h). The subdivider shall also promptly file with the county surveyor a true copy of the receipt showing payment of all premiums due on account of any such renewal or replacement.

8. If at any time during which the subdivider is required to maintain insurance coverage under this section, the subdivider or his/her surety shall fail to maintain the insurance coverage so required, or to promptly pay all premiums thereon when due, or if any policy or policies so required is canceled or if the coverage therein is reduced or any provision or endorsement therein is amended or revised in any manner detrimental to the interest of said additional insureds, the county shall be entitled to make written demand upon the subdivider for payment of such delinquent premium or replacement of such policy or coverage, provision, or endorsement, as the case may be, and if such default is not cured within seven (7) days from the date of such demand, the county shall be authorized, at its option exercised by and in the discretion of

the board of supervisors, to pay all or part of such delinquent premium or to obtain a replacement policy, coverage, provision, or endorsement, as the case may be, similar to that required by this section, provided that by so doing it shall have no obligation to obtain coverage for the subdivider or his/her surety, except at its option; and upon demand the subdivider and his/her surety, jointly and severally, shall be obligated to and shall reimburse the county for any premiums incurred by the county in any such respect.

9. The aggregate limits of said liability policy shall be set by resolution of the board of supervisors.

10. The board of supervisors or the director of engineering and survey services, as appropriate, is authorized to provide in any completion agreement for other or additional coverage or endorsements as it may determine to be in the public interest, or for the proper protection of the county, its governing board, officers, employees, or agents, provided that such coverage or endorsement is generally available to persons doing similar improvement work from insurance companies admitted under the laws of California.

11. The board of supervisors or the director of engineering and survey services, as appropriate, is authorized to provide in any completion agreement, or to amend any completion agreement, to provide for modification or deletion of coverage or endorsements in connection with required insurance coverage, if the board of supervisors or the director of engineering and survey services, as appropriate, determines that such coverage or endorsement is not generally available to persons doing similar improvement work from insurance companies admitted under the laws of California. Insurance coverage shall not be required in those instances where all of the required improvement work has been completed and accepted by the county and a maintenance agreement provided.

Section 111. Subsections (B), (H) and (J) of Section 18.55.070 shall remain the same.

Section 112. Subsections (A), (B), (C) and (D) of Section 18.55.090 of Chapter 18.55 of Title 18 are hereby amended to read as follows:

A. Determination of Amount. The basis for the determination of the amount of security shall be by an estimate of the total cost of improvements prepared by the subdivider's engineer and approved by the director of engineering and survey services. The security shall be of such an amount that includes, but is not limited to, costs for improvements required to satisfy the conditions of approval, details of the improvement plans, insurance, contingencies, inflation, contract administration, superintendence, additional engineering, plan revisions, other agencies' inspections and bonds, utility relocation and abandonment, and construction staking.

B. Time for Filing. The completion agreement described in Section 18.55.070 shall be secured by a good and sufficient improvement security in accordance with Sections 66499 et seq. of the California Subdivision Map Act, which shall be filed with the clerk of the board of supervisors or the director of engineering and survey services prior to approval of the final parcel map.

C. Security for Faithful Performance.

1. Improvement security shall be provided to secure faithful performance of the completion agreement and the covenants thereof, including, but not confined to, maintenance of improvements pending acceptance or approval, repair of damage to accepted work, and guarantee against defects.

2. If provided by corporate surety bond, improvement security shall be in the amount of one hundred percent (100%) of the total estimated cost of the improvement work as determined by the board of supervisors or the director of engineering and survey

services, as appropriate. All other forms of improvements security shall be in the amount of one hundred and ten percent (110%) of the total estimated cost of improvement work as determined by the board of supervisors or the director of engineering and survey services, as appropriate. When the subdivider has completed a portion of the improvements, which have not been finally accepted or approved by the board of supervisors, the amount of security for faithful performance may be reduced to allow credit for the completed, but not accepted or approved, work. When a corporate surety bond is used, the faithful performance security shall be of an amount not less than one hundred percent (100%) of the estimated cost of the incomplete work plus ten percent (10%) of the estimated cost of the completed work. When other than a corporate surety bond is used, the faithful performance security shall be of an amount not less than one hundred ten percent (110%) of the estimated cost of the incomplete work plus eleven percent (11%) of the estimated cost of the completed work.

D. Security for Payments of Claims (Laborers and Materialmen)

1. Security shall be provided for payment of all claims and sums mentioned in Section 66499.2 of the California Government Code, including costs, reasonable expenses, and fees (including reasonable attorney's fees) incurred in successfully enforcing such obligation.

2. If such security is a corporate surety bond, it shall be in the amount of fifty percent (50%) of the total estimated cost of the work, as determined by the board of supervisors or the director of engineering and survey services, as appropriate, and the obligation to pay such costs, expenses, and fees shall be in addition to the face amount of such bond. If such security is other than a corporate surety bond, it shall be in the amount of sixty percent (60%) of the total estimated cost of the improvement work, as determined by the board of supervisors. The board of supervisors has determined that such increased amount is necessary and reasonable to secure payment of such costs, expenses, and fees. When the subdivider has completed a portion of the improvements which have not been finally accepted or approved by the board of supervisors, the labor and materialmen security may be reduced to allow credit for the completed, but not finally accepted or approved, work. When a corporate surety bond is used, the labor and materialmen security shall not be less than fifty percent (50%) of the incomplete work, and not less than sixty percent (60%) of the incomplete work when other than a corporate surety bond is used.

Section 113. Subsections (E), (F), (G) and (H) of Section 18.55.090 shall remain the same.

Section 114. Subsections (A), (D), (E) and (G) of Section 18.55.100 of Chapter 18.55 of Title 18 are hereby amended to read as follows:

A. Improvement work which is subject to a completion agreement shall be subject to inspection and approval by the engineering and survey services department. Fee for the inspection shall be submitted before any of the improvement plans are signed by the director of engineering and survey services; said fee shall be established by resolution of the board of supervisors.

D. Certificate of Inspection.

1. When all of the required improvement work or a separate unit of the work has been properly and fully completed in accordance with the completion agreement, in the case where the final tract or parcel map has been recorded, and the improvement plans and conditions or approval in the case where the work has been fully completed prior to recordation, the subdivider may apply in writing for inspection thereof. With his/her application, the subdivider shall furnish as requested the following documentation:

a. Acceptance letters from the water purveyor and sanitary sewer operator for whom the subdivider has furnished, constructed, and/or installed improvements.

b. Copies of finaled, accepted, approved, or completed building permits, grading permits, and/or encroachment permits for work, facilities, and improvements the subdivider has furnished or constructed.

c. In the case of final tract maps, a letter from the subdivider's engineer stating he/she has installed the temporary and permanent survey monuments and has been paid for his/her work.

d. Signed, sealed, and dated record ("as-built") drawings of the improvement plans prepared by a civil engineer. The record drawings shall include all minor changes approved by the director of engineering and survey services during the course of construction. Fees for processing the record changes shall be established by resolution of the board of supervisors and shall be submitted with the record drawings. Once the minor changes have been placed on the tracings by the civil engineer, the civil engineer responsible for the record drawings signs, seals, and dates the drawings.

2. The responsible county official shall cause such inspection to be made within a reasonable time, and if he/she finds such work or unit thereof to have been properly and fully completed in accordance with said agreement and the rules relating to inspection, he/she shall certify such fact in writing.

3. Such certificates shall be delivered to the county surveyor, and when he/she has received all certificates pertaining to work or such separate unit of work, he/she shall within a reasonable time deliver the same to the clerk of the board of supervisors or the director of engineering and survey services, as appropriate.

E. If the board of supervisors finds that such work or unit thereof has been faithfully, properly, and fully completed in accordance with said agreement and the rules relating to inspection, the board of supervisors or the director of engineering and survey services, as appropriate, shall make an order accepting or approving the work of improvement or completed unit thereof. Such order shall be deemed operative from the time the certificate of inspection was delivered to the clerk of the board.

G. In special circumstances, the director of engineering and survey services may require the subdivider to provide additional inspection of the required improvements or a portion thereof and certification of the completion of the improvements by a registered engineer.

Section 115. Subsections (B), (C) and (F) of Section 18.55.100 shall remain the same.

Section 116. Subsections (E) and (G) of Section 18.55.130 of Chapter 18.55 of Title 18 of the Kern County Code are hereby amended to read as follows:

E. Release of Security Retained for Guarantee Against Defects.

1. Upon expiration of one (1) year following the completion and acceptance of the work, the security retained for the guarantee against defects shall be released, provided that no defective work or labor done, or defective materials furnished in the performance of the work has been reported in writing and delivered to the clerk of the board of supervisors at any time within one (1) year after the operative date of acceptance or approval of such work by the board of supervisors or the director of engineering and survey services, as appropriate.

2. In case such security is retained on account of such defect, it shall be released when all such defects have been corrected, repaired, or replaced by the subdivider or his/her surety.

G. The board of supervisors may by order, from time to time, authorize the director of engineering and survey services to release or reduce any such improvement security in accordance with the provisions of this chapter and to certify such release or reduction.

Section 117. Subsections (A), (B), (C), (D) and (F) of Section 18.55.130 shall remain the same.

Section 118. Subsections (F) and (G) of Section 18.65.020 of Chapter 18.65 of Title 18 are hereby amended to read as follows:

F. To correct any other type of map error or omission as approved by the director of engineering and survey services, which does not affect any property rights. Errors and omissions may include, but not be limited to, lots and numbers, acreage, street names, and identification of adjacent record maps. Error does not include changes in courses or distances from which an error is not ascertainable from the data shown on the final tract or parcel map;

G. To make modifications when there are changes which make any or all of the conditions of the map no longer appropriate or necessary and that the modifications do not impose any additional burden on the present fee owner of the property, and if the modifications do not alter any right, title, or interest in the real property reflected on the recorded map. The modification shall be set for public hearing by the director of engineering and survey services. The director of engineering and survey services or the board of supervisors shall confine the hearing to consideration of, and action on, the proposed modification.

Section 119. Section 18.65.040 of Chapter 18.65 of Title 18 of the Kern County Code is hereby amended to read as follows:

18.65.040 Submittal and approval by the director of engineering and survey services.

The amending map or certificate of correction, complete as to final form, shall be submitted to the director of engineering and survey services for review and approval. The director of engineering and survey services shall examine the amending map or certificate of correction and if the only changes made are those mentioned in Section 18.65.020 above, this fact shall be certified on the amending map or certificate of correction.

Section 120. Section 18.65.050 of Chapter 18.65 of Title 18 of the Kern County Code is hereby amended to read as follows:

18.65.050 Filing with county recorder.

The amending map or certificate of correction certified by the director of engineering and survey services shall be filed in the office of the county recorder in which the original map was filed. Upon such filing, the county recorder shall index the names of the fee owners and the appropriate subdivision designation shown on the amending map or certificate of correction in the general index and map index respectively. The original map shall be deemed to have been conclusively so corrected and shall impart constructive notice of all the corrections in the same manner as though upon the original map.

Section 121. Section 18.70.096 of Chapter 18.70 of Title 18 of the Kern County Code is hereby amended to read as follows:

18.70.096 County director of transportation management.

"County director of transportation management" means the person appointed pursuant to Section 2.82.020 of this code.

Section 122. Section 18.70.139 is hereby added to Chapter 18.70 of Title 18 of the Kern County Code to read as follows:

18.70.139 Engineering and survey services department.
"Engineering and survey services department" means the engineering and survey services department of the county of Kern, including the county surveyor's office.

Section 123. Section 18.70.140 is hereby added to Chapter 18.70 of Title 18 of the Kern County Code to read as follows:

18.70.140 Engineering and survey services, Director of.
"Director of engineering and survey services" means the director of engineering and survey services of the county of Kern or his/her designated representative.

Section 124. Section 18.70.312 of Chapter 18.70 of Title 18 of the Kern County Code is hereby repealed.

Section 125. Section 18.70.315 of Chapter 18.70 of Title 18 of the Kern County Code is hereby repealed.

Section 126. Section 18.70.398 is hereby added to Chapter 18.70 of Title 18 of the Kern County Code to read as follows:

18.70.398 Transportation management department.
"Transportation management department" means the transportation management department of the County of Kern, including the road commissioner.

Section 127. Section 19.04.597 of Chapter 19.04 of Title 19 of the Kern County Code is hereby amended to read as follows:

19.04.597 Engineering and survey services department.
"Engineering and survey services department" means the engineering and survey services department of the county of Kern, including the county surveyor's office.

Section 128. Section 19.04.600 of Chapter 19.04 of Title 19 of the Kern County Code is hereby amended to read as follows:

19.04.600 Engineering and survey services director.
"Engineering and survey services director" means the engineering and survey services director of the county of Kern or his/her designee.

Section 129. Section 19.04.096 of Chapter 19.04 of Title 19 of the Kern County Code is hereby amended to read as follows:

19.04.096 Building Official.
"Building official" means the Kern County resource management agency director or his/her designee.

Section 130. Subsection (A) of Section 19.80.020 of Chapter 19.80 of Title 19 of the Kern County Code is hereby amended to read as follows:

A. Street and road dedications shall be made to the county, in a manner prescribed by the engineering and survey services department, for all existing or proposed local, secondary and major highways. The required dedication shall be thirty (30) feet from the centerline of a local street, forty-five (45) feet from the

centerline of a secondary highway, and fifty-five (55) feet from the centerline of a major highway, or as required by any adopted official or specific plan line. In cases where a street is on the boundary of a development, a minimum dedication of forty (40) feet shall be made.

Section 131. Subsections (B), (C), (D), (E), (F), (G), (H), (I), (J), (K), (L), (M), (N), (O), (P), (Q), (R), (S) and (T) of Section 19.80.020 shall remain the same.

Section 132. Subsection (A) of Section 19.80.030 of Chapter 19.80 of Title 19 of the Kern County Code is hereby amended to read as follows:

A. Street and road dedications shall be made to the county, in a manner prescribed by the engineering and survey services department, for all existing or proposed local, secondary and major highways. The required dedication shall be thirty (30) feet from the centerline of a local street, forty-five (45) feet from the centerline of a secondary highway, and fifty-five (55) feet from the centerline of a major highway, or as required by any adopted official or specific plan line. In cases where a street is on the boundary of a development, a minimum dedication of forty (40) feet shall be made.

Section 133. Subsections (B), (C), (D), (E), (F), (G), (H), (I), (J), (K), (L), (M), (N), (O), (P), (Q), (R) and (S) of Section 19.80.030 shall remain the same.

Section 134. Subsection (F) of Section 19.88.070 of Chapter 19.88 of Title 19 of the Kern County Code is hereby amended to read as follows:

F. Driveways and access roads serving residential projects of three (3) or more units shall be improved with a minimum of three (3) inches of road mix and shall tie to a paved road (under encroachment permit from the transportation management department, where applicable). The paving requirement may be waived by the planning director when site access is not obtained from a paved road and when the project is not part of a precise development (PD) plan or cluster (CL) development.

Section 135. Subsections (A), (B), (C), (D), (E) and (G) of Section 19.88.070 shall remain the same.

Section 136. Subsection (O) of Section 19.98.050 of Chapter 19.98 of Title 19 of the Kern County Code is hereby amended to read as follows:

O. All required federal, state and county rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas;
2. Kern County fire department;
3. Kern County health department;
4. Regional Water Quality Control Board;
5. Air Pollution Control District;
6. Kern County engineering and survey services department.

Section 137. Subsections (A), (B), (C), (D), (E), (F), (G), (H), (I), (J), (K), (L), (M) and (N) of Section 19.98.050 shall remain the same.

Section 138. Subsection (C) and (E) of Section 19.100.110 of Chapter 19.100 of Title 19 of the Kern County Code is hereby amended to read as follows:

> C. The board of zoning adjustment shall determine whether the posting of security is necessary to guarantee reclamation in accordance with any approved reclamation plan or amended reclamation plan, and, if so, shall fix the amount thereof, subject to the limitations provided in this section. In making any such determination, the board of zoning adjustment shall consider the recommendations of the director of engineering and survey services and the director of planning and development services.
>
> E. The security shall be posted with the director of engineering and survey services or with such other officer of the county as the board of supervisors may order.

Section 139. Subsections (A), (B), (D), (F), (G), (H) and (I) of Section 19.100.110 shall remain the same.

SDS:gm/sds.d3
rma.ord
92.2730

ORDINANCE NO. G-6077

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN, STATE OF CALIFORNIA, AMENDING AND ADDING VARIOUS SECTIONS THROUGHOUT THE ZONING ORDINANCE CODE, TITLE 19, OF THE KERN COUNTY ORDINANCE CODE

The following ordinance, consisting of three-hundred sixty-eight (368) sections, was duly and regularly passed and adopted by the Board of Supervisors of the County of Kern, State of California, at a regular meeting of the Board of Supervisors held on the 11th day of April, 1994, by the following vote, to wit:

AYES: Ashburn, Austin, Larwood, Peterson

NOES: None

ABSENT: Shell

Ben Austin
Chairman of the Board of Supervisors of the County of Kern, State of California

(SEAL)

ATTEST:

SUE DAVIS
Clerk of the Board of Supervisors

By Kaaren Shatswell, Deputy Clerk

THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN ORDAINS AS FOLLOWS:

Section 1. This ordinance shall take effect and be in full force on and after the 11th day of May, 1994, and shall be published once in the Bakersfield Californian, a newspaper of general circulation, published in the County of Kern, State of California, together with the names of the members of the Board of Supervisors voting for and against the same.

Book No. 949067

Ord. No. G-6077

Section 2. Section 19.04.198 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.198 DECISION-MAKING AUTHORITY

"Decision-making authority" means the Planning Director, Board of Zoning Adjustment, or Board of Supervisors, depending on which has been assigned the responsibility and authority for reviewing and approving a particular permit pursuant to Chapter 19.102 of this title.

Section 3. Section 19.04.271 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.271 FESTIVAL

"Festival" means a program of cultural events consisting of performances, processions, and dances, and similar activities as determined by the Planning Director of Kern County. Circus or carnival events are not included within this definition.

Section 4. Section 19.04.279 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.279 FLOOD BOUNDARY FLOODWAY MAP (FBFM)

"Flood Boundary Floodway Map (FBFM)" means an official map on which the Federal Insurance Administration, using their own information or information supplied by the Kern County Water Agency, the Kern County Planning Department, the State Reclamation Board, or other federal agencies, has delineated both the areas of flood hazard and the floodway.

Section 5. Section 19.04.323 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.04.323 GUEST QUARTERS

"Guest Quarters" means an attached or detached living area which is physically separated from the primary dwelling and is not intended to be utilized as a separate dwelling. Guest quarters shall not exceed 75 percent of the net square footage of the habitable area of the primary dwelling and, except for a sink, shall contain no kitchen facilities. Except for air conditioning and heating, including water heaters, no gas lines or 220 electrical outlets shall be provided. Full size refrigerators and gas or electric cooking ranges, and spaces designed for this purpose, shall be prohibited.

Section 6. Section 19.04.331 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.331 HEAVY EQUIPMENT

"Heavy equipment" means equipment normally utilized in heavy construction projects and includes, but is not limited to, earthmoving equipment, road work and paving equipment, cranes, dump trucks, large tractors, water trucks, cement trucks, back hoes, excavators, compactors, zoom booms, concrete saws, forklifts, vibrators, platform lifts, and any other piece of equipment determined by the Planning Director as belonging to the heavy equipment category.

Section 7. Section 19.04.497 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.04.497 NONCOMMERCIAL LIVESTOCK FEED STORAGE

Noncommercial livestock feed storage shall mean the storage of livestock feed for future consumption by livestock owned by the property owner or tenants of same. Additionally, this use shall include livestock feed storage and distribution for co-operative bulk feed purchases where said purchases are not made for commercial or resale purposes and are to be consumed exclusively by livestock owned by members of the co-operative. The Director may request a list of members of such a co-operative at any time for the purposes of ensuring compliance with these provisions. Livestock feed shall not be available

for retail or wholesale purchase by the general public and storage shall be limited to what is pre-ordered. Except for on-site directional signs, no signage shall be permitted.

Section 8. Section 19.04.567 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.567 PLANNING DIRECTOR

"Planning Director" means the Director of the Planning Department of the County of Kern or his/her designee.

Section 9. Section 19.04.576 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.576 POULTRY RANCH

"Poultry ranch" means the raising, breeding, or hatching of poultry for commercial purposes, excluding ostriches and emus.

Section 10. Section 19.04.896 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.04.896 WHOLESALE NURSERY

"Wholesale nursery" is a plant nursery where the majority of plants are grown on site and sold in bulk form for the purposes of retail re-sale or for bulk purchase by landscape contractors and commercial landscaping installers, and which is not engaged in selling goods or merchandise to the general public for personal or household consumption.

Section 11. Chapter 19.06 is hereby amended to read as follows:

19.06.010 PURPOSE

The purpose of this chapter is to establish general rules for the administration of this title.

19.06.020 AUTHORITY TO ADMINISTER

The Planning Director shall be vested with the authority to administer this title. In the course of these duties, the Planning Director shall have the authority to interpret the provisions of this title. Where there is a question as to the meaning or the intent of any requirement of this title, including interpretations of conditions of approval required in conjunction with the approval of any ministerial or discretionary permit authorized therein, the Planning Director shall provide any necessary interpretation, and the decision of the Planning Director shall be final.

19.06.030 DELEGATION OF AUTHORITY AND RESPONSIBILITY

The Planning Director may delegate any responsibility or authority charged to him/her by any section of this title to any employee of the Kern County Planning Department, any employee of any department of the County of Kern, or a committee of employees of the County of Kern. Any employee or employees so designated may act on behalf of the Planning Director in a matter or proceeding specified in this title.

19.06.040 FEES

The Board of Supervisors may establish a reasonable fee for processing any application specified in this title, provided the fee does not exceed the estimated actual cost of processing such application. The Board of Supervisors shall adopt and may periodically revise a schedule of fees for processing such applications.

Section 12. Subsection 19.08.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. In case any uncertainty exists, the Planning Director shall determine the location of district boundaries.

Section 13. Subsections A, B, D, and E of Section 19.08.020 remain unchanged.

Section 14. Section 19.08.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.030 DETERMINATION OF SIMILAR USE — GENERALLY

When a property owner, applicant, or potential applicant proposes or contemplates a use of property not expressly authorized as a permitted use or as a conditional use in any district by the regulations of the applicable zoning district or districts, he/she may apply for a determination of similar use in accordance with the procedures set out in Sections 19.08.040 through 19.08.080 of this chapter. A determination of similar use may also be initiated by the Planning Director.

Section 15. Section 19.08.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.040 DETERMINATION OF SIMILAR USE — APPLICATION — CONTENTS

An application for similar use shall be in writing on forms provided by the Director of the Planning Department and shall include the following:

A. Name of the applicant
B. Description of the proposed or contemplated use
C. Identification of the zoning district or districts in which the use is proposed or contemplated
D. Identification of the use or uses listed as permitted uses or conditional uses that most nearly resemble the proposed or contemplated use
E. Explanation of why the property owner, applicant, or potential applicant feels the proposed or contemplated use meets the criteria in Section 19.08.080 of this chapter for determination of similar use

Section 16. Section 19.08.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.060 DETERMINATION OF SIMILAR USE — PROCEDURE

Where an application for similar use is submitted in conjunction with an application for a ministerial permit or if a proposed or contemplated use is asserted to be similar to a permitted use in the applicable zoning district or districts where no permit application is submitted, the Planning Director shall make the determination of similar use. Such determination shall be made in accordance with the following procedures:

A. The determination shall be made in conjunction with the ministerial or discretionary decision on the application submitted in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 or 19.102.070 through 19.102.120 of this title or, where no ministerial or discretionary permit is involved, within forty-five (45) calendar days of submission of the application.
B. Written notice of such determination shall be given by mail within a timely manner after the date of the determination to the applicant and any person filing a written request for notice of the determination.
C. The decision of the Planning Director shall be final on the expiration of seven (7) calendar days from and including the date of mailing of notice of the decision, as required by Subsection B of this section, unless a notice of appeal is filed with the Planning Director within such time.

Section 17. Section 19.08.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.070 DETERMINATION OF SIMILAR USE — APPEAL

The determination of similar use by the Planning Director shall be subject to appeal to the Board of Supervisors:

A. The applicant for the determination may appeal from the decision of the Planning Director on the application for determination of similar use by filing a written notice of appeal with the Planning Director prior to the time the decision becomes final.

B. The Board of Supervisors may affirm or modify the determination of similar use by the Planning Director.

Section 18. Section 19.08.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.080 DETERMINATION OF SIMILAR USE — CRITERIA

The determination of similar use shall constitute a ministerial action. In making a determination of similar use, the Planning Director or Board of Supervisors, acting on an appeal shall determine that a proposed or contemplated use is similar to a use or uses expressly authorized in the applicable zoning district or districts if the proposed or contemplated use meets the following criteria:

Section 19. Subsections A and B of Section 19.08.080 remain unchanged.

Section 20. Section 19.08.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.090 PUBLIC UTILITY USES — COUNTY REVIEW

The provisions of this title shall not be construed to apply to the construction, installation, operation, and maintenance of public utility distribution and transmission lines or supporting towers, and poles and underground facilities for providing gas, water, electricity, or telephone and telegraph services by public utility companies or other company under the jurisdiction of the California Public Utilities Commission; provided, however, before any right-of-way for transmission lines is acquired for regional or interstate facilities, the proposed route shall be submitted for the Planning Director review and recommendation. The provisions of this title shall also not apply to private water companies providing more than one hundred and fifty (150) connections and regulated by the Commission, provided that the siting of all water-related facilities is expressly regulated by the Commission. Additionally, the provisions of this title shall not apply to privately constructed, operated, or maintained electrical transmission lines and towers, provided that said lines are constructed, maintained, and operated in accordance with, and subject to, the requirements of the California Public Utilities Commission and further provided that said transmission lines are tied into a public utility grid system, and except as otherwise provided for in Chapter 19.64.

Section 21. Section 19.08.230 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.230 PRIVATE OIL PIPELINES AND RELATED FACILITIES — COUNTY REVIEW

The provisions of this title shall not be construed to apply to the construction, installation, operation, and maintenance of pipelines for the transmission of crude oil operated by private enterprises; provided, however, before any right-of-way for transmission lines is acquired for regional or interstate facilities, the proposed route shall be submitted for the Planning Director review and recommendation.

Section 22. Section 19.08.252 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.252 TRUCK PARKING AS A RESIDENTIAL ACCESSORY USE

Truck parking, when accessory and incidental to an established residential use, shall be permitted provided that there is no more than one (1) truck which does not exceed a gross weight of five (5) tons and which is driven to and from the resident's place of employment on a regular basis or which is utilized in conjunction with an approved home occupation pursuant to Chapter 19.94 of this title. No commercial vehicle having a manufacturer's gross vehicle weight rating of ten thousand (10,000) pounds or more shall be parked or stored on any public or private street within a residential district.

The parking of one (1) truck which exceeds a gross weight of five (5) tons may be authorized by the Director subject to the provisions contained in Sections 19.102.040 through 19.102.060 (Ministerial Permits). Such authorization shall be limited to legally created lots with a net lot size of 1/2 acre or larger, developed with a single-family dwelling, and where the written consent of the property owner and each abutting property owner accompanies a written request for such authorization. Any such authorization shall be for a maximum period of one (1) year, limited to one vehicle and shall not include trailers; except that one (1) trailer may also be authorized on qualifying lots with a minimum gross lot size of 2 1/2 acres, if included as part of the original request. In the event that not all abutting property owners' signatures can be obtained, the applicant may elect to file a request for approval by the hearing body following the procedures of Chapter 19.104 (Conditional Use Permits). Under no circumstances shall more than one (1) truck or truck/trailer combination be authorized under this Section. The Director or other applicable hearing body may impose reasonable conditions deemed necessary for the protection of the public health, safety, and welfare.

Section 23. Section 19.08.270 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.270 COUNTY REVIEW OF PROJECTS RELATED TO NATIONAL SECURITY

The provisions of this title shall not be construed to apply to the construction, installation, operation, and maintenance of facilities on private land which are required in the interest of national security or the national defense, as determined by the Planning Director.

Section 24. Section 19.08.280 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.280 EMERGENCY OCCUPANCY OF MOBILEHOMES OR TRAVEL TRAILERS

In the event a dwelling is destroyed or rendered uninhabitable by fire, earthquake, or similar calamity, the Planning Director may authorize the temporary placement of a mobilehome or travel trailer for residential use on the property, regardless of the zoning district classification of the property, for a period not to exceed one hundred and eighty (180) days. A request for such authorization shall be submitted in writing within thirty (30) days from the time the dwelling is destroyed or rendered uninhabitable. The Director shall provide such authorization in writing and may stipulate any necessary conditions as determined by the Director, for the protection of the public health and safety or for the protection of the personal health and safety of the proposed occupants.

Section 25. Section 19.08.290 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.290 TEMPORARY BATCH PLANTS

Temporary portable batch plants related to a specific construction project and for a one-time period of one hundred and sixty (160) days or less may be authorized by the Planning Director in the A (Exclusive Agriculture), NR (Natural Resource), M-2 (Medium Industrial), and M-3 (Heavy Industrial) Districts after review and approval of a written request, which shall include an operations statement describing the equipment and processes to be utilized, the purpose of the temporary batch plant, and a plot plan.

Section 26. Section 19.08.320 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.320 FIREWORKS STANDS

In addition to the specific zone districts which allow temporary fireworks stands, the Planning Director may also authorize fireworks stands on publicly owned property,

including property owned by school districts, and on property developed with church facilities in any zone district.

Section 27. Section 19.08.340 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.08.340 TEMPORARY EVENTS

Temporary carnivals, circuses, or similar events not exceeding four (4) days may be permitted in any zone district with the prior written approval of the Planning Director. In conjunction with such an approval, the Director may impose reasonable conditions to safeguard public health and safety.

Section 28. Subsection 19.10.010.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. In order to classify, regulate, restrict, and segregate the uses of lands and buildings, to regulate and restrict the height, bulk, and construction of buildings, to regulate the area of yards and other open spaces around buildings, and to regulate intensity of land use and the density of population, the following base zoning districts are established:

1. Agricultural Districts
   - A Exclusive Agriculture District
   - A-1 Limited Agriculture District
2. Residential Districts
   - E Estate District
   - R-1 Low-density Residential District
   - R-2 Medium-density Residential District
   - R-3 High-density Residential District
   - MP Mobilehome Park District
3. Commercial Districts
   - CO Commercial Office District
   - C-1 Neighborhood Commercial District
   - C-2 General Commercial District
   - CH Highway Commercial District
4. Industrial Districts
   - M-1 Light Industrial District
   - M-2 Medium Industrial District
   - M-3 Heavy Industrial District
5. Special Purpose Districts
   - RF Recreation-Forestry District
   - OS Open Space District
   - NR Natural Resource District
   - DI Drilling Island District
   - FPP Floodplain Primary District
   - SP Special Planning District
   - PL Platted Lands District

Section 29. Subsection B of Section 19.10.010 remains unchanged.

Section 30. Subsection 19.10.020.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. In order to classify, regulate, restrict, and segregate the uses of lands and buildings, to regulate and restrict the height, bulk, and construction of buildings, to regulate the area of yards and other open spaces around buildings, and to regulate intensity of land use and the density of population, the following combining zoning districts are established:

1. Lot Size Combining District
2. PD Precise Development Combining District
3. CL Cluster Combining District
4. RS Residential Suburban Combining District
5. Rural Living Combining District
6. MH Mobilehome Combining District
7. WE Wind Energy Combining District
8. PE Petroleum Extraction Combining District
9. GH Geologic Hazard Combining District
10. FP Floodplain Combining District

11. FPS Floodplain Secondary Combining District
12. H Airport Approach Height Combining District

Section 31. Subsection B of Section 19.10.020 remains unchanged.

Section 32. Section 19.10.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.10.040 ZONING MAPS

The boundaries of the zoning districts established by this title are not included in this title but are shown on the Official Zoning Maps maintained by the Kern County Planning Department. The Official Zoning Maps and all notations, references, and other information shown thereon shall be as much a part of this title as if the matters and information set forth on such maps were all fully described herein.

Section 33. Section 19.12.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.12.020 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are permitted in the A District:

A. AGRICULTURAL USES

1. Growing and Harvesting Crops
   - — Berry crops
   - — Bush crops
   - — Christmas trees
   - — Field crops, dryland
   - — Field crops, irrigated
   - — Flowers and horticultural specialties, wholesale only
   - — Greenhouse, wholesale only
   - — Nursery, plant, wholesale only
   - — Nut and fruit trees
   - — Timber
   - — Vegetables
   - — Vine crops
2. Breeding and Raising Animals
   - — Bee keeping
   - — Beef cattle or livestock grazing
   - — Birds, including show or racing pigeons and other small fowl
   - — Commercial poultry farms, in which poultry are kept in confined quarters for the purpose of hatching, breeding, processing, butchering, and egg or other poultry by-product production for retail or wholesale purposes, pursuant to Section 19.12.130.E (see also Section 19.12.030.A)*
   - — Dairy pursuant to Section 19.12.130.E*
   - — Dairy stock grazing
   - — Fish and frogs
   - — Hogs, excluding a hog farm or ranch
   - — Horses, donkeys, llamas, or mules
   - — Poultry, including chickens, ostriches, turkeys, or other fowl, excluding commercial poultry farms or ranches in which poultry are kept in confined facilities, as determined by the Planning Director
   - — Rabbits or fur-bearing animals
   - — Sheep or goats
3. Agricultural Industries
   - — Agricultural services, when incidental and secondary to the primary use of the premises for agriculture
   - — Agricultural services laboratory, with a maximum of five (5) employees and one thousand (1,000) square feet of building area
   - — Animal products processing, including meat packing, canning, and shipping, when the

livestock is produced or grown by the owner of the processing facility on the premises or on land leased, rented, or owned by the owner of the processing facility and within a reasonable distance of the facility

— Contract harvesting*
— Cotton gin*
— Fruit, vegetable, and plant products processing, including cold storage, packing, preserving, canning, and shipping*
— Grain elevator or storage
— Honey extraction
— Noncommercial livestock feed storage, wholly enclosed

* These uses shall be subject to development standards and a plot plan review pursuant to Sections 19.80.030 and 19.80.040 of this title.

B. RESIDENTIAL USES

— Farm labor housing for on-site employees, including the installation and/or use of recreational vehicles for a period not exceeding one hundred and twenty (120) days in any calendar year
— Farm labor housing, contract labor, twelve (12) or fewer employees
— Mobilehome, occupied by the owner or full-time on-site employee
— Residential accessory structures
— Residential facility, serving six (6) or fewer persons
— Single-family dwelling, occupied by the owner or full-time on-site employee

C. COMMERCIAL USES

1. General Retail Sales
— Christmas trees, temporary
— Fruit stand, temporary, pursuant to Subsection A of Section 19.12.130 of this chapter

D. UTILITY AND COMMUNICATIONS FACILITIES

— Transmission lines and supporting towers, poles, microwave towers, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company or other company under the jurisdiction of the California Public Utilities Commission pursuant to Section 19.08.090 of this title
— Utility substation

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Cogeneration facility or steam generators, primarily intended for steam production used for production of oil or gas, excluding coal fired
— Explosives storage, temporary
— Mineral exploration
— Oil or gas exploration and production pursuant to Chapter 19.98 of this title
— Solar energy electrical generators with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity
— Wind-driven electrical generators for on-site consumption of the electricity

F. MISCELLANEOUS USES

— Accessory buildings, including cargo containers, if incidental and accessory to a permitted use
— Commercial coach, when incidental and accessory to a permitted use
— Day-care home, large family, pursuant to Chapter 19.96
— Day-care home, small family
— Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
— Flood control facilities
— Garage or yard sales pursuant to Subsection C of Section 19.12.130
— Home occupation pursuant to Chapter 19.94

— Hunting or fishing club, not involving structures
— Kennel or dog training facilities
— Liquid fuel storage tanks, above ground, for dispensing purposes
— Water storage or groundwater recharge facilities
— Water system, small or large
— Wildlife or nature preserve

Section 34. Subsection 19.12.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. AGRICULTURAL USES
1. Breeding and Raising of Animals
— Beef cattle or livestock feed lot or stock auction or sales yard
— Commercial poultry farms, in which poultry are kept in confined quarters for the purpose of hatching, breeding, processing, butchering, and egg or other poultry by-product production for retail or wholesale purposes, except as permitted by Section 19.12.020.A
— Hogs, including hog farms and ranches
2. Agricultural Industries
— Alcohol distillery
— Agricultural chemical storage and repackaging
— Agricultural services laboratory
— Agricultural trucking facilities
— Brewery
— Biomass energy conversion
— Commercial livestock feed storage
— Creamery
— Dairy, except as permitted by Section 19.12.020.A
— Dead animal and fat rendering
— Farm machinery and equipment repair
— Fertilizer manufacture and storage for agricultural use only
— Flour mill
— Glucose processing
— Oil extraction, nonmineral
— Saw or planing mill
— Winery
— Wool pulling and scouring

Section 35. Subsection 19.12.030.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES
— Backfilling of surface mines with inert, nonorganic fill material, where a Solid Waste Facility Permit is not required
— Coal-fired cogeneration facility or steam generators, primarily intended for production of oil or gas
— Concrete or asphalt batch plant
— Dam, small hydro
— Dam, large hydro
— Electrical power generating plant
— Explosives storage, permanent
— Mining and mineral extraction pursuant to Chapter 19.100 of this title
— Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution
— Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity

Section 36. Subsection 19.12.030.J of the Ordinance Code of the County of Kern is hereby amended to read as follows:

J. EDUCATIONAL INSTITUTIONS AND SCHOOLS
1. General
— Preschool
— Elementary school

— Junior high school
— Senior high school
— College or university

2. Specialized
— Police/security training facility

Section 37. Subsection 19.12.030.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. MISCELLANEOUS USES
— Construction staging and equipment storage, temporary, related to a specific construction project.
— Corporate or administrative offices in conjunction with, and accessory to, a use permitted or conditionally permitted in this chapter
— Drainage sump
— Hunting or fishing club
— Wild animal keeping

Section 38. Subsections B, C, D, E, F, H, and I of Section 19.12.030 remain unchanged.

Section 39. Section 19.12.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.12.050 MINIMUM LOT SIZE

No lot created within the A District shall contain less than twenty (20) gross acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites. In the event the lot is under Williamson Act Contract and designated 8.2, 8.3, or 8.5 by the County General Plan, the minimum area shall be eighty (80) acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites. There shall be no minimum lot size for agricultural industry uses approved in conjunction with a conditional use permit.

Section 40. Subsection 19.12.130.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Off-site directional signs for agricultural product direct marketing facilities subject to the following standards:
1. The direct marketing facility shall be established and operated in accordance with the provisions of this title and shall be primarily limited to the sale of unprocessed agricultural commodities grown on the same ranch or farm that provides such sale.
2. The maximum sign area for each sign shall not exceed one hundred and fifty (150) square feet.
3. The number of signs shall be limited to a maximum of nine (9).
4. The minimum spacing between signs shall be six hundred and sixty (660) feet.
5. The signs are for directional purposes only, and the text shall be limited to the producer's name or his brand name, the products available, and directions to the location of the point of sale.
6. Signs may be illuminated only during the actual hours that the facility is open for public sale of products.
7. Sign height shall not exceed twelve (12) feet.
8. Signs are permitted for a temporary, cumulative period of seven (7) months within any calendar year.
9. Any sign permitted in accordance with this section shall not be located more than five (5) miles from the direct marketing facility for which the sign provides directions, unless the facility is located

more than five (5) miles from a designated County major highway or state or federal highway. In such cases, a single sign may be located at the nearest designated County major highway or state or federal highway, regardless of the distance from the facility.

10. All signs shall comply with the provisions and regulations of the California Department of Transportation, Outdoor Advertising Branch, when located adjacent to a state or federal highway.
11. Prior to installation of any sign, a plan showing the location and the spacing of each sign shall be submitted to the Planning Director for approval. A copy of such plan shall be retained by the Planning Department for file purposes.

Section 41. Subsection 19.12.130.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Commercial poultry farms and dairies are permitted if all of the following criteria are satisfied:
   1. No portion of the proposed site lies within five (5) miles of the sphere of influence of the City of Bakersfield or within one (1) mile of the sphere of influence of any other incorporated city as adopted by the Kern County Local Agency Formation Commission.
   2. The General Plan designation for the entire site is 8.1 or 8.3.
   3. There is no property zoned or designated by the General Plan or applicable Specific Plan for residential development (E or R-1, R-2, and R-3) within three (3) miles from the exterior boundary of the site.
   4. The density of existing dwellings does not exceed one (1) dwelling unit per eighty (80) acres for a two (2) mile radius from the exterior project boundary.
   5. There are no concentrations of dwellings greater than three (3) dwellings for any twenty- (20-) acre area within one (1) mile of the exterior project boundary.
   6. There are no retail commercial uses, including hotels and motels, within a one (1) mile radius from the exterior project boundary.
   7. There are no residential facilities, community care facilities, hospitals, recreational vehicle parks, or public or private schools within a two (2) mile radius from the exterior project boundary.
   8. The facility operator obtains all local, State, and federal approvals, licenses, and permits prior to the commencement of operations.

Section 42. Subsections A, C, D, and F of Section 19.12.130 remain unchanged.

Section 43. Section 19.14.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.020 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are permitted in the A-1 District:

A. AGRICULTURAL USES
   1. Growing and Harvesting Crops
      — Berry crops
      — Bush crops
      — Christmas trees
      — Field crops, dryland
      — Field crops, irrigated
      — Flowers and horticultural specialties, wholesale only
      — Greenhouse, wholesale only

— Nursery, plant, wholesale only
— Nut and fruit trees
— Timber
— Vegetables
— Vine crops

2. Breeding and Raising Animals
— Bee keeping
— Beef cattle or livestock grazing pursuant to Section 19.14.130 of this chapter
— Birds, including show or racing pigeons and other small fowl
— Dairy stock pursuant to Section 19.14.130 of this chapter
— Hogs pursuant to Section 19.14.130 of this chapter
— Horses, donkeys, llamas, and mules pursuant to Section 19.14.130 of this chapter
— Poultry, for the domestic use of the resident/occupant only (not including poultry ranches)
— Rabbits and fur-bearing animals
— Sheep and goats pursuant to Section 19.14.130 of this chapter

B. RESIDENTIAL USES

1. Manufactured home, mobilehome, or recreational vehicle, temporary, during construction of a single-family home pursuant to Section 19.14.130 of this chapter
2. Manufactured home, pursuant to Section 19.14.130.G of this chapter
3. Residential accessory structures
4. Residential facility, serving six (6) or fewer persons
5. Single-family dwelling, with a width greater than sixteen (16) feet

C. COMMERCIAL USES

1. General Retail Sales
— Christmas trees, temporary
— Fruit stand, temporary, pursuant to Section 19.14.130 of this chapter

D. UTILITY AND COMMUNICATION FACILITIES

— Transmission lines and supporting towers, poles, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company or other company under the jurisdiction of the California Public Utilities Commission pursuant to Section 19.08.090 of this title
— Utility substations

E. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES

— Cogeneration facility or steam generators, primarily intended for steam production, used for production of oil and gas, excluding coal fired
— Mineral exploration
— Oil or gas exploration and production pursuant to Chapter 19.98 of this title, including the temporary installation of commercial coaches as accessory to this activity, not to exceed a two- (2-) year period
— Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity
— Wind-driven electrical generator for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

F. INSTITUTIONAL USES

— Public agency or public utility buildings and facilities

G. MISCELLANEOUS USES

— Commercial coach, when incidental and accessory to a permitted use, not exceeding six (6) months

— Day-care home, large family, pursuant to Chapter 19.96 of this title
— Day-care home, small family
— Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
— Flood control facilities
— Garage or yard sales pursuant to Subsection F of Section 19.14.130 of this chapter
— Home occupation pursuant to Chapter 19.94 of this title
— Liquid fuel storage tanks, above ground, for dispensing purposes
— Water storage or groundwater recharge facilities
— Water system, small or large
— Wildlife or nature preserve

Section 44. Subsection 19.14.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. AGRICULTURAL USES
1. Breeding and Raising of Animals
— Fish and frogs
— Poultry, including hatching, breeding, butchering, processing, or shipping of chickens, ostriches, turkeys, or other fowl or poultry, including eggs
2. Agricultural Industries
— Agricultural trucking facilities
— Cold storage facility for agricultural products
— Contract harvesting
— Fruit, vegetable, and plant product processing

Section 45. Subsection 19.14.030.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. INSTITUTIONAL USES
— Auditorium, public
— Cemetery, mausoleum, columbarium, or mortuary
— Charitable or public service organization
— Church
— Club or lodge
— Community or senior citizens center
— Convalescent hospital
— Crematory in conjunction with a cemetery, mausoleum, columbarium, or mortuary
— Hospital
— Museum
— Rehabilitation facilities
— Sanitarium
— Water treatment plant
— Zoo

Section 46. Subsection 19.14.030.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. MISCELLANEOUS USES
— Commercial coach, when incidental and accessory to a permitted use
— Day-care center, with or without extended overnight services
— Drainage sump
— Kennel or dog training facilities
— Railroad caboose and similar accessory structures
— Revival, temporary
— Skateboard ramps, noncommercial
— Wild animal keeping

Section 47. Subsections B, C, D, E, F, G, H, and J of Section 19.14.030 remain unchanged.

Section 48. Section 19.14.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.050 MINIMUM LOT SIZE

No lot created within the A-1 District shall contain less than two and one-half (2 1/2) gross acres, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 49. Section 19.14.120 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.14.120 LANDSCAPING

No landscaping is required in the A-1 District, except where required in conjunction with the approval of a discretionary permit pursuant to Chapter 19.104.

Section 50. Subsection 19.14.130.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. The breeding and raising of livestock, in greater numbers than allowed by Subsection A of Section 19.14.130 of this chapter, by minors in conjunction with a student-oriented fair project sponsored by a bona fide agricultural organization shall be permitted upon application to and approval by the Planning Director of a Temporary Animal Permit in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

1. Application Contents. An application for a Temporary Animal Permit shall include the following:
   a. The name and address of the applicant
   b. The name(s) and address(es) of the property owner(s)
   c. Assessor's parcel number(s)
   d. Legal description of the subject property
   e. Name of the organization sponsoring the applicant
   f. A plot plan showing the location of proposed pens, coops, or areas for the breeding and raising of animals in relation to existing residence(s) and other buildings and structures within one hundred (100) feet of pens, coops, or areas housing livestock
   g. The signature of each owner of the real property abutting the subject lot consenting to the granting of the Temporary Animal Permit
2. Development Standards and Conditions. The breeding and raising of animals on a temporary basis shall comply with the following standards and conditions:
   a. Applicant shall be sponsored by a bona fide organization, such as, but not limited to, Future Farmers of America, 4-H Club, Cow-Belles, or Junior Farmers.
   b. The increase in animal density shall not exceed the density allowed by Subsection A of Section 19.14.130 of this chapter by more than fifty percent (50%). In any case, however, at least two (2), but no more than six (6), additional animals shall be allowed.
   c. The Temporary Animal Permit shall be effective for a maximum period of six (6) months from the effective date of the permit. No more than one (1) such permit shall be approved for any lot within a one- (1-) year period.
   d. The written consent of each abutting property owner consenting to the granting of the Temporary Animal Permit must be obtained.
   e. The applicant shall allow inspection of animal maintenance facilities by the Kern County Engineering and Survey Services Department (Building Inspection Division) and the Kern County Health Department.
   f. The Planning Director may revoke the Temporary Animal Permit at any time for noncompliance

with Subsection C.2 of Section 19.14.130 of this chapter or upon receipt of a recommendation for revocation from the Kern County Health Department.

g. Each additional animal authorized by the Temporary Animal Permit over the allowable animal density specified by Subsection A of Section 19.14.130 of this chapter shall be removed upon expiration of the permit.

Section 51. Subsection 19.14.130.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. A mobilehome or recreational vehicle permitted as a temporary dwelling pursuant to Section 19.14.020 of this chapter shall comply with the following standards:

1. Building permits for construction of the conventional single-family residence shall be obtained prior to or concurrently with the installation permit for the mobilehome.
2. The mobilehome shall be removed from the premises or the recreational vehicle shall be removed from the premises or placed in dead storage if:
   a. Six (6) months have passed since the mobilehome or recreational vehicle was installed.
   b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
   c. The building permit has lapsed due to lack of activity.
3. One (1) extension of time for a period not to exceed six (6) months may be granted by the Planning Director upon written request of the property owner. The extension of time may only be approved subject to the following conditions:
   a. An active building permit is on file with the Kern County Engineering and Survey Services Department (Building Inspection Division).
   b. The construction of the conventional dwelling unit on the site has progressed to a stage of inspection and approval of the framing, rough electrical, rough mechanical, and rough and top-out of plumbing of the dwelling.
4. Any mobilehome or recreational vehicle permitted as a temporary dwelling in excess of a six- (6-) month period of time pursuant to Subsection D.3 of Section 19.14.130 of this chapter shall be removed or placed in dead storage if:
   a. The extension of time has expired.
   b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
   c. The building permit has lapsed due to lack of activity.

Section 52. Subsection 19.14.130.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Off-site directional signs for agricultural product direct marketing facilities subject to the following standards:

1. The direct marketing facility shall be established and operated in accordance with the provisions of this chapter and shall be primarily limited to the sale of unprocessed agricultural commodities grown on the same ranch or farm that provides such sale.
2. The maximum sign area for each sign shall not exceed one hundred and fifty (150) square feet.
3. The number of signs shall be limited to a maximum of nine (9).
4. The minimum spacing between signs shall be six hundred and sixty (660) feet.

5. The signs are for directional purposes only, and the text shall be limited to the producer's name or his brand name, the products available, and directions to the location of the point of sale.
6. Signs may be illuminated only during the actual hours that the facility is open for public sale of products.
7. Sign height shall not exceed twelve (12) feet.
8. Signs are permitted for a temporary, cumulative period of seven (7) months within any calendar year.
9. Any sign permitted in accordance with this section shall not be located more than five (5) miles from the direct marketing facility for which the sign provides directions, unless the facility is located more than five (5) miles from a designated County major highway or state or federal highway. In such cases, a single sign may be located at the nearest designated County major highway or state or federal highway, regardless of the distance from the facility.
10. All signs shall comply with the provisions and regulations of the California Department of Transportation, Outdoor Advertising Branch, when located adjacent to a state or federal highway.
11. Prior to installation of any sign, a plan showing the location and the spacing of each sign shall be submitted to the Planning Director for approval. A copy of such plan shall be retained by the Planning Department for file purposes.

Section 53. Subsections A, B, F, G, and H of Section 19.14.130 remain unchanged.

Section 54. Subsection 19.16.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Offices
— Temporary on-site real estate tract sales, including commercial coaches, pursuant to Subsection 19.16.130.D of this title

Section 55. Subsection 19.16.020.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. MISCELLANEOUS USES
— Day-care home, large family, pursuant to Chapter 19.96 of this title
— Day-care home, small family
— Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map
— Flood control facilities
— Garage or yard sales pursuant to Subsection C of Section 19.16.130 of this chapter
— Home occupation pursuant to Chapter 19.94 of this title
— Water storage or groundwater recharge facilities
— Water system, small or large

Section 56. Subsections A, B, D, and E of Section 19.16.020 remain unchanged.

Section 57. Subsection 19.16.030.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. COMMERCIAL USES
1. Offices
— Temporary on-site real estate sales/construction

Section 58. Subsection 19.16.030.L of the Ordinance Code of the County of Kern is hereby amended to read as follows:

L. MISCELLANEOUS USES
- Community septic disposal system
- Day-care center, with or without extended overnight services
- Drainage sump
- Railroad caboose and similar accessory structures
- Skateboard ramps, noncommercial
- Veterinary
- Whitewater rafting launch or landing site
- Wild animal keeping

Section 59. Subsections A, B, C, E, F, G, H, I, J, and K of Section 19.16.030 remain unchanged.

Section 60. Section 19.16.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.16.050 MINIMUM LOT SIZE

Except as otherwise provided in Chapter 19.58 of this title, no lot created within the E District shall contain less than one-quarter (1/4) acre (10,890 net square feet) or as specified by the Lot Size Combining District, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 61. Section 19.16.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.16.090 MINIMUM DISTANCE BETWEEN STRUCTURES

The following requirements apply to the minimum distance between structures in the E District:

A. There shall be a minimum distance of ten (10) feet between residential buildings.

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, or other structures for housing animals shall be at least thirty (30) feet away from any off-site residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution.

Section 62. Subsection 19.16.130.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. A mobilehome or recreational vehicle permitted as a temporary dwelling pursuant to Section 19.16.020 of this chapter shall comply with the following standards:

1. Building permits for construction of the conventional single-family residence shall be obtained prior to or concurrently with the installation permit for the mobilehome.
2. The mobilehome shall be removed from the premises or the recreational vehicle shall be removed from the premises or placed in dead storage if:
   a. Six (6) months have passed since the mobilehome or recreational vehicle was installed.
   b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
   c. The building permit has lapsed due to lack of activity.
3. One (1) extension of time for a period not to exceed six (6) months may be granted by the Planning Director upon written request of the property owner. The extension of time may only be approved subject to the following conditions:

a. An active building permit is on file with the Kern County Engineering and Survey Services Department (Building Inspection Division).
b. The construction of the conventional dwelling unit on the site has progressed to a stage of inspection and approval of the framing, rough electrical, rough mechanical, and rough and top-out of plumbing of the dwelling.

4. Any mobilehome or recreational vehicle permitted as a temporary dwelling in excess of a six- (6-) month period of time pursuant to Subsection B.3 of Section 19.16.130 of this chapter shall be removed or placed in dead storage if:
a. The extension of time has expired.
b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
c. The building permit has lapsed due to lack of activity.

Section 63. Subsection 19.16.130.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Temporary on-site real estate tract sales offices are permitted without special permit provided they meet the following standards:
1. The office shall be permitted for recorded subdivision tracts only.
2. No more than one (1) office shall be permitted within any subdivision tract.
3. Only lots within the subject subdivision tract shall be marketed through the office.
4. Two (2) on-site parking spaces shall be provided and surfaced in accordance with the requirements of Section 19.82.090.
5. All signs shall conform with the requirements of Section 19.84.070.
6. No construction equipment or materials storage shall be permitted.
7. The office shall be used for a maximum two- (2-) year period only. An extension of time may be requested of and approved by the Planning Director if submitted in writing prior to the two- (2-) year date of expiration.
8. Upon sale of all lots within the residential tract, the site shall be converted to residential use.

Section 64. Subsections A, C, E, and F of Section 19.16.130 remain unchanged.

Section 65. Subsection 19.18.020.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. COMMERCIAL USES
1. Offices
— Temporary on-site real estate tract sales, including commercial coaches, pursuant to Subsection 19.18.130.D of this title

Section 66. Subsection 19.18.020.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. MISCELLANEOUS USES
— Day-care home, large family, pursuant to Chapter 19.96 of this title
— Day-care home, small family
— Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map
— Garage or yard sales pursuant to Subsection C of Section 19.18.130 of this chapter
— Home occupation pursuant to Chapter 19.94 of this title
— Water storage or groundwater recharge facilities

— Water system, small or large

Section 67. Subsections A, B, C, E, and F of Section 19.18.020 remain unchanged.

Section 68. Subsection 19.18.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Offices
— Temporary on-site real estate sales/construction
2. Services
— Ambulance

Section 69. Subsection 19.18.030.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. MISCELLANEOUS USES
— Community septic disposal system
— Day-care center, with or without extended overnight services
— Drainage sump
— Flood control facilities
— Railroad caboose and similar accessory structures
— Skateboard ramps, noncommercial

Section 70. Subsections A, B, D, E, F, G, and H of Section 19.18.030 remain unchanged.

Section 71. Section 19.18.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.18.050 MINIMUM LOT SIZE

Except as otherwise provided in Chapter 19.58 of this title, no lot created within the R-1 District shall contain less than six thousand (6,000) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company, or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 72. Section 19.18.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.18.090 MINIMUM DISTANCE BETWEEN STRUCTURES

The following requirements apply to the minimum distance between structures in the R-1 District:

A. There shall be a minimum distance of ten (10) feet between residential buildings.

B. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, other structures for housing animals, and the animals themselves shall be at least thirty (30) feet away from any off-site residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution.

Section 73. Subsection 19.18.130.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. A mobilehome or recreational vehicle permitted as a temporary dwelling pursuant to Section 19.18.020 of this chapter shall comply with the following standards:
1. Building permits for construction of the conventional single-family residence shall be obtained prior to or concurrently with the installation permit for the mobilehome.

2. The mobilehome shall be removed from the premises or the recreational vehicle shall be removed from the premises or placed in dead storage if:
   a. Six (6) months have passed since the mobilehome or recreational vehicle was installed.
   b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
   c. The building permit has lapsed due to lack of activity.
3. One (1) extension of time for a period not to exceed six (6) months may be granted by the Planning Director upon written request of the property owner. The extension of time may only be approved subject to the following conditions:
   a. An active building permit is on file with the Kern County Engineering and Survey Services Department (Building Inspection Division).
   b. The construction of the conventional dwelling unit on the site has progressed to a stage of inspection and approval of the framing, rough electrical, rough mechanical, and rough and top-out of plumbing of the dwelling.
4. Any mobilehome or recreational vehicle permitted as a temporary dwelling in excess of a six- (6-) month period of time pursuant to Section 19.18.130 of this chapter shall be removed or placed in dead storage if:
   a. The extension of time has expired.
   b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
   c. The building permit has lapsed due to lack of activity.

Section 74. Subsection 19.18.130.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Temporary on-site real estate tract sales offices are permitted without special permit provided they meet the following standards:
   1. The office shall be permitted for recorded subdivision tracts only.
   2. No more than one (1) office shall be permitted within any subdivision tract.
   3. Only lots within the subject subdivision tract shall be marketed through the office.
   4. Two (2) on-site parking spaces shall be provided and surfaced in accordance with the requirements of Section 19.82.090.
   5. All signs shall conform with the requirements of Section 19.84.070.
   6. No construction equipment or materials storage shall be permitted.
   7. The office shall be used for a maximum two- (2-) year period only. An extension of time may be requested of and approved by the Planning Director if submitted in writing prior to the two- (2-) year date of expiration.
   8. Upon sale of all lots within the residential tract, the site shall be converted to residential use.

Section 75. Subsections A, C, E, and F of Section 19.18.130 remain unchanged.

Section 76. Subsection 19.20.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
   1. Offices

— Temporary on-site real estate tract sales, including commercial coaches, pursuant to Subsection 19.20.130.C of this title

Section 77. Subsection 19.20.020.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. MISCELLANEOUS USES
- — Construction trailer, temporary, during construction activity only
- — Day-care center, not to exceed a capacity of one (1) child for every three (3) dwelling units located on the property, where the lot contains a minimum of three (3) dwelling units
- — Day-care home, large family, pursuant to Chapter 19.96 of this title
- — Day-care home, small family, when located within a detached single-family dwelling
- — Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
- — Garage or yard sales pursuant to Subsection B of Section 19.20.130 of this chapter
- — Home occupation pursuant to Chapter 19.94 of this title
- — Water storage or groundwater recharge facilities
- — Water system, small or large

Section 78. Subsections A, B, D, and E of Section 19.20.020 remain unchanged.

Section 79. Subsection 19.20.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RESIDENTIAL USES
- — Boarding or rooming house
- — Community care facility
- — Manufactured home or mobilehome, maximum of two (2) per lot, pursuant to Section 19.20.130.D.6 of this chapter (see Section 19.20.020.A)
- — Rest home
- — Retirement home

Section 80. Subsection 19.20.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Offices
   - — Temporary on-site real estate sales/construction
2. Services
   - — Ambulance

Section 81. Subsection 19.20.030.J of the Ordinance Code of the County of Kern is hereby amended to read as follows:

J. MISCELLANEOUS USES
- — Community septic disposal system
- — Day-care center, with or without extended overnight services
- — Drainage sump
- — Flood control facilities

Section 82. Subsections B, D, E, F, G, H, and I of Section 19.20.030 remain unchanged.

Section 83. Section 19.20.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.20.050 MINIMUM LOT SIZE

Except as otherwise provided in Chapter 19.58 of this title, no lot created within the R-2 District shall contain less than six thousand (6,000) net square feet, excepting in the case of

the conveyance to or from a governmental agency, public entity, public utility, community water company, or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 84. Subsection 19.20.130.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Temporary on-site real estate tract sales offices are permitted without special permit provided they meet the following standards:
1. The office shall be permitted for recorded subdivision tracts only.
2. No more than one (1) office shall be permitted within any subdivision tract.
3. Only lots within the subject subdivision tract shall be marketed through the office.
4. Two (2) on-site parking spaces shall be provided and surfaced in accordance with the requirements of Section 19.82.090.
5. All signs shall conform with the requirements of Section 19.84.070.
6. No construction equipment or materials storage shall be permitted.
7. The office shall be used for a maximum two- (2-) year period only. An extension of time may be requested of and approved by the Planning Director if submitted in writing prior to the two- (2-) year date of expiration.
8. Upon sale of all lots within the residential tract, the site shall be converted to residential use.

Section 85. Subsections A, B, D, and E of Section 19.20.130 remain unchanged.

Section 86. Subsection 19.22.020.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RESIDENTIAL USES
— Apartment
— Bed and breakfast inn
— Boarding or rooming house
— Condominium
— Duplex
— Manufactured home, one (1) per lot, pursuant to Section 19.22.130.D of this chapter
— Quadruplex
— Residential accessory structures
— Residential facility, serving ten (10) or fewer persons
— Single-family dwelling
— Townhouse
— Triplex

Section 87. Subsection 19.22.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Offices
— Temporary on-site real estate tract sales, including commercial coaches, pursuant to Subsection 19.22.130.C of this title

Section 88. Subsection 19.22.020.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. MISCELLANEOUS USES
— Construction trailer, temporary, during construction activity only
— Day-care center not to exceed a capacity of one (1) child for every three (3) dwelling units located on the property, where the lot contains a minimum of three (3) dwelling units

— Day-care home, large family, pursuant to Chapter 19.96 of this title
— Day-care home, small family, when located within a detached single-family dwelling
— Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
— Garage or yard sales pursuant to Subsection B of Section 19.22.130 of this chapter
— Home occupation pursuant to Chapter 19.94 of this title
— Water storage or groundwater recharge facilities
— Water system, small or large

Section 89. Subsections B, D, and E of Section 19.22.020 remain unchanged.

Section 90. Subsection 19.22.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RESIDENTIAL USES
— Boarding or rooming house, serving more than six (6) persons
— Community care facility
— Fraternity or sorority house
— Manufactured home or mobilehome, maximum of two (2) per lot, pursuant to Section 19.22.130.D.6 of this chapter (see Section 19.22.020.A)
— Retirement or rest home
— Residential hotel

Section 91. Subsection 19.22.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Offices
— Temporary on-site real estate sales/construction
2. Services
— Ambulance

Section 92. Subsection 19.22.030.J of the Ordinance Code of the County of Kern is hereby amended to read as follows:

J. MISCELLANEOUS USES
— Day-care center, with or without extended overnight services
— Drainage sump
— Flood control facilities

Section 93. Subsections B, D, E, F, G, H, and I of Section 19.22.030 remain unchanged.

Section 94. Section 19.22.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.22.050 MINIMUM LOT SIZE

Except as otherwise provided in Chapter 19.58 of this title, no lot created within the R-3 District shall contain less than six thousand (6,000) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company, or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 95. Subsection 19.22.110.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Apartment or bed and breakfast identification signs, not exceeding thirty-six (36) square feet

Section 96. Subsections B, C, D, E, F, and G of Section 19.22.110 remain unchanged.

Section 97. Subsection 19.22.130.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Temporary on-site real estate tract sales offices are permitted without special permit provided they meet the following standards:
   1. The office shall be permitted for recorded subdivision tracts only.
   2. No more than one (1) office shall be permitted within any subdivision tract.
   3. Only lots within the subject subdivision tract shall be marketed through the office.
   4. Two (2) on-site parking spaces shall be provided and surfaced in accordance with the requirements of Section 19.82.090.
   5. All signs shall conform with the requirements of Section 19.84.070.
   6. No construction equipment or materials storage shall be permitted.
   7. The office shall be used for a maximum two- (2-) year period only. An extension of time may be requested of and approved by the Planning Director if submitted in writing prior to the two- (2-) year date of expiration.
   8. Upon sale of all lots within the residential tract, the site shall be converted to residential use.

Section 98. Subsections A, B, D, and E of Section 19.22.130 remain unchanged.

Section 99. Chapter 19.24 (Mobilehome Subdivision (MS) District), Title 19, of the Kern County Ordinance Code is hereby rescinded.

Section 100. Section 19.26.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.26.020 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this chapter are permitted in the MP District:

A. RESIDENTIAL USES
   — Manager, caretaker, or proprietor quarters
   — Mobilehome
   — Mobilehome park, including accessory laundry and storage facilities

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
   — Community recreational facilities
   — Recreational vehicle park, as an accessory use provided that the mobilehome park abuts and gains entrance from a major or secondary (collector) highway as designated on the Kern County Circulation Plan, and further provided that the area of such recreational vehicle park does not exceed twenty-five percent (25%) of the combined area of the mobilehome park and recreational vehicle park

C. MISCELLANEOUS USES
   — Day-care center for on-site care of children
   — Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map
   — Garage or yard sales pursuant to Section 19.26.180 of this chapter
   — Home occupation pursuant to Chapter 19.94
   — Water system, small

Section 101. Section 19.26.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.26.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses are permitted in the MP District with a conditional use permit:

A. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
— Recreational vehicle park, as an accessory use where the mobilehome park does not have direct access from a major or secondary (collector) highway as designated on the Kern County Circulation Plan, and provided that the area of such recreational vehicle park does not exceed twenty-five percent (25%) of the combined area of the mobilehome park and recreational vehicle park.

B. MISCELLANEOUS USES
— Drainage sump
— Water system, large
— Water treatment plant

Section 102. Section 19.26.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.26.130 SITE DEVELOPMENT PLAN REVIEW — REQUIRED

No use shall be established, no development shall occur, and no building or grading permit shall be issued for any use or development in the MP District until an application for site development plan review has been submitted to and approved by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

Section 103. Subsection 19.26.140.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. A site development plan, drawn at the scale specified by the Planning Director, which includes the following information:
1. Topography and proposed grading
2. Proposed private access drives and parking areas
3. Location of all mobilehome pads
4. Location of all permanent buildings and structures
5. Park, open space, and recreation areas
6. Proposed landscaping
7. North arrow

Section 104. Subsections A, B, C, D, F, G, H, and I of Section 19.26.140 remain unchanged.

Section 105. Subsection 19.26.150.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Public Street and Highway Dedications and Improvements
1. Street and highway dedications adjacent to mobilehome parks may be required by the Planning Director in accordance with the following standards:
   a. If the park is adjacent to a major highway, as shown on the Kern County Circulation Plan, the owner shall dedicate or make an irrevocable offer of dedication of all property lying within fifty-five (55) feet of the centerline of such highway for public highway purposes, at no cost to the County.
   b. If the park is adjacent to a secondary highway, as shown on the Kern County Circulation Plan, the owner shall dedicate or make an irrevocable offer of dedication of all property lying within forty-five (45) feet of the centerline of such highway for public highway purposes, at no cost to the County.
   c. If the park lies adjacent to the projected alignment of a planned local street which is necessary for circulation within the general area or neighborhood, the owner shall dedicate or make an irrevocable offer of dedication of all that property lying within thirty (30) feet of the centerline of such street for public street purposes, at no cost to the County.

d. If the park is adjacent to an adopted Specific Plan or Official Plan Line, the owner shall dedicate or make an irrevocable offer of dedication of all property lying within the specified right-of-way line for public highway purposes, at no cost to the County.

2. Improvements may be required by the Planning Director, at no cost to the County, in accordance with the following standards:
   a. All developments within Type A Improvement Areas (see Appendix) shall provide road or street improvements to Type A Subdivision Standards. Developments in all other areas shall provide road or street improvements to Type B Subdivision Standards, unless Type A Subdivision Standards are required by any adopted Specific Plan in which the development is proposed, in which case Type A improvements shall be required. If the project site abuts a State highway, road improvements shall be provided as required by the California Department of Transportation.
3. Required street and highway improvements shall include any necessary tie to existing pavement and shall be under permit of the County or the State Division of Highways, as appropriate. Existing pavement shall be saw cut at match point.

Section 106. Subsection 19.26.150.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Enclosures
1. Each mobilehome park shall be completely enclosed within a fence, hedge, or combination thereof, subject to the approval of the Planning Director as to design and materials.
2. Such enclosure may have driveway or pedestrian way openings, subject to approval by the Planning Director .
3. Within any required front yard, a required enclosure shall be four (4) feet in height, and shall be located a minimum of five (5) feet from the edge of the adjacent road right-of-way.
4. Within any other portion of the park, a required enclosure shall be six (6) feet in height, and shall be located a minimum of five (5) feet from the edge of the adjacent road right-of-way except that, where adjacent to a street-side side yard, the required enclosure shall be located a minimum of ten (10) feet from the edge of the adjacent road right-of-way.
5. When deemed necessary by the Planning Director, in order to maintain standards compatible with existing development of adjacent properties, specific types of fences may be required to be constructed.

Section 107. Subsection 19.26.150.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. Drainage
1. A drainage system which meets the requirements of the Kern County Development Standards shall be installed prior to occupancy of the park and shall be continuously maintained in accordance with a plan approved by the Planning Director.
2. The plan shall include, but is not limited to, the following provisions:
   a. All drainage originating on the park site shall be contained on the same site, unless a plan for acceptance of such drainage to off-site sumps has been approved by the Kern County Planning Department.

b. The method for transporting off-site drainage through a mobilehome park shall meet the criteria of the Kern County Flood Damage Prevention Ordinance.

c. In the event that any drainage sump area located within the park has a water holding capacity of more than eighteen (18) inches in depth, the area shall be completely enclosed within a chain link fence, six (6) feet in height with vertical redwood slats.

Section 108. Subsections A, B, D, F, and H of Section 19.26.150 remain unchanged.

Section 109. Section 19.26.160 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.26.160 SCHOOL FACILITIES FEE REQUIREMENT

Thirty (30) days from the effective date of the ordinance from which this chapter derives, the approval of any mobilehome park under this chapter is conditioned upon the payment of any fees or the dedication of any land required by standards established under the Kern County School Facilities Ordinance (Chapter 17.52 of this code) which may be in effect with respect to the school district or any attendance area thereof in which such mobilehome park is located at the time final approval under this chapter is issued. Payment of any fees or the dedication of any land so required shall be completed by the owner of any such mobilehome park prior to issuance of a permit to construct, reconstruct, expand, or operate such mobilehome park as specified in the approval, except as otherwise authorized by the applicable school district(s).

Section 110. Subsection 19.28.020.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. COMMERCIAL USES

1. Offices
   - — Business or professional
   - — Financial institution, including bank, savings and loan, or credit union
   - — Real estate
   - — Research and development
2. General Retail Sales
   - — Art gallery
3. Services
   - — Artist studio
   - — Clinic, medical or physical therapy, outpatient only
   - — Interior decorator, provided there is no on-site sale of merchandise
   - — Laboratory, medical, dental, optical, or biological
   - — Photography studio
   - — Telegraph
   - — Ticket agency
   - — Travel agency

Section 111. Subsection 19.28.020.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. MISCELLANEOUS USES

- — Commercial coach, temporary, not exceeding six (6) months
- — Construction trailer, temporary, during construction activity only
- — Day-care center, without extended overnight services
- — Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
- — Studio, radio, television, or broadcasting
- — Water storage or groundwater recharge facility
- — Water system, small or large

Section 112. Subsections A, C, D, E, and F of Section 19.28.020 remain unchanged.

Section 113. Subsection 19.28.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Eating and Drinking Establishments
— Restaurant, cafe, or coffee shop
2. Services
— Ambulance

Section 114. Subsection 19.28.030.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. MISCELLANEOUS USES
— Commercial coach, exceeding six (6) months
— Day-care center, with extended overnight services
— Drainage sump
— Flood control facilities
— Water treatment plant

Section 115. Subsections A, B, D, E, F, G, and H of Section 19.28.030 remain unchanged.

Section 116. Section 19.28.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.28.050 MINIMUM LOT SIZE

Except where otherwise provided in Chapter 19.58 of this title, no lot created within the CO District shall contain less than seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company, or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 117. Subsection 19.28.070.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. **Rear Yard.** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required where a public alley exists adjacent to the rear property line. The Planning Director may reduce rear yard requirements in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief.

Section 118. Subsections A, B, and D of Section 19.28.070 remain unchanged.

Section 119. Subsection 19.28.110.B, Title 19, of the Ordinance Code of the County of Kern is hereby rescinded.

Section 120. Subsection A of Section 19.28.110 remains unchanged.

Section 121. Subsection 19.30.020.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RESIDENTIAL USES
— Bed and breakfast inn
— Manager, caretaker, or proprietor quarters
— Residential facility, serving twelve (12) or fewer persons

Section 122. Subsection 19.30.020.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
— Health club
— Pool or billiard parlor

— Tennis or swim club, indoor only
— Video games arcade

Section 123. Subsection 19.30.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Offices
— Business or professional
— Financial institution, including bank, savings and loan, or credit union
— Real estate
— Research and development
2. General Retail Sales
— Antiques, with no outside storage
— Appliances, including service and repair, provided there is no outside storage
— Art gallery
— Auto parts and accessories
— Bicycle, including rental and service
— Bookstore, general
— Christmas tree, temporary
— Clothing and apparel
— Drugs and pharmaceuticals
— Fireworks stand, temporary
— Florist
— Gift and card
— Hardware, general, excluding lumber sales and outside storage of materials
— Ice vending machine
— Lawnmower, including repair, when located entirely within a building
— Locksmith or key and lock shop
— Newspaper or magazine stand
— Shoes
— Stationery and office supply
— Tobacco
— Variety
3. Food and Beverage Retail Sales
— Bakery, small
— Convenience market
— Drive-in food market or dairy
— Foodstore
— Specialized, including meat, vegetables, health foods, or candy
4. Eating and Drinking Establishments
— Bar, tavern, or cocktail lounge
— Ice cream parlor
— Restaurant, cafe, or coffee shop
— Restaurant, fast-food
5. Services
— Artist studio
— Auto service station, small
— Barber or beauty shop
— Bath house, including sauna, spa, turkish, steam, or tanning
— Clinic, medical or physical therapy, out-patient only
— Interior decorator
— Laboratory, medical, dental, optical, or biological
— Laundromat, self-service
— Laundry, drop off and pick up only
— Pet grooming
— Photography studio
— Shoe repair
— Shoe-shine stand
— Tailor or dressmaker
— Taxidermist
— Telegraph
— Ticket agency
— Travel agency

— Veterinary, household pets only, provided there are no outside kennels

Section 124. Subsection 19.30.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. INSTITUTIONAL USES
- — Charitable or public service organization, office only
- — Church
- — Community or senior citizens center
- — Government office or building
- — Library
- — Museum, indoor only
- — Post office
- — Public agency or utility buildings or facilities

Section 125. Subsection 19.30.020.H of the Ordinance Code of the County of Kern is hereby amended to read as follows:

H. MISCELLANEOUS USES
- — Commercial coach, temporary, not exceeding six (6) months
- — Construction trailer, temporary, during construction activities only
- — Day-care center, without extended overnight services
- — Drainage sump, when accessory to a permitted use
- — Studio, radio, television, broadcasting
- — Water storage or groundwater recharge facilities
- — Water system, small or large

Section 126. Subsections D, F, and G of Section 19.30.020 remain unchanged.

Section 127. Subsection 19.30.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RESIDENTIAL USES
- — Apartment
- — Boarding or rooming house
- — Community care facility
- — Condominium
- — Duplex
- — Fraternity or sorority house
- — Mobilehome
- — Quadruplex
- — Rest home
- — Retirement home
- — Residential accessory structures
- — Residential hotel
- — Single-family dwelling
- — Townhouse
- — Triplex

Section 128. Subsection 19.30.030.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
- — Card room
- — Circus or carnival, temporary
- — Miniature golf course
- — Movie theater, drive-in
- — Movie theater, walk-in
- — Park or playground
- — Swimming pool, public, outdoor only
- — Tennis club, outdoor only
- — Theater, live
- — Trade fairs and exhibitions, temporary, fourteen-(14-) day maximum, excluding flea markets and swap meets

Section 129. Subsection 19.30.030.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. INSTITUTIONAL USES
- — Cemetery, mausoleum, columbarium, or mortuary
- — Charitable or public service organization
- — Club or lodge
- — Convalescent hospital
- — Crematory, in conjunction with a cemetery, mausoleum, columbarium, or mortuary
- — Fire or police station
- — Hospital
- — Labor union hall
- — Rehabilitation facilities
- — Sanitarium

Section 130. Subsection 19.30.030.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. MISCELLANEOUS USES
- — Commercial coach, exceeding six (6) months
- — Day-care center, with extended overnight services
- — Drainage sump
- — Flood control facilities
- — Water treatment plant

Section 131. Subsections C, D, E, G, and H of Section 19.30.030 remain unchanged.

Section 132. Section 19.30.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.30.050 MINIMUM LOT SIZE

Except as otherwise provided in Chapter 19.58 of this title, no lot created within the C-1 District shall contain less than seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company, or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 133. Subsection 19.30.070.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. **Rear Yard.** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. The Planning Director may reduce rear yard requirements in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief.

Section 134. Subsections A, B, and D of Section 19.30.070 remain unchanged.

Section 135. Subsection 19.30.110.B, Title 19, of the Ordinance Code of the County of Kern is hereby rescinded.

Section 136. Subsection A of Section 19.30.110 remains unchanged.

Section 137. Subsection 19.32.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Offices
   - — Business or professional
   - — Financial, including bank, savings and loan, or credit union
   - — Real estate
   - — Research and development
2. General Retail Sales
   - — Antiques, provided there is no outside display
   - — Appliances, including service and repair, provided there is no outside storage
   - — Art gallery
   - — Auto leasing

— Auto, new
— Auto parts and accessories
— Auto tire, including service, pursuant to Section 19.32.130.D
— Auto, used
— Bicycle, including rental and service
— Boat, including service and parts when incidental to sales
— Bookstore, general
— Christmas tree, temporary
— Clothing and apparel
— Computer, including service and repair
— Department store
— Drugs and pharmaceuticals
— Electric appliances, including service and repair
— Electric equipment, including service and repair
— Feed, provided there is no outside storage
— Fireworks stand, temporary
— Floor covering, drapery, or upholstery
— Florist
— Fruit stand
— Furniture
— Gardening and landscaping supply, provided there is no outside storage
— Gift and card
— Gun, including repair
— Hardware, general, including lumber sales, provided there is no outside storage of materials
— Hobby supplies
— Home or office furnishings
— Ice vending machine
— Jewelry and watches
— Lapidary
— Lawnmower, including repair, when located entirely within a building
— Leather goods and luggage
— Locksmith or key and lock shop
— Military surplus, provided there is no outside storage
— Mobilehome, including rental and service
— Motorcycles, including service and repair
— Musical instruments (including repair)
— Newspaper or magazine stand
— Nursery, plant
— Office machines and equipment
— Paint and wallpaper
— Pawn shop
— Pet store
— Photographic supply or camera
— Plumbing supply, provided there is no outside storage
— Pottery
— Recreational vehicles, including service
— Shoes
— Sporting goods and athletic equipment
— Stationery and office supply
— Tobacco
— Toys
— Truck, including rental
— Used clothing and household goods, provided there is no outside storage
— Variety

3. Food and Beverage Retail Sales
— Bakery
— Catering
— Convenience market
— Drive-in food market or dairy
— Farmers' market
— Food store
— Liquor store

— Specialized, including meat, vegetables, health foods, or candy

4. Eating and Drinking Establishments
   - — Bar, tavern, or cocktail lounge
   - — Ice cream parlor
   - — Restaurant, cafe, or coffee shop
   - — Restaurant, fast-food

5. Services
   - — Ambulance
   - — Appliance repair
   - — Artist studio
   - — Auto body repair and painting
   - — Auto rental
   - — Auto service or repair
   - — Auto service station
   - — Auto wash
   - — Auto wash, self-service
   - — Barber or beauty shop
   - — Bath house, including sauna, spa, turkish, steam, or tanning
   - — Carpet cleaning
   - — Clinic, medical or physical therapy, out-patient only
   - — Equipment, small, rental
   - — Furniture cleaning, refinishing, or upholstery
   - — Interior decorator
   - — Janitorial service
   - — Laboratory, medical, dental, optical, or biological
   - — Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials
   - — Laundromat, self-service
   - — Laundry, drop off and pick up only
   - — Mini-warehouse, for storage of personal household goods, provided there is no outside storage; excludes cargo containers and other temporary storage structures
   - — Mortuary or funeral parlor
   - — Pest control, administrative offices only
   - — Pet grooming
   - — Photography studio
   - — Picture framing
   - — Printing, lithography, or blueprinting
   - — Shoe repair
   - — Shoe-shine stand
   - — Tailor or dressmaker
   - — Taxidermist
   - — Telegraph
   - — Ticket agency
   - — Travel agency
   - — Truck fueling station, without repair facilities
   - — Veterinary, household pets only, provided there are no outside kennels
   - — Wedding chapel

Section 138. Subsection 19.32.020.H of the Ordinance Code of the County of Kern is hereby amended to read as follows:

H. MISCELLANEOUS USES
   - — Adult day-care
   - — Commercial coach, temporary, not exceeding six (6) months
   - — Construction trailer, temporary, during construction activity only
   - — Day-care center, without extended overnight services
   - — Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
   - — Revival, temporary, not to exceed fourteen (14) days
   - — Studio, radio, television, recording, or movie
   - — Water storage or groundwater recharge facilities

— Water system, small or large

Section 139. Subsections A, B, D, E, F, and G of Section 19.32.020 remain unchanged.

Section 140. Subsection 19.32.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RESIDENTIAL USES
— Apartment
— Boarding or rooming house
— Fraternity or sorority house
— Mobilehome, maximum of two (2) per lot
— Residential accessory structures
— Residential hotel
— Single-family dwelling

Section 141. Subsection 19.32.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. General Retail Sales
— Bookstore, adult
2. Services
— Veterinary, including veterinary hospital

Section 142. Subsection 19.32.030.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. INDUSTRIAL USES
— Contractor's storage yard, when accessory and incidental to a contractor's business office and wholly enclosed within a solid screening fence as approved by the Planning Director
— Feed and fuel
— Photographic processing plant or wholesale supply
— Recyclable materials, collection and storage, provided there is no more than three thousand (3,000) square feet of outside storage, and all compression and bailing operations are conducted wholly within an enclosed structure

Section 143. Subsection 19.32.030.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. MISCELLANEOUS USES
— Commercial coach, exceeding six (6) months
— Day-care center, with extended overnight services
— Drainage sump
— Flea market or swap meet
— Flood control facilities
— Massage parlor
— Water treatment plant

Section 144. Subsections B, E, F, G, H, I, and J of Section 19.32.030 remain unchanged.

Section 145. Section 19.32.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.050 MINIMUM LOT SIZE

Except as otherwise provided in Chapter 19.58 of this title, no lot created within the C-2 District shall contain less than seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company, or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 146. Subsection 19.32.070.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. **Rear Yard.** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. Rear yard requirements may be reduced in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief and Planning Director.

Section 147. Subsections A, B, and D of Section 19.32.070 remain unchanged.

Section 148. Section 19.32.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.110 SIGNS

A. The following signs are permitted in the C-2 District in accordance with the requirements of Chapter 19.84 of this title:

1. Temporary real estate signs advertising the property for sale or rent, not to exceed sixteen (16) square feet, excluding the area of any vertical and/or horizontal support members
2. Temporary subdivision signs
3. Permanent subdivision identification signs, when approved in conjunction with a conditional use permit
4. Temporary construction signs
5. Temporary political, religious, or civic campaign signs
6. Institutional signs
7. Signs attached to buildings
8. Monument signs, not to exceed forty-eight (48) square feet in area each
9. Pole signs, not to exceed two hundred and forty (240) square feet in area each and not exceeding a height of thirty-five (35) feet
10. Off-site advertising signs, not exceeding a height of thirty-five (35) feet

Section 149. Subsection 19.32.130.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. No outside storage shall be permitted except for company vehicles and items for retail sales, lease, or rental and which are clearly associated with an on-site business. This requirement shall not apply to those uses requiring a conditional use permit (Section 19.32.030), provided that outside storage was addressed as part of the permit application. Areas devoted to outside storage of tires shall be screened with a solid screening fence; fence design and materials shall be approved by the Director of the Kern County Planning Department. Mounds or piles of tires shall not exceed the height of the screening fence.

Section 150. Subsections A, B, and C of Section 19.32.130 remain unchanged.

Section 151. Subsection 19.34.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES

1. Offices
   - — Business and professional
   - — Real estate
2. General Retail Sales
   - — Antiques, with no outside storage or displays
   - — Auto, new or used
   - — Auto tire, including service
   - — Bait and tackle shop
   - — Bicycle, including rental, service, and repair
   - — Boat sales
   - — Drugs and pharmaceuticals
   - — Fireworks stand, temporary
   - — Gift and card

— Gun sales, including repair, when accessory to a permitted use
— Ice vending machine
— Locksmith or key and lock shop
— Mobilehomes, including rental and service
— Motorcycles, including service and repair
— Photographic supply or camera
— Recreational vehicles, including service
— Ticket agency
— Variety

3. Food and Beverage Retail Sales
— Convenience market
— Drive-in food market or dairy
— Food store
— Liquor store
— Specialized, including meat, vegetables, health food, or candy

4. Eating and Drinking Establishments
— Bar, tavern, or cocktail lounge
— Restaurant, cafe, or coffee shop
— Restaurant, fast-food

5. Services
— Ambulance
— Auto rental
— Auto service or repair
— Auto service station, large
— Auto service station, small
— Auto towing
— Auto wash
— Auto wash, self-service
— Barber or beauty shop
— Shoe-shine stand
— Telegraph
— Travel agency
— Truck fueling station, without repair facilities

Section 152. Subsection 19.34.020.H of the Ordinance Code of the County of Kern is hereby amended to read as follows:

H. MISCELLANEOUS USES
— Commercial coach, temporary, not exceeding six (6) months
— Construction trailer, temporary, during construction activity only
— Day-care center, without extended overnight services
— Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
— Water system, small or large

Section 153. Subsections A, B, D, E, F, and G of Section 19.34.020 remain unchanged.

Section 154. Subsection 19.34.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
1. Food and Beverage Retail Sales
— Fruit stand, temporary
2. Services
— Equipment, heavy, and truck or trailer rental
— Truck fueling station, with repairs

Section 155. Subsections A, B, D, E, F, G, H, I, and J of Section 19.34.030 remain unchanged.

Section 156. Section 19.34.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.34.050 MINIMUM LOT SIZE

Except as otherwise provided in Chapter 19.58 of this title, no lot created within the CH District shall contain less than

seven thousand five hundred (7,500) net square feet, excepting in the case of the conveyance to or from a governmental agency, public entity, public utility, community water company, or mutual water company for public purposes, public utility purposes, or for rights-of-way or well sites.

Section 157. Section 19.34.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.34.060 MINIMUM LOT AREA PER DWELLING UNIT

There is no requirement regarding minimum lot area per dwelling unit in the CH District. Dwelling units are not permitted, except as accessory to a permitted use or with approval of a conditional use permit pursuant to Section 19.34.030.A.

Section 158. Subsection 19.34.070.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. **Rear Yard.** There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. Rear yard requirements may be reduced in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief and Planning Director.

Section 159. Subsections A, B, and D of Section 19.34.070 remain unchanged.

Section 160. Section 19.34.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.34.110 SIGNS

A. The following signs are permitted in the CH District in accordance with Chapter 19.84 of this title:
   1. Temporary real estate signs advertising the property for sale or rent, not to exceed sixteen (16) square feet, excluding the area of any vertical and/or horizontal support members
   2. Temporary construction signs
   3. Temporary political, religious, or civic campaign signs
   4. Institutional identification signs
   5. Wall signs attached to buildings
   6. Monument signs, not to exceed forty-eight (48) square feet each
   7. Pole signs, not to exceed two hundred and forty (240) square feet in area each and not exceeding a height of thirty-five (35) feet
   8. Off-site advertising signs, not exceeding a height of thirty-five (35) feet

Section 161. Subsection 19.36.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. COMMERCIAL USES
   1. Offices
      — Business or professional
      — Financial institution, including bank, savings and loan, or credit union
      — Real estate
      — Research and development
   2. General Retail Sales
      — Antiques
      — Appliances, including service and repair
      — Art gallery
      — Auto leasing
      — Auto, new
      — Auto parts and accessories
      — Auto tire, including service
      — Auto, used
      — Bicycle, including rental and service
      — Boat, including service and parts

— Bookstore, adult
— Bookstore, general
— Christmas tree, temporary
— Clothing and apparel
— Computer, including service and repair
— Department store
— Drugs and pharmaceuticals
— Electric appliances, including service and repair
— Electric equipment, including service and repair
— Feed
— Fireworks stand, temporary
— Floor covering, drapery, or upholstery
— Florist
— Furniture
— Gardening and landscaping supply
— Gift and card
— Gun, including repair
— Hardware, general, including lumber sales
— Hobby supplies
— Home or office furnishings
— Ice vending machine
— Jewelry and watches
— Lapidary
— Lawnmower, including repair
— Leather goods and luggage
— Locksmith or key and lock shop
— Military surplus
— Mobilehomes, including rental and service
— Motorcycles, including rental and repair
— Musical instruments, including repair
— Newspaper or magazine stand
— Nursery, plant
— Office machines and equipment
— Paint and wallpaper
— Pawn shop
— Pet store
— Photographic supply or camera
— Plumbing supply
— Pottery
— Recreational vehicles, including service
— Shoes
— Sporting goods and athletic equipment
— Stationery and office supply
— Tobacco
— Toys
— Truck, including rental
— Used clothing and household goods
— Variety

3. Food and Beverage Retail Sales
— Bakery
— Catering
— Convenience market
— Drive-in food market or dairy
— Farmers' market
— Food store
— Liquor store
— Specialized, including meat, vegetables, health foods, or candy

4. Eating and Drinking Establishments
— Bar, tavern, or cocktail lounge
— Ice cream parlor
— Restaurant, cafe, or coffee shop
— Restaurant, fast-food

5. Services
— Ambulance
— Appliance repair
— Artist studio
— Auto body repair and painting
— Auto rental
— Auto service or repair
— Auto service station

— Auto tire repair
— Auto towing
— Auto wash
— Auto wash, self-service
— Barber or beauty shop
— Bath house, including sauna, spa, turkish, steam, or tanning
— Carpet cleaning
— Clinic, medical or physical therapy, out-patient only
— Equipment, heavy, or truck or trailer rental
— Equipment, small, rental
— Furniture cleaning, refinishing, or upholstery
— Interior decorator
— Janitorial service
— Laboratory, medical, dental, optical, or biological
— Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials
— Laundromat, self-service
— Laundry, drop off and pick up only
— Mini-warehouse
— Mortuary or funeral parlor
— Pest control, administrative offices only
— Pet grooming
— Photography studio
— Picture framing
— Printing, lithography, or blueprinting
— Shoe repair
— Shoe-shine stand
— Tailor or dressmaker
— Taxidermist
— Telegraph
— Ticket agency
— Travel agency
— Truck or heavy equipment repair, wholly enclosed within a building
— Truck fueling station
— Veterinary, including veterinary hospital
— Wedding chapel

Section 162. Subsection 19.36.020.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. INDUSTRIAL USES

1. Industrial Manufacturing or Assembly
   — Electronic equipment, assembly only
   — Pipe, pipe product, and pipe filter, assembly only
   — Plastics, assembly only
2. Industrial Storage
   — Automobile
   — Bottled gas
   — Cargo containers
   — Chemical storage when accessory to a permitted use
   — Cold storage
   — Contractor's storage yard
   — Draying or freight
   — Equipment and building material
   — Feed and fuel, including wood yards
   — Lumber
   — Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed
   — Moving and storage, yards or warehouse
   — Petroleum
   — Recreational vehicle
   — Recyclable materials, collection and storage, provided there is no more than three thousand (3,000) square feet of outside storage and all

compression and bailing operations are conducted wholly within an enclosed structure
— Truck and heavy equipment
— Warehouse

3. Other Industrial Uses
— Assaying
— Bakery, large
— Billboard sign fabrication and storage
— Light machining
— Photographic processing plant and/or wholesale supply
— Sheet metal shop
— Tire retreading
— Welding or blacksmith, when conducted within an enclosed building
— Well drilling service
— Wholesale distribution

Section 163. Subsection 19.36.020.J of the Ordinance Code of the County of Kern is hereby amended to read as follows:

J. MISCELLANEOUS USES
— Commercial coach, when incidental to a permitted use
— Construction trailer, temporary, during construction activities only
— Day-care center, without extended overnight services
— Drainage sump
— Equipment auction, temporary, not to exceed four (4) days
— Kennel
— Liquid fuel tanks, above ground, for dispensing purposes
— Revival, temporary (not to exceed fourteen (14) days)
— Studio, radio, television, recording, or movie
— Water storage or groundwater recharge facilities
— Water system, small or large

Section 164. Subsections A, B, E, F, G, H, and I of Section 19.36.020 remain unchanged.

Section 165. Section 19.36.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RESIDENTIAL USES
— Single-family dwelling, one (1) per lot, not accessory to an industrial use

B. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
— Amusement park
— Circus or carnival
— Equestrian establishment
— Golf course
— Movie theater, adult
— Movie theater, drive-in
— Park or playground
— Racetrack or test track, automobile, bicycle, horse, or motorcycle
— Recreational vehicle park
— Shooting range or gun club
— Sports arena, indoor
— Sports arena, outdoor
— Swimming pool, public
— Trade fairs and exhibitions, temporary (fourteen-(14-) day maximum), excluding flea markets and swap meets
— Whitewater rafting launch or landing site

C. INDUSTRIAL USES
1. Industrial Manufacturing or Assembly
— Prefabricated buildings and structures
— Mobilehomes

2. Other Industrial Uses
— Asphaltic concrete batch plant
— Concrete batch plant

— Machine shop
— Metal or electroplating
— Newspaper, magazine, or book printing
— Welding or blacksmith

D. INDUSTRIAL STORAGE
— Chemical storage as main use
— Recyclable materials, collection and storage
— Tire storage as a main use

E. TRANSPORTATION FACILITIES
— Airport, private
— Airport, public use
— Heliport
— Railroad station

F. UTILITY AND COMMUNICATIONS FACILITIES
— Radio, television, or commercial communications transmitter, receiver, or translator, except as specified in Subsection F of Section 19.36.020 of this chapter

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES
— Electric power generating plant
— Mining and mineral extraction pursuant to Chapter 19.100 of this title
— Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity
— Wind-driven electrical generators, commercial or domestic, exceeding fifteen (15) kilowatts capacity

H. WASTE FACILITIES
— Community septic disposal system
— Septage disposal site
— Sewage treatment plant
— Transfer station, small volume
— Waste-to-energy facility

I. INSTITUTIONAL USES
— Cemetery, mausoleum, or columbarium
— Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary
— Zoo

J. EDUCATIONAL INSTITUTIONS AND SCHOOLS
1. Specialized Schools
— Police/security training facility

K. MISCELLANEOUS USES
— Day-care center, with extended overnight services
— Flea market or swap meet
— Flood control facilities
— Massage parlor
— Water treatment plant

Section 166. Section 19.36.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.36.110 SIGNS

A. The following signs are permitted in the M-1 District in accordance with the requirements of Chapter 19.84 of this title:
1. Temporary real estate signs advertising the property for sale or rent, not to exceed sixteen (16) square feet, excluding the area of any vertical and/or horizontal support members
2. Temporary subdivision signs
3. Temporary construction signs
4. Temporary political, religious, or civic campaign signs
5. Institutional identification signs
6. Signs attached to buildings
7. Monument signs, not to exceed one hundred (100) square feet each
8. Pole signs, not to exceed two hundred and forty (240) square feet each and not exceeding a height of thirty-five (35) feet
9. Off-site advertising signs, not exceeding a height of thirty-five (35) feet

Section 167. Subsection 19.36.130.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Outdoor industrial storage yards in the M-1 District shall be completely enclosed by a solid screening fence not less than six (6) feet in height. The design and materials proposed shall be approved by the Planning Director.

Section 168. Subsections B and C of Section 19.36.130 remain unchanged.

Section 169. Subsection 19.38.020.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. COMMERCIAL USES

1. Offices
   - Business or professional
   - Financial institutions, including bank, savings and loan, or credit union
   - Real estate
   - Research and development

2. General Retail Sales
   - Antiques
   - Appliances, including service and repair
   - Art gallery
   - Auto leasing
   - Auto, new
   - Auto parts and accessories
   - Auto tire, including service
   - Auto, used
   - Bicycle, including rental and service
   - Boat, including service and parts
   - Bookstore, adult
   - Bookstore, general
   - Christmas tree, temporary
   - Clothing and apparel
   - Computer, including service and repair
   - Department store
   - Drugs and pharmaceuticals
   - Electric appliances, including service and repair
   - Electric equipment, including service and repair
   - Feed
   - Fireworks stand, temporary
   - Floor covering, drapery, or upholstery
   - Florist
   - Furniture
   - Gardening and landscaping supply
   - Gift and card
   - Gun, including repair
   - Hardware, general, including lumber sales
   - Hobby supplies
   - Home or office furnishings
   - Ice vending machine
   - Jewelry and watches
   - Lapidary
   - Lawnmower, including repair
   - Leather goods and luggage
   - Locksmith or key and lock shop
   - Military surplus
   - Mobilehome, including rental and service
   - Motorcycles, including rental and repair
   - Musical instruments, including repair
   - Newspaper or magazine stand
   - Nursery, plant
   - Office machines and equipment
   - Paint and wallpaper
   - Pawn shop
   - Pet store
   - Photographic supply or camera
   - Plumbing supply

— Pottery
— Recreational vehicles, including service
— Shoes
— Sporting goods and athletic equipment
— Stationery and office supply
— Tobacco
— Toys
— Truck, including rental
— Used clothing and household goods
— Variety

3. Food and Beverage Retail Sales
— Bakery
— Catering
— Convenience market
— Drive-in food market or dairy
— Farmers' market
— Food store
— Liquor store
— Specialized, including meat, vegetables, health food, or candy

4. Eating and Drinking Establishments
— Bar, tavern, or cocktail lounge
— Ice cream parlor
— Restaurant, cafe, or coffee shop
— Restaurant, fast-food

5. Services
— Ambulance
— Artist studio
— Auto rental
— Auto service or repair, including body and paint shop
— Auto service station
— Auto tire repair
— Auto towing
— Auto wash
— Auto wash, self-service
— Barber or beauty shop
— Bath house, including sauna, spa, turkish, steam, or tanning
— Carpet cleaning
— Clinic, medical or physical therapy, out-patient only
— Equipment, heavy, or truck or trailer rental
— Equipment, small, rental
— Furniture cleaning, refinishing, or upholstery
— Interior decorator
— Janitorial service
— Laboratory, medical, dental, optical, or biological
— Laboratory, testing, classifying, or experimental, not involving the use of explosives
— Laundromat, self-service
— Laundry, dry cleaning and dyeing plants
— Mini-warehouse
— Mortuary or funeral parlor
— Pest control
— Pet grooming
— Photography studio
— Picture framing
— Printing, lithography, or blueprinting
— Shoe repair
— Shoe-shine stand
— Tailor or dressmaker
— Taxidermist
— Telegraph
— Ticket agency
— Travel agency
— Truck fueling station
— Truck service and repair
— Veterinary, including veterinary hospital
— Wedding chapel

Section 170. Subsection 19.38.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. INDUSTRIAL USES

1. Industrial Manufacturing or Assembly
   - — Aircraft, assembly, when conducted wholly within a building
   - — Auto/truck, assembly, when conducted wholly within a building
   - — Batteries
   - — Building material
   - — Cabinet shop
   - — Carpet and mattress
   - — Ceramics
   - — Chemical blending, not including manufacture
   - — Clothing, garments, or shoes
   - — Concrete blocks
   - — Cosmetics, perfumes, or toiletries
   - — Drugs and pharmaceuticals
   - — Electronic equipment
   - — Furniture
   - — Ice
   - — Mobilehome, modular home, or recreational vehicle
   - — Musical instruments
   - — Neon signs
   - — Paint mixing, not employing a boiling process
   - — Paper or pulp
   - — Plastics, assembly and extrusion
   - — Prefabricated buildings and structures
   - — Soap, cold mix only
   - — Textiles
   - — Toy manufacturing and assembly
   - — Trusses

2. Industrial Storage
   - — Automobile
   - — Bottled gas
   - — Cargo containers
   - — Chemical storage, when accessory to a permitted use
   - — Cold storage
   - — Contractor's storage yard
   - — Draying or freight
   - — Equipment and building materials
   - — Feed and fuel, including wood yards
   - — Liquified petroleum gas, bulk storage or distribution in excess of two thousand (2,000) gallons capacity, when located at least one-half (1/2) mile from property zoned or designated for residential use and at least one-half (1/2) mile from existing residential development with a density greater than one (1) dwelling unit per acre and at least one-half (1/2) mile from any motel or hotel
   - — Lumber
   - — Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed
   - — Moving and storage
   - — Petroleum
   - — Recreational vehicle
   - — Recyclable materials, collection and storage, provided there is no more than three thousand (3,000) square feet of outside storage and all compression and bailing operations are conducted wholly within an enclosed structure
   - — Truck and heavy equipment
   - — Warehouse

3. Other Industrial Uses
   - — Asphalt batch plant
   - — Assaying
   - — Bakery
   - — Beverage bottling works

— Billboard sign fabrication and storage
— Boat building and major repair
— Concrete batch plant
— Electroplating, when conducted wholly within an enclosed building
— Machine shop
— Metal extrusion
— Newspaper, magazine, or book printing
— Oilfield service yard
— Photographic processing plant or wholesale supply
— Sandblasting, if incidental to another permitted use and conducted wholly within an enclosed building
— Sheet metal shop
— Tire retreading
— Welding or blacksmith
— Well drilling service
— Wholesale distribution

Section 171. Subsection 19.38.020.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. MISCELLANEOUS USES
— Commercial coach, when incidental to a permitted use
— Construction trailer, temporary, during construction activity only
— Day-care center, without extended overnight services
— Drainage sump
— Kennel
— Liquid fuel tanks, above ground, for dispensing purposes
— Revival, temporary, not to exceed fourteen (14) days
— Studio, radio, television, recording, or movie
— Water storage or groundwater recharge facilities
— Water system, small or large

Section 172. Subsections A, B, C, F, G, H, I, and J of Section 19.38.020 remain unchanged.

Section 173. Section 19.38.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.38.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are all permitted in the M-2 District in accordance with the requirements of Chapter 19.80 of this title and subject to securing a conditional use permit in accordance with the standards and procedures set out in Chapter 19.104 of this title:

A. AGRICULTURAL USES
1. Breeding and Raising Animals
— Beef cattle or livestock feed lot, stockyard, auction, or sales yard
2. Agricultural Industries
— Alcohol distillery
— Animal products processing, including slaughter, meat packing, canning, processing, and shipping
— Tanning, curing, or storing animal hides

B. RESIDENTIAL USES
— Single-family dwelling, one (1) per lot, not accessory to an industrial use

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
— Circus or carnival
— Golf course
— Racetrack or test track, automobile, bicycle, horse, or motorcycle
— Trade fairs and exhibitions, temporary (fourteen-(14-) day maximum), excluding flea markets and swap meets

D. INDUSTRIAL USES

1. Industrial Manufacturing or Assembly
   — Oil refining
2. Industrial Storage
   — Chemical storage as a main use
   — Explosives, permanent
   — Liquified petroleum gas, bulk storage or distribution in excess of two thousand (2,000) gallons capacity
   — Log storage
   — Minerals and ore storage and loading, unenclosed
   — Recyclable materials, collection and storage
   — Salvage or junk yard
   — Tire storage as a main use
   — Vehicle wrecking yard
3. Other Industrial Uses
   — Construction or demolition material recycling
   — Metal, glass, or paper recycling facility
   — Tire recycling

E. TRANSPORTATION FACILITIES
   — Airport, private
   — Airport, public use
   — Heliport

F. UTILITY AND COMMUNICATIONS FACILITIES
   — Radio, television, or commercial communications transmitter, receiver, or translator, except as provided in Subsection G of Section 19.38.020 of this chapter

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES
   — Coal-fired cogeneration facility or steam generators
   — Mining and mineral extraction pursuant to Chapter 19.100 of this title
   — Ore reduction
   — Potash manufacture
   — Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution
   — Wind generators, commercial

H. WASTE FACILITIES
   — Community septic disposal system
   — Nonhazardous oil production water disposal facility
   — Nonhazardous oilfield waste treatment or recycling
   — Sanitary landfill
   — Septage disposal site
   — Sewage treatment plant
   — Soil reclamation or remediation for soils contaminated with nonhazardous materials
   — Transfer station, large or small
   — Waste-to-energy facility

I. INSTITUTIONAL USES
   — Cemetery, mausoleum, or columbarium
   — Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary
   — Public agency or public utility buildings and facilities

J. EDUCATIONAL INSTITUTIONS AND SCHOOLS
1. Specialized Schools
   — Police/security training facility

K. MISCELLANEOUS
   — Day-care center, with extended overnight services
   — Flea market or swap meet
   — Flood control facilities
   — Water treatment plant

Section 174. Section 19.38.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.38.110 SIGNS

A. The following signs are permitted in the M-2 District in accordance with the requirements of Chapter 19.84 of this title:
1. Temporary real estate signs advertising the property for sale or rent, not to exceed sixteen (16)

square feet each, excluding the area of any vertical and/or horizontal support members
2. Temporary subdivision signs
3. Temporary construction signs
4. Temporary political, religious, or civic campaign signs
5. Institutional identification signs
6. Signs attached to buildings
7. Monument signs, not to exceed one hundred (100) square feet each
8. Pole signs, not to exceed three hundred (300) square feet in area each and not exceeding a height of fifty (50) feet
9. Off-site advertising signs, not exceeding a height of thirty-five (35) feet
10. Oilfield identification signs

Section 175. Section 19.40.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.40.020 PERMITTED USES

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are permitted in the M-3 District in accordance with the standards and procedures set out in Chapter 19.80 of this title:

A. RESIDENTIAL USES
- Manager, caretaker, or proprietor quarters, including a mobilehome

B. AGRICULTURAL USES
1. Agricultural Industries
- Alcohol distillery
- Animal products processing, including slaughter
- Brewery
- Cannery
- Cotton compress
- Cotton gin
- Creamery
- Dead animal and fat rendering
- Flour mill
- Fruit, vegetable, and plant products processing, including packing, canning, preserving, and shipping
- Garbage or offal reduction
- Glucose processing
- Grain elevator or storage
- Honey extraction
- Lumber drying kiln
- Oil extraction, nonmineral
- Saw or planing mill
- Tanning, curing, or storing animal hides
- Tobacco processing
- Winery

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
- Bingo parlor
- Bowling alley
- Card room
- Circus or carnival, temporary, not to exceed four (4) days
- Dance hall, ballroom, or discotheque
- Golf driving range
- Health club
- Hotel or motel
- Miniature golf
- Movie theater, walk-in
- Pool or billiard parlor
- Skating rink, roller or ice
- Tennis, swim, or athletic club
- Theater, live
- Video games arcade

D. COMMERCIAL USES
1. Offices
- Business or professional

— Financial institution, including bank, savings and loan, or credit union
— Real estate
— Research and development

2. General Retail Sales
— Antiques
— Appliances, including service and repair
— Art gallery
— Auto leasing
— Auto, new
— Auto parts and accessories
— Auto tire, including service
— Auto, used
— Bicycle, including rental and service
— Boat, including service and parts
— Bookstore, adult
— Bookstore, general
— Christmas tree, temporary
— Clothing and apparel
— Computer, including service and repair
— Department store
— Drugs and pharmaceuticals
— Electric appliances, including service and repair
— Electric equipment, including service and repair
— Feed
— Fireworks stand, temporary
— Floor covering, drapery, or upholstery
— Florist
— Furniture
— Gardening and landscaping supply
— Gift and card
— Gun, including repair
— Hardware, general
— Hobby supplies
— Home or office furnishings
— Ice vending machine
— Jewelry and watches
— Lapidary
— Lawnmower, including repair
— Leather goods and luggage
— Locksmith or key and lock shop
— Military surplus
— Mobilehomes, including rental and service
— Motorcycles, including rental and repair
— Musical instruments, including repair
— Newspaper or magazine stand
— Nursery, plant
— Office machines and equipment
— Paint and wallpaper
— Pawn shop
— Pet store
— Photographic supply or camera
— Plumbing supply
— Pottery
— Recreational vehicles, including service
— Shoes
— Sporting goods and athletic equipment
— Stationery and office supply
— Tobacco
— Toys
— Truck, includes rental
— Used clothing and household goods
— Variety

3. Food and Beverage Retail Sales
— Bakery
— Convenience market
— Drive-in food market or dairy
— Farmers' market
— Food store
— Liquor store

— Specialized, including meat, vegetables, health foods, or candy

4. Eating and Drinking Establishments
   - — Bars, taverns, or cocktail lounges
   - — Ice cream parlor
   - — Restaurant, cafe, or coffee shop
   - — Restaurant, fast-food

5. Services
   - — Ambulance
   - — Artist studio
   - — Auto body repair and painting
   - — Auto rental
   - — Auto service/repair
   - — Auto service station
   - — Auto tire repair
   - — Auto towing
   - — Auto wash
   - — Auto wash, self-service
   - — Barber or beauty shop
   - — Bath house, including sauna, spa, turkish, steam, or tanning
   - — Carpet cleaning
   - — Catering
   - — Clinic, medical or physical therapy, out-patient only
   - — Equipment, heavy, or truck or trailer rental
   - — Equipment, small, rental
   - — Furniture cleaning, refinishing, or upholstery
   - — Gardening and landscaping
   - — Interior decorator
   - — Janitorial service
   - — Laboratory, medical, dental, optical, or biological
   - — Laboratory, testing, classifying, or experimental, not involving the use of explosives
   - — Laundromat, self-service
   - — Laundry, dry cleaning, pressing, and dyeing
   - — Mini-warehouse
   - — Mortuary or funeral parlor
   - — Pest control, administrative offices only
   - — Pet grooming
   - — Photography studio
   - — Picture framing
   - — Printing, lithography, or blueprinting
   - — Shoe repair
   - — Shoe-shine stand
   - — Tailor or dressmaker
   - — Taxidermist
   - — Telegraph
   - — Ticket agency
   - — Travel agency
   - — Truck fueling station
   - — Truck service and repair
   - — Veterinary, including veterinary hospital
   - — Wedding chapel

E. INDUSTRIAL USES

1. Industrial Manufacturing or Assembly
   - — Acetylene or other gas
   - — Acids
   - — Aircraft, assembly
   - — Ammonia or chlorine
   - — Asphalt
   - — Automobile or truck assembly
   - — Bag cleaning
   - — Batteries
   - — Blast furnace or smelting
   - — Boiler works
   - — Brick, tile, or terra cotta products
   - — Building materials
   - — Cabinet shop
   - — Candle
   - — Carbon
   - — Carpet and mattress

— Celluloid or pyroxylin
— Cement
— Ceramics
— Chemical blending or manufacturing
— Clothing, garments, or shoes
— Coal, wood, or tar distillation
— Coke ovens
— Concrete blocks
— Cosmetics, perfumes, or toiletries
— Creosote
— Detergent
— Disinfectant
— Drugs and pharmaceuticals
— Electronic appliance
— Electronic equipment
— Fertilizer
— Furniture
— Glass
— Glue
— Ice
— Iron, steel, or other metals
— Linoleum or oiled products
— Machinery
— Metal, glass, or paper recycling facility
— Mobilehome, modular home, or recreational vehicle
— Musical instruments
— Neon signs
— Oil refining
— Ore reduction
— Paint, shellac, turpentine, or similar products
— Paint mixing
— Paper or pulp
— Plastic
— Potash
— Prefabricated buildings and structures
— Rolling mill
— Rubber
— Saw mills
— Smelting
— Soap
— Sodium compounds
— Starch
— Stove or shoe polish
— Tar products
— Textiles
— Tobacco processing
— Toy manufacturing and assembly
— Trusses

2. Industrial Storage
— Automobile
— Bottled gas
— Cargo containers
— Chemical storage
— Cold storage
— Contractor's storage yard
— Draying or freight
— Equipment and building materials
— Feed and fuel, including wood yards
— Liquified petroleum gas, bulk storage or distribution in excess of two thousand (2,000) gallons capacity, when located at least one-half (1/2) mile from property zoned or designated for residential use and at least one-half (1/2) mile from existing residential development with a density greater than one (1) dwelling unit per acre and at least one-half (1/2) mile from any motel or hotel
— Log storage
— Lumber
— Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed

— Moving and storage
— Petroleum
— Recreational vehicle
— Recyclable materials, collection and storage
— Tire storage
— Truck and heavy equipment
— Warehouse

3. Other Industrial Uses
— Asphaltic batch plant
— Assaying
— Bakery
— Beverage bottling works
— Billboard sign fabrication and storage
— Boat building and major repair
— Concrete batch plant
— Electroplating
— Machine shop
— Metal extrusion
— Newspaper, magazine, or book printing
— Oilfield service yard
— Photographic processing plant or wholesale supply
— Sandblasting, if incidental to another permitted use and conducted wholly within an enclosed building
— Sheet metal shop
— Tire retreading or recycling
— Welding or blacksmith
— Well drilling service
— Wholesale distribution

F. TRANSPORTATION FACILITIES
— Auto parking garage or lot
— Bus depot, including service and storage
— Railroad freight classification or switching yard
— Railroad station
— Taxi depot, including service and storage

G. UTILITY AND COMMUNICATIONS FACILITIES
— Microwave relay station
— Transmission lines and supporting towers, poles, microwave towers, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company or other company under the jurisdiction of the California Public Utilities Commission pursuant to Section 19.08.090 of this title
— Utility substation

H. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES
— Cogeneration facility or steam generators, excluding coal fired
— Electrical distribution stations
— Electrical power generating plants, excluding nuclear and coal
— Mineral exploration
— Oil or gas exploration and production pursuant to Chapter 19.98 of this title
— Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution
— Solar energy electrical generator with a rated capacity of no greater than five (5) kilowatts for on-site consumption of the electricity
— Wind-driven electrical generators for on-site consumption of the electricity, provided the system can be safely erected and maintained in view of surrounding circumstances and conditions

I. WASTE FACILITIES
— Transfer station, small volume

J. INSTITUTIONAL USES
— Auditorium, public
— Charitable or public service organization
— Church
— Fire or police station
— Government office or building
— Library

— Museum
— Public agency or utility buildings and facilities

K. EDUCATIONAL INSTITUTIONS AND SCHOOLS
1. Specialized Schools
— Business or trade schools

L. MISCELLANEOUS USES
— Commercial coach, when incidental to a permitted use
— Construction trailer, temporary, during construction activity only
— Drainage sump
— Kennel
— Liquid fuel tanks, above ground, for dispensing purposes
— Massage parlor
— Revival, temporary, not to exceed fourteen (14) days
— Studio, radio, television, recording, or movie
— Water system, small or large

Section 176. Section 19.40.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.40.030 USES PERMITTED WITH A CONDITIONAL USE PERMIT

The following uses and all others determined to be similar to these uses pursuant to Sections 19.08.030 through 19.08.080 of this title are all permitted in accordance with the standards set out in Chapter 19.80 of this title and subject to securing a conditional use permit in accordance with the standards and procedures set out in Chapter 19.104 of this title:

A. AGRICULTURAL USES
1. Breeding and Raising Animals
— Beef cattle or livestock feed lot, stockyard, auction, or sales yard

B. RESIDENTIAL USES
— Single-family dwelling, one (1) per lot, not accessory to an industrial use

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
— Circus or carnival
— Golf course
— Racetrack or test track, automobile, bicycle, horse, or motorcycle
— Trade fairs and exhibitions, temporary (fourteen-(14-) day maximum), excluding flea markets and swap meets

D. INDUSTRIAL USES
1. Industrial Manufacturing or Assembly
— Explosives or ammunition, including storage
2. Industrial Storage
— Explosives or ammunition
— Liquified petroleum gas, bulk storage or distribution in excess of two thousand (2,000) gallons capacity
— Mineral and ore storage and loading, unenclosed
— Salvage or junk yard
— Vehicle wrecking yard
3. Other Industrial Uses
— Chemical recycling
— Construction or demolition material recycling
— Sandblasting, unenclosed

E. TRANSPORTATION FACILITIES
— Airport, private
— Airport, public use
— Heliport

F. UTILITY AND COMMUNICATIONS FACILITIES
— Radio, television, or commercial communications transmitter, receiver, or translator, except as specified in Subsection G of Section 19.40.020 of this chapter

G. RESOURCE EXTRACTION AND ENERGY DEVELOPMENT USES
— Coal-fired cogeneration facility or steam generators
— Electrical power generating plant, nuclear or coal powered

— Mining and mineral extraction pursuant to Chapter 19.100 of this title
— Solar energy electrical generators, commercial or domestic, exceeding five (5) kilowatts capacity
— Wind-driven electrical generators, commercial

H. WASTE FACILITIES
— Burning of waste-derived fuels when in conjunction with a permitted or conditionally permitted industrial use.
— Community septic disposal system
— Hazardous waste disposal facility
— Nonhazardous oil production and/or oily waste disposal facility
— Nonhazardous oilfield waste treatment or recycling
— Research, development, or testing of alternative fuel burning processes, temporary
— Sanitary landfill
— Septage disposal site
— Sewage treatment plant
— Soil reclamation or remediation for soils contaminated with nonhazardous materials
— Transfer station, large volume
— Waste-to-energy facility

I. INSTITUTIONAL USES
— Cemetery, mausoleum, or columbarium
— Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary

J. EDUCATIONAL INSTITUTIONS AND SCHOOLS
1. Specialized Schools
— Police/security training facility

K. MISCELLANEOUS USES
— Drainage sump
— Flea market and swap meet
— Water treatment plant

Section 177. Section 19.40.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.40.110 SIGNS

A. The following signs are permitted in the M-3 District in accordance with the requirements of Chapter 19.84 of this title:
1. Temporary real estate signs advertising the property for sale or rent, not to exceed sixteen (16) square feet each, excluding the area of any vertical and/or horizontal support members
2. Temporary subdivision signs
3. Temporary construction signs
4. Temporary political, religious, or civic campaign signs
5. Institutional identification signs
6. Signs attached to buildings
7. Monument signs, not to exceed one hundred (100) square feet in area each
8. Pole signs, not to exceed three hundred (300) square feet in area each and not exceeding a height of fifty (50) feet
9. Off-site advertising signs, not exceeding a height of thirty-five (35) feet
10. Oilfield identification signs

Section 178. Subsection 19.42.020.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. AGRICULTURAL USES
1. Growing and Harvesting Crops
— Christmas trees
— Growing of agricultural crops for domestic use of the resident/occupant
— Timber
2. Breeding and Raising Animals
— Bee keeping

— Poultry and rabbits pursuant to Section 19.42.130 of this title
— Horses, donkeys, mules, hogs, sheep, goats, dairy stock, and beef cattle pursuant to Section 19.42.130 of this title
— Ostrich and emus pursuant to Section 19.42.130
— Birds, including show or racing pigeons, and other small fowl pursuant to Section 19.42.130 of this title
— Fish and frogs

Section 179. Subsection 19.42.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
— Boat dock, private
— Fishing or fly casting pond
— Park or playground

Section 180. Subsection 19.42.020.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. MISCELLANEOUS USES
— Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
— Flood control facilities
— Garage or yard sales pursuant to Subsection C of Section 19.42.130 of this chapter
— Home occupation pursuant to Chapter 19.94 of this title
— Hunting or fishing club, not involving buildings or structures
— Water storage or groundwater recharge facilities
— Water system, small or large
— Wildlife or nature preserve

Section 181. Subsections A, D, E, and F of Section 19.42.020 remain unchanged.

Section 182. Subsection 19.42.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. RECREATION, ENTERTAINMENT, AND TOURIST FACILITIES
— Bed and breakfast inn
— Camp, private
— Campground
— Community recreational facilities
— Equestrian establishments
— Golf course
— Golf driving range
— Lakes, private, for recreational skiing or boating
— Marina, public
— Racetrack or test track, automobile, bicycle, horse, or motorcycle
— Recreational vehicle park
— Retreat, church or nonprofit organization owned and operated
— Shooting range, gun club, simulated war games, or similar activities
— Trade fairs and exhibitions, temporary (fourteen-(14-) day maximum), excluding flea markets and swap meets
— Whitewater rafting launch or landing site

Section 183. Subsection 19.42.030.J of the Ordinance Code of the County of Kern is hereby amended to read as follows:

J. MISCELLANEOUS USES
— Drainage sump
— Hunting or fishing club
— Kennel or dog training facilities
— Railroad caboose and similar accessory structures

— Wild animal keeping

Section 184. Subsections A, B, D, E, F, G, H, and I of Section 19.42.030 remain unchanged.

Section 185. Subsection 19.42.130.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. The breeding and raising of animals pursuant to Section 19.42.020 of this chapter shall be limited to one (1) horse, donkey, mule, cow, dairy stock, sheep, goat, hog, ostrich, emu, or other similar animal per one-quarter (1/4) acre of lot area.

Section 186. Subsections A, C, D, and E of Section 19.42.130 remain unchanged.

Section 187. Subsection 19.46.020.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. MISCELLANEOUS USES
- Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
- Garage or yard sales pursuant to Subsection A of Section 19.46.130 of this chapter
- Hunting or fishing club, not involving buildings or structures
- Liquid fuel tanks, above ground, for dispensing purposes
- Water storage or groundwater recharge facilities
- Water system, small or large
- Wildlife or nature preserve

Section 188. Subsections A, B, C, D, and E of Section 19.46.020 remain unchanged.

Section 189. Subsection 19.46.030.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. INDUSTRIAL USES
1. Industrial Manufacturing or Assembly
   - Brick manufacturing
   - Concrete block manufacturing
   - Oil refining
2. Industrial Storage
   - Truck and heavy equipment parking and storage

Section 190. Subsection 19.46.030.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. MISCELLANEOUS USES
- Corporate or administrative offices in conjunction with, and accessory to, a use permitted or conditionally permitted in this chapter
- Drainage sump
- Hunting or fishing club
- Kennel or dog training facilities
- Wild animal keeping

Section 191. Subsections A, B, C, E, F, G, H, I, and J of Section 19.46.030 remain unchanged.

Section 192. Subsection 19.48.030.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. MISCELLANEOUS USES
- Auto parking lot
- Subdivision drainage sump, provided that mineral rights owners have given written consent

Section 193. Subsection A of Section 19.48.030 remains unchanged.

Section 194. Section 19.48.120 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.48.120 LANDSCAPING

Landscaping in the DI District shall be as approved by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

Section 195. Subsection 19.50.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. RECREATIONAL, ENTERTAINMENT, AND TOURIST FACILITIES

- Campground, private, not involving buildings or structures
- Fishing or fly casting pond, not involving buildings or structures
- Golf course, not involving buildings or structures
- Golf driving range, not involving buildings or structures
- Hiking or equestrian trail
- Park or playground, not involving buildings or structures
- Roads or trails for motor driven vehicles
- Whitewater rafting launch or landing site, not involving buildings or structures

Section 196. Subsections B, C, and D of Section 19.50.030 remain unchanged.

Section 197. Section 19.50.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.50.040 PROHIBITED USES

All other uses not permitted by Sections 19.50.020 and 19.50.030 of this chapter are prohibited in the FPP District, including:

A. Buildings, structures, mobilehomes, other improvements or accessory uses, or development that would encroach into the channel and obstruct the natural flow of waters within a designated floodway or which will in any manner endanger life and property.

B. All public and private sewage disposal systems or any part thereof.

C. Any use which may endanger temporary safeguards which have been erected until such time as flood protection or control works have been constructed.

D. Landfill, sumps, or excavation of a similar nature that would obstruct the natural flow of floodwater within a designated floodway.

E. All uses that are likely to increase the flood hazard or in any way affect the water-carrying capacity of the designated floodway.

F. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Planning Department, will add to the debris load of the stream or watercourse.

G. Commercial cattle or livestock feed yards, auction yards, dairies, junk or salvage yards, billboards, and other advertising structures of any kind or type which may have residential, commercial, or industrial connotations.

H. Storage tanks, sumps, processing equipment, or other similar facilities related to oil and gas production not expressly permitted pursuant to Section 19.50.020 and Subsection C of Section 19.50.130 of this chapter.

I. Sources of water supply (e.g., wells, springs, etc.) unless protected by flood control devices approved by the Kern County Planning Department and constructed in accordance with the requirements of the Kern County Health Department or Kern County Planning Department, whichever has jurisdiction, so as to minimize infiltration of floodwaters.

J. Tree farming, unless it can be shown to the Kern County Planning Department that the spacing of the trees will

not cause a rise in the base flood elevation or that the trees will not add to the debris load of the stream.

Section 198. Subsection 19.50.130.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Oil or gas exploration and production shall comply with Section 19.98.050 and the following standards:

1. The following uses are permitted within the FPP District if they will not obstruct flows, will not cause peripheral flooding of other properties, will not cause any increase in flood levels during the occurrence of the base flood discharge, will be resistant to floatation and immune to extensive damage by flooding, and will not endanger life or property:
   (a) All oil or gas wells, including pumps and all other associated equipment.
   (b) Feasible remedial work, improvements, and floodproofing of facilities.
2. No oil or gas well shall be drilled on the slope or within ten (10) feet of the top or toe of the bank of a river or stream located within the FPP District. The required setback on the top of bank shall be measured from an imaginary plane on a slope two (2) horizontal to one (1) vertical projected upward from the toe of the existing bank.
3. All oil or gas wells in the FPP District, including pumps and all other associated equipment, shall be designed such that they are resistant to damage by flooding.
4. All pipelines in the FPP District shall be floodproofed by burial to sufficient depth to prevent rupture during flood conditions or by suspension at least two (2) feet above the surface of the base flood. Supports for elevated pipelines shall also carry a catwalk to facilitate removal of debris caught by supports during floods.
5. The location of all buried pipelines shall be recorded on appropriate maps by the company that owns said pipelines, and the maps shall be made available to any public agency that shall request a copy.
6. All drilling, redrilling, and producing, including remedial work, well pulling, workovers, and deepening, shall conform to all applicable fire, safety, spacing, and environmental State law and regulations.
7. Proven technological improvements generally accepted and used in drilling and production methods shall be adopted as they may from time to time become available, if capable of reducing factors of nuisance and annoyance.
8. Prior to the commencement of any drilling, a copy of a Spill Prevention Control and Countermeasure Plan, as required by the United States Environmental Protection Agency, shall be filed with the Kern County Planning Department.
9. All pumps expected to be inaccessible during times of flood shall be equipped with an accessible remote switch to shut off the pumps during emergencies.
10. The derrick, all boilers, and all other drilling equipment used pursuant to this chapter to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derrick, boilers, and drilling equipment are to be used within a reasonable time limit, determined by the Planning Director, for the drilling of another well or wells on the premises.

11. After any well has been placed in production, no earthen sumps shall be used for the storage of petroleum or gas.
12. Within ninety (90) days after any well has been placed in production or after its abandonment, earthen sumps used in drilling or production or both shall be emptied by vacuum truck or other approved means, then filled, and the drilling site restored as nearly as practicable to a uniform grade, unless such sumps are to be used within a reasonable time limit, as determined by the Planning Director.
13. Any derrick used for servicing operations shall be of the portable type; provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable-type derrick will not properly service such well, the Planning Director may approve the use of a standard type of derrick.
14. Directional and warning signs, and those required for identification of the well, shall be constructed, erected, placed, or maintained on the premises, except those required by law to be displayed in connection with the drilling or maintenance of the well.
15. If a producing or service well is not secured twelve (12) months from the date of commencement of drilling operations or any extended period granted by the Planning Director, the premises shall be restored to the original condition as nearly as practicable to do so. If at the expiration of the twelve- (12-) month period, the drilling program has not been completed, the Planning Director may, upon a written request, grant an additional period of time as requested for the completion of such drilling program.

Section 199. Subsections A and B of Section 19.50.130 remain unchanged.

Section 200. Subsection 19.52.140.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. A site development plan drawn at the scale specified by the Planning Director, which includes the following information:
1. Topography of the lot(s)
2. Proposed street system and parking areas
3. Lot design
4. Location of buildings
5. Location of other proposed uses
6. Proposed setbacks
7. Areas to be reserved for parks, schools, or public or quasi-public buildings
8. Proposed landscaping
9. Water supply and distribution
10. Sewage disposal system
11. Drainage system
12. North arrow

Section 201. Subsections A, B, C, D, F, G, and H of Section 19.52.140 remain unchanged.

Section 202. Subsection 19.52.170.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. If development approved pursuant to this chapter has not commenced within three (3) years of the approval, the Board of Supervisors shall initiate a reclassification of the property in accordance with the procedures set out in Chapter 19.112 of this title, unless:
1. Building permits for approved development have been issued;

2. A tentative subdivision or parcel map for proposed development has been approved; or
3. A written request for an extension has been filed with and approved by the Planning Director before the expiration of the three- (3-) year period. Such extension shall not exceed three (3) years from the expiration of the initial three- (3-) year period.

In any event, development approved in accordance with this chapter shall be commenced or necessary final subdivision maps recorded within six (6) years of the original approval.

Section 203. Subsection B of Section 19.52.170 remains unchanged.

Section 204. Section 19.52.180 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.52.180 MINOR PLAN MODIFICATIONS

The Planning Director may approve minor plan modifications to an approved SP site development plan in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title, if the Planning Director determines that the modification(s) does not constitute a substantial change in the approved project.

Section 205. Subsection 19.53.130.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. A mobilehome or recreational vehicle permitted as a temporary dwelling pursuant to Subsection B of Section 19.53.020 of this chapter shall comply with the following standards:
   1. Building permits for construction of the conventional single-family residence shall be obtained prior to or concurrently with the installation permit for the mobilehome.
   2. The mobilehome shall be removed from the premises or the recreational vehicle shall be removed from the premises or placed in dead storage if:
      a. Six (6) months have passed since the mobilehome or recreational vehicle was installed.
      b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
      c. The building permit has lapsed due to lack of activity.
   3. One (1) extension of time for a period not to exceed six (6) months may be granted by the Planning Director upon written request of the property owner. The extension of time may only be approved subject to the following conditions:
      a. An active building permit is on file with the Kern County Engineering and Survey Services Department (Building Inspection Division).
      b. The construction of the conventional dwelling unit on the site has progressed to a stage of inspection and approval of the framing, rough electrical, rough mechanical, and rough and top-out of plumbing of the dwelling.
   4. Any mobilehome or recreational vehicle permitted as a temporary dwelling in excess of a six (6) month period of time pursuant to Subsection B.3 of Section 19.53.130 shall be removed or placed in dead storage if:
      a. The extension of time has expired.
      b. Seven (7) days have passed since the conventional dwelling unit was approved for occupancy.
      c. The building permit has lapsed due to lack of activity.

Section 206. Subsections A, C, D, and E of Section 19.53.130 remain unchanged.

Section 207. Section 19.56.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.56.130 SITE DEVELOPMENT PLAN REVIEW — REQUIRED

No use shall be established, changed, or altered, no development shall occur and no building or grading permit shall be issued for any use or development in the PD Combining District, except for one (1) single-family residential dwelling on a single lot, until an application for site development plan review has been submitted to and approved by the Planning Director or the Board of Supervisors in accordance with the procedures set out in Chapter 19.102 of this title. The Planning Director may waive this requirement in cases where the proposed development is the subdivision of property, and no other development is proposed. Additionally, this requirement shall be waived in those instances where the proposed development requires approval of a conditional use permit pursuant to Chapter 19.104.

Section 208. Subsection 19.56.140.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. A site development plan drawn at the scale specified by the Planning Director, which includes the following information:
   1. Topography and proposed grading
   2. Proposed development in relationship to all previously approved and projected PD site development plans
   3. The width, location, and names of surrounding streets
   4. The location, dimensions, ground floor area, and uses of all existing and proposed buildings and structures on the subject property
   5. Proposed landscaping
   6. Streets and parking areas
   7. Signs, including location, size, and height
   8. Proposed dedications and improvements in accordance with applicable subdivision improvement standards for the area
   9. Location, height, and material of walls and fences
   10. Other specified uses of the property
   11. North arrow and scale

Section 209. Subsections A, B, C, D, and F of Section 19.56.140 remain unchanged.

Section 210. Subsection 19.56.150.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. All development shall comply with any additional conditions deemed necessary or appropriate by the Planning Director or the Board of Supervisors to promote the public health, safety, and welfare.

Section 211. Subsection A of Section 19.56.150 remains unchanged.

Section 212. Section 19.56.160, Title 19, of the Ordinance Code of the County of Kern is hereby rescinded.

Section 213. Section 19.56.170 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.56.170 TIME LIMIT ON DEVELOPMENT APPROVAL

If development approved in accordance with this chapter has not commenced within two (2) years of the approval, the approval shall become null and void and of no effect, unless an extension has been granted by the Planning Director upon written request for an extension before the expiration of the

two- (2-) year period. This provision shall not apply to applications approved in conjunction with a tentative parcel map or a tentative tract map. In such cases, the expiration period shall coincide with that of the approved tentative parcel map or approved tentative tract map, as applicable.

Section 214. Section 19.56.180 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.56.180 TEMPORARY USES

Notwithstanding Sections 19.56.140 through 19.56.160 of this chapter, when a PD District has been established and is in effect, the Planning Director is authorized to approve a temporary use of the property consistent with the uses authorized by the base district within which the PD District is combined, but involving no permanent buildings or structures, if the Planning Director determines that such temporary use would not be detrimental to the public health, safety, and welfare, subject to the following conditions:

A. The applicant shall submit an application for a PD site development plan review, but the Planning Director shall have authority to defer the filing of a formal linen or cronar.

B. Authorization for a temporary use shall be evidenced by a temporary use permit approved by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

C. Such temporary use permit may be revoked by the Planning Director at any time, if, in the exercise of his/her reasonable discretion, he/she determines that continued temporary use of such property without the safeguards provided by an approved PD site development plan would be detrimental to the public health, safety, and welfare.

D. No temporary use permit shall ever ripen into the status of a permanent right or legal nonconforming use.

E. Prior to approval of a formal PD site development plan for permanent improvements, and in any case, in the event a PD site development plan is disapproved, the temporary use permit shall become null and void and the premises shall be completely vacated and restored to its original condition.

Section 215. Section 19.56.190 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.56.190 MINOR PLAN MODIFICATIONS

The Planning Director may approve minor plan modifications to an approved PD site development plan in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title if the Planning Director determines that the modification(s) does not constitute a substantial change in the approved project.

Section 216. Section 19.58.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.58.130 SITE DEVELOPMENT PLAN REVIEW — REQUIRED

No use shall be established, no development shall occur, and no building or grading permit shall be issued for any use or development in the CL District until an application for site development plan review has been submitted to and approved by the Planning Director in accordance with the procedures set out in Sections 19.102.070 through 19.102.120 of this title, or submitted to and approved by the Board of Supervisors in accordance with the procedures set out in Sections 19.102.190 through 19.102.230 of this title when submitted in conjunction with an application for a change of zone classification or with a tentative subdivision map.

Section 217. Subsection 19.58.140.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. A site development plan drawn at the scale specified by the Planning Director, which includes the following:
   1. Topography of the lot(s)
   2. Proposed street system and parking area
   3. Lot design
   4. Location of buildings
   5. Location of other proposed uses
   6. Proposed setbacks
   7. Areas to be reserved for parks, schools, or other public or quasi-public facilities
   8. Proposed landscaping
   9. Water supply and distribution
   10. Sewage disposal system
   11. Drainage system
   12. North arrow

Section 218. Subsections A, B, C, E, F, G, and H of Section 19.58.140 remain unchanged.

Section 219. Subsection 19.58.150.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. All development shall comply with any additional conditions deemed necessary or appropriate by the Planning Director or the Board of Supervisors to promote the public health, safety, and welfare.

Section 220. Subsections A and B of Section 19.58.150 remain unchanged.

Section 221. Section 19.58.160 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.58.160 TIME LIMIT ON DEVELOPMENT APPROVAL

If development approved in accordance with this chapter has not commenced within two (2) years of the approval, the approval shall become null and void and of no effect, unless an extension has been granted by the Planning Director, upon written request for an extension before the expiration of the two- (2-) year period. This provision shall not apply to applications approved in conjunction with a tentative parcel map or a tentative tract map. In such cases, the expiration period shall coincide with that of the approved tentative parcel map or approved tentative tract map, as applicable.

Section 222. Section 19.58.170 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.58.170 MINOR PLAN MODIFICATIONS

The Planning Director may approve minor plan modifications to an approved CL site development plan in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title if the Planning Director determines that the modification(s) does not constitute a substantial change in the approved project.

Section 223. Section 19.60.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.60.090 MINIMUM DISTANCE BETWEEN STRUCTURES

Requirements for minimum distance between structures in an RS District are as follows:

A. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, other structures for housing animals, and the animals themselves shall be at least thirty (30) feet away from any off-site residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution.

B. All other uses shall comply with the requirements of the base district with which the RS District is combined.

Section 224. Section 19.60.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.60.130 TEMPORARY ANIMAL PERMIT — REQUIRED WHEN

The breeding and raising of livestock, in greater numbers than allowed by Subsection B of Section 19.60.020 of this chapter, by minors in conjunction with a student-oriented fair project sponsored by a bona fide agricultural organization shall be permitted upon submission of an application for a Temporary Animal Permit to and approval by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

Section 225. Subsection 19.60.150.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. The applicant shall allow inspection of animal maintenance facilities by the Kern County Engineering and Survey Services Department (Building Inspection Division) and the Kern County Health Department.

Section 226. Subsections A, B, C, D, and F of Section 19.60.150 remain unchanged.

Section 227. Section 19.60.160 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.60.160 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this chapter may be revoked or modified pursuant to Section 19.102.020 of this title upon receipt of a recommendation for revocation or modification from the Kern County Engineering and Survey Services Department (Building Inspection Division) or the Kern County Health Department.

Section 228. Section 19.61.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.61.090 MINIMUM DISTANCE BETWEEN STRUCTURES

The minimum distance between structures in an RL District shall be as required in the base district or as follows, whichever is least restrictive:

A. There shall be a minimum distance of six (6) feet between a residential building and an accessory building or between accessory buildings, except that pens, coops, other structures for housing animals, and the animals themselves shall be at least thirty (30) feet away from any off-site residential building or other building used for human habitation, at least one hundred (100) feet from the front lot line, at least twenty-five (25) feet from the street side lot line on a corner lot, and at least one hundred (100) feet away from any public park, school, hospital, or similar institution.

Section 229. Section 19.61.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.61.130 DEVELOPMENT STANDARDS AND CONDITIONS

The Director of the Kern County Planning Department may authorize, upon written request from the property owner, equestrian events to be held for a maximum of five (5) days during any given calendar year involving no more than one hundred (100) people on site, including participants and spectators. Any such request shall be accompanied by a written statement describing the proposed event and by the signatures of the owners of all abutting properties which contain a residence indicating "no objection" to the request. No public address or loudspeaker systems shall be utilized, except that portable, hand-held megaphones or similar sound amplification devices, as determined by the Planning Director,

may be utilized. The Planning Director may impose conditions deemed necessary to protect the public health, safety, and welfare.

Section 230. ****DELETED****

Section 231. ****DELETED****

Original
Replacement page for zoning ord. adopted on Mon.

Section 232. Section 19.62.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.62.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

A. If the method of installation results in the exposure of the undercarriage, a continuous perimeter skirting compatible with the mobilehome siding shall be installed.

B. No special architectural or size requirements shall apply to mobilehome installations in the MH District, except as may be specifically required by Sections 19.62.020 or 19.62.030.

Section 233. Section 19.64.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.64.130 DETAILED PLOT PLAN REQUIRED — CONTENTS

Prior to issuance of construction permits, the developer shall submit a detailed plot plan for review and approval by the Planning Director. The plan boundaries shall coincide with those of the project parcel. The following information shall be included in said plan:

A. Existing topography and drainage channels.

B. Direction of prevailing winds across the project site.

C. Location, height, and dimensions of all existing structures.

D. Distance to all residences located within one (1) mile of exterior project boundary.

E. Manufacturer or machine trade name, including, but not limited to, rated KW capacity, tower or support structure location and height, total blade diameter, rated maximum shaft RPM, location of proposed structures and buildings, and manufacturer's production record, and/or sufficient manufacturer's data in order to classify machines as experimental, prototype, or production in accordance with the definitions contained in this chapter.

F. Location, grades, and dimensions of all roads and parking areas, both existing and proposed.

G. Location and extent of known archaeological remains.

H. Location and type of project security fencing.

I. A plan of proposed project phasing.

J. Any and all reports, approvals, or requirements which may be required by mitigation measures incorporated into an environmental document adopted for implementation of this district for specific parcels; including a plan for implementation of recommendations contained in such reports.

K. A certificate signed by a registered civil engineer or licensed land surveyor stating that area encompassed by the project has been surveyed under his supervision or that a previous survey was performed by a registered civil engineer or licensed land surveyor and that sufficient monuments have been placed to accurately establish the exterior project boundaries.

L. A certificate signed by a registered civil engineer or licensed land surveyor stating that the proposed development is in full compliance with the requirements of this chapter. The Director of the Kern County Planning Department may require the submittal of additional documentation of compliance when deemed necessary.

Section 234. Section 19.64.140 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.64.140 DEVELOPMENT STANDARDS AND CONDITIONS

Development in the WE Combining District shall comply with the following standards:

A. All necessary building and grading permits shall be obtained from the Kern County Planning Department. For construction and permit purposes, all wind generator towers shall conform to the regulations of the applicable seismic zone of the Uniform Building Code and the applicable groundshaking zone.

B. Towers and blades shall be painted a nonreflective, unobtrusive color or have a nonreflective surface.

C. Wind project facilities shall be enclosed with a minimum four- (4-) foot-high security fence constructed of four (4) strand barbed wire or materials of a higher quality. Fencing shall be erected for each wind machine or on the perimeter of the total project. Fencing erected on the perimeter of the total project shall include minimum eighteen- (18-) inch by eighteen- (18-) inch signs warning of wind turbine dangers. Such signs shall be located a maximum of three hundred (300) feet apart and at all points of site ingress and egress.

D. All on-site electrical wires associated with wind machines shall be installed underground, excepting therefrom "tie-ins" to a public utility company and public utility company transmission poles, towers, and lines. An additional exemption may be granted by the Planning Director if project terrain is found to be unsuitable to accomplish the intent and purpose of this provision.

E. Prior to issuance of construction permits, the developer shall provide the Kern County Planning Department with proof of approved access to the site.

F. Wind generator setback shall be as follows:

1. Setback Where Adjacent Parcels Contain Less Than Forty (40) Acres. A minimum wind generator setback of four (4) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) or five hundred (500) feet, whichever is greater, shall be maintained from exterior project boundaries where the project site is adjacent to existing parcels of record which contain less than forty (40) acres and are not zoned WE Combining District.

   The Planning Director may allow a reduction in this setback, not to exceed a minimum setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) if a letter of consent from the owner(s) of record of adjacent parcels is filed with the Kern County Planning Department.

2. Setback Where Adjacent Parcels Contain Forty (40) Acres or More. A minimum wind generator setback of one and one-half (1 1/2) times the overall machine

height (measured from grade to the top of the structure, including the uppermost extension of any blades) shall be maintained from all exterior project boundaries.

The Planning Director may allow a reduction of this setback requirement in accordance with all of the following provisions:

a. The project exterior boundary is a common property line between two (2) or more approved wind energy projects.
b. The property owner of each property has filed a letter of consent to the proposed setback reduction with the Planning Director.
c. All setbacks shall comply with the setback requirements of the base district with which the WE District is combined.
d. The project site and the adjacent property exist as the same parcel of record and are held under common ownership, and the property owner has filed a letter of consent to the proposed setback reduction with the Planning Director.

3. Setback From Off-site Residence(s) on Adjacent Parcels. In all cases, regardless of parcel area, a minimum wind generator setback of four (4) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) or one thousand (1,000) feet, whichever is greater, shall be maintained from any off-site residence.

The Planning Director may allow a reduction in this setback, not to exceed a minimum setback of one and one-half (1 1/2) times the overall machine height, if a letter of consent from the owner(s) of record of the adjacent parcel is filed with the Planning Director.

4. Project Interior Wind Generator Spacing. Wind generator spacing within the project boundary shall be in accordance with accepted industry standards pertaining to the subject machine.
5. Setback From On-site Residences and Accessory Structures Designed for Human Occupancy. A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blade) shall be maintained from any on-site residence or accessory structure designed for human occupancy.
6. Setback From Public Highways and Streets, Public Access Easements, Public Trails, and Railroads. A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blade) shall be maintained from any public highway or street, public access easement, public trail, or railroad.

G. Wind generator machine height shall not exceed the maximum height permitted for antennae and towers by the district with which the WE District is combined. For the purposes of this provision, machine height shall be measured as follows:

1. Machine height of horizontal axis machines shall be measured from grade to the center of the blade hub.
2. Machine height of vertical axis or other machine designs shall be measured from grade to the highest point of the structure.

Approval of heights in excess of these limitations shall be in accordance with Chapters 19.106 and 19.110 of this title.

H. All wind generators and towers shall comply with all applicable County, State, and federal laws, ordinances, or regulations.

I. One (1) project identification sign, located at each point of project ingress and egress, not to exceed thirty-two (32) square feet in area, may be erected on the project site. No other signs shall be installed other than the required warning signs. The developer shall submit a sign elevation drawing to the Planning Director for review and approval prior to installation.

J. Where a residence, school, church, public library, or other sensitive or highly sensitive land use, as identified in the Noise Element of the County General Plan, is located within one (1) mile in a prevailing downwind direction or within one-half (1/2) mile in any other direction of a project's exterior boundary, an acoustical analysis shall be prepared by a qualified acoustical consultant prior to the issuance of any building permit. The consultant and the resulting report shall be subject to review and approval by the Kern County Health Department. The report shall address any potential impacts on sensitive or highly sensitive land uses.

In addition, the acoustical report shall demonstrate that the proposed development shall comply with the following criteria:

1. Audible noise due to wind turbine operations shall not be created which causes the exterior noise level to exceed forty-five (45) dBA for more than five (5) minutes out of any one- (1-) hour time period (L8.3) or to exceed fifty (50) dBA for any period of time when measured within fifty (50) feet of any existing residence, school, hospital, church, or public library.

2. Low frequency noise or infrasound from wind turbine operations shall not be created which causes the exterior noise level to exceed the following limits when measured within fifty (50) feet of any existing residence, school, hospital, church, or public library.

One-third Octave Band Center Frequency (Hz)	Sound Pressure Level (dB)
2 to 1	70 (each band)
20	68
25	67
31.5	65
40	62
50	60
63	57
80	55
100	52
125	50

3. In the event audible noise due to wind turbine operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in Subparagraph (1) of this subsection shall be reduced by five (5) dBA. A pure tone is defined to exist if the one-third (1/3) octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two (2) contiguous one-third (1/3) octave bands by five (5) dBA for center frequencies of five hundred (500) Hz and above, by eight (8) dBA for center frequencies between one hundred and sixty (160) Hz and four

hundred (400) Hz, or by fifteen (15) dBA for center frequencies less than or equal to one hundred and twenty-five (125) Hz.

4. In the event the audible noise due to wind turbine operations contains repetitive impulsive sounds, the standards for audible noise set forth in Subparagraph (1) of this subsection shall be reduced by five (5) dBA.
5. In the event the audible noise due to wind turbine operations contains both a pure tone and repetitive impulsive sounds, the standards for audible noise set forth in Subparagraph (1) of this subsection shall be reduced by a total of five (5) dBA.
6. In the event the ambient noise level (exclusive of the development in question) exceeds one (1) of the standards given above, the applicable standard shall be adjusted so as to equal the ambient noise level. For audible noise, the ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA which is exceeded for no more than five (5) minutes per hour (L8.3). For low frequency noise or infrasound, the ambient noise level shall be expressed in terms of the equivalent level (Leq) for the one-third (1/3) octave band in question, rounded to the nearest whole decibel. Ambient noise levels shall be measured within fifty (50) feet of potentially affected existing residences, schools, hospitals, churches, or public libraries. Ambient noise level measurement techniques shall employ all practical means of reducing the effects of wind-generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow wind turbine operation, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.
7. Any noise level falling between two (2) whole decibels shall be the lower of the two (2).
8. In the event that noise levels, resulting from a proposed development, exceed the criteria listed above, a waiver to said levels may be granted by the Planning Director provided that the following has been accomplished:
   a. Written consent from the affected property owners has been obtained stating that they are aware of the proposed development and the noise limitations imposed by this code, and that consent is granted to allow noise levels to exceed the maximum limits allowed.
   b. A permanent noise impact easement has been recorded in the County Hall of Records which describes the benefited and burdened properties and which advises all subsequent owners of the burdened property that noise levels in excess of those permitted by this code may exist on or at the burdened property.

K. Prior to the issuance of any building permit, a plan for the mitigation of potential soil erosion and sedimentation shall be prepared. The plan shall include provisions for site revegetation and shall include sediment collection facilities as may be required by the Kern County Planning Department and/or the appropriate resource conservation district. The plan shall include a timetable for full implementation and a surety bond or other security as approved by the County Counsel's Office, in an amount determined by the Kern County Planning Department and the appropriate resource conservation district and shall be provided to the Kern County Engineering and Survey Services Department (Building Inspection Division) to guarantee plan implementation.

The plan shall also be approved by the Planning Director and the appropriate resource conservation district, prior to issuance of a building permit. In the event that the appropriate resource conservation district cannot participate in plan approval, the Kern County Planning Department shall have final responsibility in such plan approval.

L. A minimum of on-site roadways shall be constructed. Temporary access roads utilized for initial machine installation shall be revegetated to a natural condition after completion of machine installation. The applicant shall submit a plan of all proposed roads, temporary and permanent, for approval by the Planning Director prior to the issuance of any building permits.

M. Construction of any slopes steeper than four to one (4:1) shall be prohibited unless specifically authorized by the Kern County Planning Department and mitigation is provided.

N. Wind project facilities shall be encircled with a ten-(10-) foot-wide fuel break. Subject fuel breaks may be installed for each wind machine or the perimeter of the total project, but in no event shall encompass more than forty (40) acres per block. Permanent access roads may also be considered fuel breaks. This requirement may be modified at the discretion of the Kern County Fire Chief.

O. No building permits will be issued until the grading has been completed in accordance with the approved plans and "As Graded Certification" has been made by the engineer.

Section 235. Section 19.68.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.68.130 PLOT PLAN REVIEW — REQUIRED

No use shall be established, no development shall occur, and no building permit or grading permit shall be issued for any use or development in the GH Combining District until an application for plot plan review has been submitted to and approved by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

Section 236. Subsection 19.68.140.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. A plot plan drawn at the scale specified by the Planning Director, which includes the following information:
   1. Topography and proposed grading
   2. Location and extent of all geologic hazards, including areas subject to surface faulting, groundshaking, ground failure, landslides, mudslides, and other geologic hazards
   3. Location of all proposed buildings and structures
   4. Location of proposed streets, roads, and parking areas
   5. Proposed drainage improvements
   6. North arrow

Section 237. Subsections A, B, C, D, F, and G of Section 19.68.140 remain unchanged.

Section 238. Section 19.68.150 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.68.150 DEVELOPMENT STANDARDS AND CONDITIONS

Development in the GH Combining District shall comply with the mitigation measures recommended in the geological report required by Section 19.68.140 of this chapter as approved by the Kern County Planning Department. In any event, structures for human occupancy shall be set back at least fifty (50) feet from any active fault trace or one hundred (100) feet from any

fault trace that cannot be precisely located or is depicted as "inferred" on the Kern County Seismic Hazard Atlas.

Section 239. Section 19.70.010 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.70.010 PURPOSE AND APPLICATION

A. The purpose of the Floodplain (FP) Combining District is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas. The FP District shall be applied to those areas lying within Zone A on the Flood Insurance Rate Maps (FIRM) or those areas potentially subject to flooding as designated by the Kern County Planning Department pending reclassification of such areas into the Floodplain Primary (FPP) District or the Floodplain Secondary (FPS) Combining District. The regulations established by the FP District shall be in addition to the regulations of the base district with which the FP District is combined.

B. The special flood hazard area designated as Zone A is based on historical flood flows where no quantitative determination of the frequency of flooding has been made. Detailed engineering studies are performed and/or approved by the Kern County Planning Department prior to the reclassification of the FP Combining District into the FPP District and/or FPS Combining District.

C. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions or flood heights may be increased by manmade or natural causes, such as bridge openings restricted by debris. This chapter does not imply that areas outside the FP District or land uses permitted within the FP District will be free from flooding or flood damages. This chapter shall not create liability on the part of the County of Kern or any officer or employee thereof for any flood damage that may result from reliance on this chapter or any administrative decision lawfully made hereunder.

Section 240. Section 19.70.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.70.040 PROHIBITED USES

All other uses not permitted by Sections 19.70.020 and 19.70.030 of this chapter are prohibited in an FP District, including:

A. All uses prohibited by the base district with which the FP District is combined.

B. All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 19.70.130 of this chapter.

C. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Planning Department, will add to the debris loads of the stream or watercourse, unless protected by flood control devices approved by the Planning Director and constructed in accordance with Section 19.70.130 of this chapter.

D. Livestock feed yards, dairies, storage of junk, or salvage operations.

E. Oil storage tanks or processing equipment, unless floodproofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Planning Department.

F. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Planning Department and

constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.

G. Sources of water supply (e.g., wells, springs, etc.) unless protected by flood control devices approved by the Kern County Planning Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters.

H. Any use which endangers the temporary safeguards erected for flood protection.

Section 241. Section 19.70.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.70.090 MINIMUM DISTANCE BETWEEN STRUCTURES

Requirements for minimum distance between structures in an FP District are per the requirements of the base district with which the FP District is combined; however, the Floodplain Management Section of the Engineering and Survey Services Department may require a greater minimum distance between structures in order to provide sufficient water-carrying capacity of the floodplain to meet the requirements of Section 19.70.130.

Section 242. Section 19.70.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.70.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

All development within the FP District shall comply with the requirements of the Flood Damage Prevention Ordinance (Chapter 17.48 of this code) and the following standards:

A. Generally, development within the floodplain may not cumulatively increase the Base Flood Elevation at any point more than one (1) foot.

1. Computations of increased flood heights caused by development in the floodplain shall be based upon the reasonable assumption that there shall be an equal loss of conveyance on opposite sides of the stream.
2. Cases for supercritical flow, or where velocity conditions are such that normal encroachment analyses are not possible or inappropriate, the allowable increase of one (1) foot shall be applied to the energy grade line instead of the Base Flood Elevation.
3. Cases for overbank velocities exceeding seven (7) feet per second, the floodway boundary shall coincide with the one hundred (100) year floodplain boundaries.
4. All such computations shall be made or approved by the Kern County Planning Department.

Section 243. Section 19.72.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.72.040 PROHIBITED USES

All other uses not permitted by Sections 19.72.020 or 19.72.030 of this chapter are prohibited in the FPS District, including the following:

A. All uses prohibited by the base district with which the FPS District is combined.

B. All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 19.72.130 of this chapter.

C. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Planning Department, will add to the debris loads of the stream or watercourse.

D. Storage of junk, or salvage operations.

E. Oil storage tanks or processing equipment, unless floodproofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Planning Department.

F. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Planning Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.

G. Sources of water supply (e.g., wells, springs, etc.), unless protected by flood control devices approved by the Kern County Planning Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters.

H. Any use which endangers the temporary safeguards erected for flood protection.

I. Tree farming, unless it can be shown to the Kern County Planning Department that the spacing of trees will not affect the water-carrying capacity of the stream beyond limits resulting from encroachment as specified in Section 19.72.130 of this chapter.

Section 244. Section 19.72.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.72.070 YARDS AND SETBACKS

Yard and setback requirements in an FPS District are per the requirements of the base district with which the FPS District is combined, except that all development shall be set back a minimum of ten (10) feet from an imaginary plane on a slope of two (2) horizontal to one (1) vertical projected upward from the toe of the existing bank of any watercourse, and sewage disposal systems shall be set back a minimum of one hundred (100) feet from the top of the existing banks of the watercourse. These setback requirements may be reduced if recommended through the preparation of a soils engineering report by a registered civil engineer experienced and knowledgeable in the practice of soils engineering. Said report shall be subject to review and approval by the Planning Department.

Section 245. Section 19.72.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.72.090 MINIMUM DISTANCE BETWEEN STRUCTURES

Requirements for minimum distance between structures in an FPS District are per the requirements of the base district with which the FPS District is combined; however, the Floodplain Management Section of the Engineering and Survey Services Department may require a greater minimum distance between structures in order to provide sufficient water-carrying capacity of the floodplain to meet the requirements of Section 19.72.130.

Section 246. Section 19.72.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.72.130 SPECIAL REVIEW PROCEDURES AND DEVELOPMENT STANDARDS

All development within the FPS District shall comply with the requirements of the Flood Damage Prevention Ordinance (Chapter 17.48 of this code) and the following standards:

A. Generally, development within the floodplain may not cumulatively increase the Base Flood Elevation at any point more than one (1) foot.

1. Computations of increased flood heights, caused by development in the floodplain, shall be based upon the reasonable assumption that there shall be an

equal loss of conveyance on opposite sides of the stream.

2. Cases for supercritical flow, or where velocity conditions are such that normal encroachment analyses are not possible or inappropriate, the allowable increase of one (1) foot shall be applied to the energy grade line instead of the Base Flood Elevation.
3. Cases for overbank velocities exceeding seven (7) feet per second, the floodway boundary shall coincide with the one hundred (100) year floodplain boundaries.
4. All such computations shall be made or approved by the Kern County Planning Department.

Section 247. Chapter 19.74, (Architectural Design (D) Combining District), Title 19, of the Ordinance Code of the County of Kern is hereby rescinded.

Section 248. Section 19.76.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.76.130 SITE DEVELOPMENT PLAN REVIEW — REQUIRED

No building, structure, plant, or tree shall exceed thirty-five (35) feet in height until an application for site development plan review has been submitted to and approved by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 Of this chapter. In no case shall height limitations be less restrictive than the requirement of Part 77 of the Federal Aviation Regulations of the Federal Aviation Administration, Department of Transportation, or any corresponding rules or regulations of the Federal Aviation Administration, as amended.

Section 249. Section 19.76.140 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.76.140 SITE DEVELOPMENT PLAN REVIEW — APPLICATION — CONTENTS

An application for site development plan review shall include the following:

A. Name and address of applicant
B. Name(s) and address(es) of the property owner(s)
C. Assessor's parcel number(s)
D. Legal description of the property
E. A letter from the Federal Aviation Administration which shall state that the proposed development does not constitute a hazard to air traffic and does not violate any federal regulations. The letter shall also include any special conditions imposed by the Federal Aviation Administration.
F. A plot plan drawn at the scale specified by the Planning Director, which includes the following information:
    1. Topography and proposed grading
    2. Proposed private access drives and parking areas
    3. Location of all permanent buildings and structures
    4. Park, open space, and recreation areas
    5. Proposed landscaping
    6. North arrow
G. Elevations of all permanent common buildings

Section 250. Section 19.78.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.78.020 AUTOMOBILE PARKING (P) DISTRICT

All development in the P District shall comply with the requirements and standards set out in Chapter 19.82 of this title. Permitted uses in the P District shall be limited to the parking of motor vehicles, except that temporary displays of retail equipment or products may be authorized by the Planning Director if related to an on-site retail business. In conjunction with such approval, the Planning Director may

impose conditions deemed necessary to promote public health, safety, and welfare. Except for parking lot related improvements, no structures or buildings shall be permitted in the P District. Use of the P District for storage uses shall be prohibited.

Section 251. Section 19.78.025 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.78.025 MOBILEHOME SUBDIVISION (MS) DISTRICT

All development in the MS District shall comply with the requirements and standards set out in Chapter 19.18 (R-1 District), except where property is zoned for lot sizes of one-quarter (1/4) acre or greater, in which case the requirements and standards set out in Chapter 19.16 (E District) shall apply.

Section 252. Section 19.80.010 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.80.010 PURPOSE AND APPLICATION

The purpose of this chapter is to establish reasonable and necessary development standards for multifamily, commercial, industrial, institutional, and other similar uses to ensure that development subject to this chapter includes appropriate public improvements and is compatible with surrounding uses. The development standards specified in this chapter shall apply to all multifamily development in the Medium-density Residential (R-2), High-density Residential (R-3), and all development in the Commercial Office (CO), Neighborhood Commercial (C-1) General Commercial (C-2), Highway Commercial (CH), Light Industrial (M-1), Medium Industrial (M-2), and Heavy Industrial (M-3) Districts, except as provided in this chapter, and shall apply to those uses in the Exclusive Agriculture (A) and Natural Resource (NR) Districts as required by those chapters.

Section 253. Subsection 19.80.020.J of the Ordinance Code of the County of Kern is hereby amended to read as follows:

J. When construction in excess of one (1) story is proposed adjacent to property zoned for single-family residential use, all windows above the first story and adjacent to the property zoned for single-family residential use shall contain glass that is opaque or translucent or shall be screened in a manner as approved by the Planning Director.

Section 254. Subsection 19.80.020.N of the Ordinance Code of the County of Kern is hereby amended to read as follows:

N. The Planning Director may waive any of the above-listed requirements where a documented hardship, not involving economics, exists or where there are unusual circumstances that prevent compliance with any of the required development standards. Additionally, street improvements and construction of curb, gutter, and sidewalks will not be required for individual or cumulative additions constituting less than fifty percent (50%) expansion of development existing on the effective date of this chapter.

Section 255. Subsections A, B, C, D, E, F, G, H, I, K, L, M, O, P, and Q of Section 19.80.020 remain unchanged.

Section 256. Section 19.80.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.80.030 DEVELOPMENT STANDARDS — COMMERCIAL AND INDUSTRIAL DISTRICTS

All development in the CO, C-1, C-2, CH, M-1, M-2, and M-3 Districts, and, where specified, the A and NR Districts, shall comply with the following standards:

Section 257. Subsection 19.80.030.L of the Ordinance Code of the County of Kern is hereby amended to read as follows:

L. For industrial developments utilizing outside storage, the areas devoted to outside storage shall be treated with a dust binder or other dust control measure, as approved by the Planning Director. Screening, if required by the base district regulations, shall also be provided.

Section 258. Subsection 19.80.030.N of the Ordinance Code of the County of Kern is hereby amended to read as follows:

N. The Planning Director may waive any of the above-listed requirements where a documented hardship, not involving economics, exists or where there are unusual circumstances that prevent compliance with any of the required development standards. Additionally, street improvements and construction of curb, gutter, and sidewalks will not be required for individual or cumulative additions constituting less than fifty percent (50%) expansion of development existing on the effective date of this chapter.

Section 259. Subsections A, B, C, D, E, F, G, H, I, J, K, M, O, P, and Q of Section 19.80.030 remain unchanged.

Section 260. Section 19.80.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.80.040 PLOT PLAN REVIEW AND APPROVAL — REQUIRED

Except as provided in this section, no permitted use shall be established, no permitted development shall occur, and no building permit or grading permit shall be issued for any permitted use or development subject to this chapter until a plot plan review has been submitted to and approved by the Planning Director in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. A plot plan review shall not be required for building additions which do not exceed a fifty percent (50%) increase of the gross square footage of building area located on the affected parcel unless the expansion will result in the creation of additional dwelling units. Additionally, a plot plan review shall not be required for changing one permitted use to another permitted use where no building permits are required.

Section 261. Section 19.82.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.020 Required parking spaces.

Uses permitted by this chapter shall provide off-street parking spaces according to the following schedule:

A. Residential Uses:
   1. Boarding house, rooming house, residential hotel, fraternity or sorority house, or dormitory: One (1) per bedroom,
   2. Retirement or rest home: One (1) per four (4) resident beds,
   3. Single-family dwelling, duplex, triplex, quadruplex, multifamily dwelling, condominium, mobilehome, or secondary residential unit: Two (2) per dwelling unit;

B. Recreation, Entertainment, and Tourist Facilities:
   1. Bowling alley: Four (4) per lane,
   2. Dance hall, ballroom, or discotheque: One (1) per thirty (30) square feet of gross building area,
   3. Golf course: Three (3) per hole,

4. Golf driving range: One (1) per tee,
5. Hotel or motel: One (1) per room plus two (2) for the manager's quarters and one (1) per full-time staff member,
6. Miniature golf course: Two (2) per hole,
7. Movie theater: One (1) per three (3) seats,
8. Pool and billiard parlor: Two (2) per pool or billiard table,
9. Shooting range or gun club: One (1) per shooter station,
10. Sports arena: One (1) per three and one-half (3 1/2) seats,
11. Swimming pool: One (1) per one hundred (100) square feet of pool and deck area plus bicycle parking racks containing a minimum of ten (10) spaces,
12. Tennis club, health club: One (1) per one hundred (100) square feet of open indoor recreational area plus two (2) per tennis or racquetball court,
13. Video games arcade: One (1) per one hundred (100) square feet of gross building area plus bicycle parking racks containing a minimum of ten (10) spaces;

C. Offices:
1. Business or professional office: One (1) per two hundred and fifty (250) square feet of gross building area,
2. Financial institution, including bank, savings and loan, or credit union: One (1) per two hundred (200) square feet of gross building area,
3. Medical or dental office, veterinary office, clinic: One (1) per two hundred (200) square feet of gross building area,

D. General Retail Sales:
1. Auto sales: One (1) per two thousand (2,000) square feet of sales area plus one (1) per two hundred and fifty (250) square feet of office area,
2. Bar, tavern, or cocktail lounge: One (1) per seventy-five (75) square feet of gross building area,
3. Furniture store: One (1) per five hundred (500) square feet of gross building area,
4. General retail: One (1) per two hundred and fifty (250) square feet of gross building area,
5. Nursery, retail: One (1) per two hundred and fifty (250) square feet of indoor display area plus one (1) per two thousand (2,000) square feet of outdoor sales area,
6. Heavy equipment, recreational vehicles, or truck sales: One (1) per two thousand (2,000) square feet of sales area plus one (1) per two hundred and fifty (250) square feet of office area,
7. Restaurant, cafe, or coffee shop: One (1) per one hundred (100) square feet of gross building area,
8. Restaurant, delivery only, where no seating area is provided: One (1) per two hundred and fifty (250) square feet of gross building area,
9. Restaurant, fast food: One (1) per seventy-five (75) square feet of gross building area,
10. Shopping center: One (1) per two hundred (200) square feet of gross floor area, or the sum of individual tenant parking space requirements, whichever is less;

E. Services:
1. Auto repair, tire sales and service: One (1) per three hundred (300) square feet of gross building area,
2. Barber or beauty shop: One (1) per one hundred (100) square feet of gross building area or one (1) per chair, whichever is less,

3. Equipment rental: One (1) per two thousand (2,000) square feet of outside display area or storage area plus one (1) per two hundred and fifty (250) square feet of office area plus one (1) per five hundred (500) square feet of inside display area,
4. Laundromat, self-service: One (1) per three (3) washing machines,
5. Mortuary or funeral parlor: One (1) per three and one-half (3 1/2) seats or one (1) per forty (40) square feet of assembly area, whichever is less;

F. Industrial Uses:
1. Contractor storage yard: One (1) per five thousand (5,000) square feet of lot area,
2. Manufacturing or assembly: One (1) per five hundred (500) square feet of floor area plus one (1) per two hundred and fifty (250) square feet of office area,
3. Warehouse or wholesale distribution: One (1) per one thousand (1,000) square feet of storage area for the first ten thousand (10,000) square feet, one (1) per three thousand (3,000) square feet thereafter plus one (1) per two hundred and fifty (250) square feet of office area;

G. Institutional Uses:
1. Auditorium: One (1) per three and one-half (3 1/2) seats,
2. Cemetery: One (1) per three and one-half (3 1/2) seats in the chapel plus one (1) per two hundred and fifty (250) square feet of office space,
3. Church or auditorium: One (1) per three and one-half (3 1/2) seats,
4. Convalescent hospital or sanitarium: One (1) per four (4) patient beds,
5. Hospital: One (1) per two (2) patient beds,
6. Library or museum: One (1) per five hundred (500) square feet of public use area,
7. Meeting halls and other places of public assembly where no fixed seating is provided: One (1) per forty (40) square feet of gross floor area;

H. Educational Institutions and Schools:
1. College, business school, trade school: One (1) per employee plus one (1) per two (2) students at full enrollment,
2. Elementary and junior high school: One (1) per employee plus one (1) per twenty (20) students at full enrollment,
3. High school: One (1) per employee plus one (1) per eight (8) students at full enrollment,
4. Preschool: One (1) per six (6) students for which the facility is licensed plus one (1) per employee;

I. Miscellaneous Uses:
1. Child care center: One (1) per eight (8) children for which the facility is licensed plus one (1) per employee;

J. Where the calculation of parking needs results in the requirement for a fraction of a parking space, the additional parking space shall be provided;

K. Floor area shall mean gross floor area unless otherwise specified;

L. Where a proposed use is not listed in this section, the Planning Director shall determine parking needs based on the listed use which most nearly resembles the proposed use;

M. Where parking requirements are based on the number of seats, eighteen (18) inches of pew or bench seating shall be equivalent to one (1) seat;

N. Where no fixed seating is provided, seven (7) square feet of floor space shall be equivalent to one (1) seat.

Section 262. Section 19.82.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.030 PARKING SPACE DIMENSIONS

All parking spaces shall be at least nine (9) feet by twenty (20) feet, except that:

A. Compact automobile parking spaces shall be at least eight (8) feet by sixteen (16) feet.

B. Handicapped automobile parking spaces shall comply with the requirements of Chapter 2-71 of Title 24 of the California Administrative Code.

C. Where a raised curb or wheel blocks are provided, parking spaces may be permitted a two- (2-) foot overhang, except where such an overhang would interfere with the use of a pedestrian walkway or landscape planter, as determined by the Planning Director.

Section 263. Section 19.82.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.070 LOCATION OF PARKING

Required residential off-street parking facilities shall be located on the premises they are intended to serve. Off-street parking for other than residential uses shall be located on the premises they are intended to serve or within five hundred (500) feet thereof. Where required parking is provided on a site other than that of the principal use, the property owner shall file with the Kern County Recorder's Office a covenant, on a form provided by the Kern County Planning Department and approved by the Planning Director, that provides for the maintenance of the parking facility as long as the associated principal use is maintained. Approval of the covenant shall be subject to the applicant's submittal of a detailed plot plan of the site upon which the additional parking will be provided. The plan shall illustrate that any required parking at that site will not be reduced. All required off-street parking spaces shall be designed, located, constructed, and maintained so as to be fully and independently usable and accessible at all times, except as provided for in Section 19.82.090.D.

Section 264. Section 19.82.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.080 JOINT USE OF PARKING AREAS

If more than one (1) use required to provide parking spaces in accordance with this chapter occupies the same building or premises, off-street parking shall be provided in an amount equal to the total number of spaces required for the separate uses, provided, however, that upon written request the Planning Director can reduce the number of spaces required in such cases by up to twenty percent (20%) if he/she determines that it is unlikely the combination of uses in the same building or premises will at periods of peak use necessitate provision of the number of parking spaces that would be required if the uses were developed independently. The parking space requirement for the primary use shall be calculated as specified in Section 19.82.020. No reduction shall be permitted for the number of parking spaces required for the primary use, as determined by the Planning Director.

Section 265. Subsection 19.82.090.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. All off-street parking areas and ingress and egress to parking areas shall be surfaced with the following materials:

1. For all residential, recreation, entertainment and tourist facilities, commercial, industrial, institutional, and other high intensity uses in any Type A Improvement Area (see Appendix), parking areas shall be surfaced with one (1) of the following materials on a prepared base:

a. Two (2) inches of asphaltic concrete

b. Three and one-half (3 1/2) inches of Portland Cement concrete

2. Except as specified by Chapter 19.80 of this title, for all uses in any other area, the required parking areas shall be surfaced with one of the following materials:
   a. Three (3) inches of bituminous road mix
   b. Two (2) inches of asphaltic concrete
   c. Three and one-half (3 1/2) inches of Portland Cement concrete
   d. Three (3) inches of decomposed granite
   e. Three (3) inches of compacted rock dust
   f. Three (3) inches of gravel
3. All required surfacing shall be continuously maintained in good condition, as determined by the Planning Director.
4. Driveways serving single-family residential dwellings are exempt from the paving requirements specified in Subsections 1 and 2 of this section if greater than one hundred (100) feet in length. The required parking area is still subject to the aforementioned paving provisions.
5. In the case of uses subject to discretionary approval, the required parking areas shall be surfaced with the materials specified in accordance with the conditions of approval.

Section 266. Subsection 19.82.090.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. All parking spaces shall be clearly marked. Where paved parking is required, all parking spaces shall be designated by white painted stripes, except for parking spaces serving a single-family residence; and concrete wheel blocks or a six- (6-) inch raised A.C. curb shall be installed at each parking space that abuts a structure or property line, except for parking spaces that serve a single-family residence, or as otherwise required by the Planning Director.

Section 267. Subsection 19.82.090.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Driveways for residential developments shall be a minimum of fourteen (14) feet (includes three- (3-) foot taper on each side) in width with fifteen (15) feet of unobstructed vertical clearance. Driveways for commercial and industrial developments shall be a minimum of eighteen (18) feet (includes three- (3-) foot taper on each side) in width with fifteen (15) feet of unobstructed vertical clearance. These requirements may be reduced by the Planning Director upon recommendation of the Kern County Fire Chief.

Section 268. Subsection 19.82.090.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. For all parking lots containing ten (10) or more spaces, at least five percent (5%) of the total interior area devoted to parking shall be landscaped. Trees shall be planted and maintained throughout the parking area at a minimum ratio of one (1) tree per ten (10) parking spaces. Minimum tree size shall be fifteen (15) gallon container. An irrigation system adequate for the maintenance of the landscaping shall be installed.

Section 269. Subsections B, D, F, G, H, J, and K of Section 19.82.090 remain unchanged.

Section 270. Section 19.82.100 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.100 OFF-STREET PARKING PLOT PLAN REVIEW — REQUIRED

No use shall be established or changed, no development shall occur or be expanded, and no building or grading permit or business license for any use or development shall be issued until an application for plot plan review has been submitted to and approved by the Planning Director.

Section 271. Section 19.82.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.82.110 PLOT PLAN REVIEW — APPLICATION — CONTENTS

The application for a plot plan review shall contain the following:

A. Name and address of the applicant
B. Name(s) and address(es) of the property owner(s)
C. Assessor's parcel number(s)
D. Legal description of the property
E. A plot plan drawn at the scale specified by the Planning Director, including the following:
    1. Topography and proposed grading
    2. Location of existing buildings and structures where such buildings and structures are to remain
    3. Location of proposed buildings and structures
    4. Proposed uses of all buildings or structures
    5. Dimensions of the existing and proposed buildings or structures or other information (e.g., seating capacity) of the proposed buildings allowing the Planning Director to determine parking needs in accordance with the requirements set out in Section 19.82.020 of this chapter
    6. Layout of proposed parking lot, including location of parking spaces, internal circulation pattern, and ingress and egress points
    7. Dimensions of parking stalls and aisles
    8. Location of landscaping and irrigation system, including identification of plant materials to be used
    9. Location of lighting
    10. North arrow

Section 272. Subsection 19.84.020.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. The maximum height of the monument sign shall be eight (8) feet as measured from grade level.

Section 273. Subsections A, C, and D of Section 19.84.020 remain unchanged.

Section 274. Subsection 19.84.050.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. The maximum height for off-site advertising signs shall be twenty-four (24) feet, except as otherwise specified in the applicable base district.

Section 275. Subsections A, B, C, and E of Section 19.84.050 remain unchanged.

Section 276. Subsection 19.84.060.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Temporary real estate signs shall be a minimum of ten (10) feet from any adjacent street and property line.

Section 277. Subsections A, B, D, E, F, and G of Section 19.84.060 remain unchanged.

Section 278. Section 19.84.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.84.070 DESIGN AND DEVELOPMENT STANDARDS — TEMPORARY SUBDIVISION SIGNS

A. Temporary directional subdivision signs shall comply with the following standards:

1. Each sign shall not exceed ten (10) feet in height and shall not exceed one hundred (100) square feet in area.
2. Up to six (6) signs may be permitted for each subdivision on any one (1) road alignment.
3. No sign shall be installed until such time as any of the following occurs: a final subdivision map has been recorded, grading permits for the subdivision have been issued, or a public report for the subdivision has been issued and a copy filed with the Director of the Kern County Planning Department.
4. Each sign shall be located completely outside of any private or public road right-of-way.
5. Each sign shall be located a minimum distance of six hundred (600) feet apart and shall be located no closer than twenty (20) feet from any other sign or structure.
6. Contents of each sign shall be limited to the name of the subdivision, name of contractors, logos, pricing information, telephone number, directional information, and directional arrow.
7. Each sign shall be a pole sign, and no streamers, banners, flags, or electronic display boards shall be permitted.
8. Each sign shall be removed within eighteen (18) months from the date of installation or within fourteen (14) days from the date the subdivision is sold out, whichever occurs first. A maximum of two (2) eighteen (18) month extensions may be authorized by the Director of the Kern County Planning Department.

B. On-site subdivision signs shall comply with the following standards:

1. The signs shall be located at the primary entrance to the subdivision or at the model homes.
2. Each sign shall not exceed ten (10) feet in height and shall not exceed thirty-two (32) square feet in area.

Section 279. Subsection 19.84.080.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Permanent subdivision identification signs may be either attached to an entrance fence or structure or be a monument sign. The sign shall not exceed eight (8) feet in height or forty-eight (48) square feet in size and shall be located in a maintained landscaped area on a parcel within the subdivision at a primary entrance.

Section 280. Subsection 19.84.080.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. The design and materials of the sign shall be approved by the Planning Director.

Section 281. Subsection B of Section 19.84.080 remains unchanged.

Section 282. Subsection 19.84.130.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Each sign shall not exceed one hundred (100) square feet in area.

Section 283. Subsection 19.84.130.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Freestanding signs shall not exceed eight (8) feet in height. Signs attached to buildings shall not extend above the roof line or parapet wall of the building.

Section 284. Subsection 19.84.130.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. Generally recognized and acceptable religious symbols that are freestanding or are attached to or part of a church (or attached to or part of a freestanding sign) may be exempted by the Planning Director from the provisions herein regarding height, area, and number of signs.

Section 285. Subsections A, C, D, and F of Section 19.84.130 remain unchanged.

Section 286. Subsection 19.84.170.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Special signing required for drive-in windows for drive-in restaurants, banks, or similar businesses is permitted, provided the sign copy is necessary for information, instruction, or directions and specifically related to the special use subject to review and approval of the Planning Director who shall use discretion in approval of subject signs related to number, location, height, size, and design.

Section 287. Subsections A, B, C, and E of Section 19.84.170 remain unchanged.

Section 288. Section 19.86.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.86.020 LANDSCAPING STANDARDS — GENERALLY

Landscaping shall be provided in accordance with the minimum standards set out in Sections 19.86.030 through 19.86.060 of this chapter, except as may be modified in connection with the approval of a discretionary development permit. This chapter shall not apply to parcels with a net lot size of less than one-half (1/2) acre (twenty-one thousand, seven hundred and eighty (21,780) square feet), except where otherwise required through approval of a discretionary permit, except as otherwise authorized by the Planning Director, minimum plant and tree sizes are as follows:

Trees	15 gallon
Shrubs	5 gallon
Small shrubs and groundcovers	1 gallon

Section 289. Subsection 19.86.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. A minimum of ten percent (10%) of the total developed lot area shall be landscaped. A maximum of one-half (1/2) of the ten percent (10%) may be turf, excluding common useable open space areas pursuant to Subsection 19.80.020.O, or as otherwise authorized by the Director of the Kern County Planning Department.

Section 290. Subsections B, C, D, and E of Section 19.86.030 remain unchanged.

Section 291. Section 19.86.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.86.070 PLOT PLAN — REQUIRED

Where landscaping is required pursuant to this chapter, the plot plan submitted in conjunction with any building permit application shall show the areas to be landscaped, the type of landscaping proposed and amount, and shall state the proposed

method of irrigation. Where no building permits are required to establish a new use on any parcel for which landscaping is required, a plot plan showing this information shall be submitted to the Planning Director prior to commencement of said use.

Section 292. Section 19.86.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.86.080 PLOT PLAN — REVIEW AND APPROVAL

A. Where a discretionary or ministerial approval is required by this title for the use or uses for which the landscaping is being provided, a conceptual landscape plan showing the general location and type of proposed landscaping materials and hard surface areas shall be submitted in conjunction with the application for the discretionary or ministerial permit.

B. The Planning Director may "approve as submitted," "approve as conditioned," or "disapprove" the landscape plan. "Disapproved" plans will have to be resubmitted after the necessary corrections have been made. "Approved" plans will be distributed to the applicant, Building Inspection Division, and the file. The applicant shall landscape and install irrigation equipment in accordance with the approved plan. Any deviations from the approved plan shall require the approval of the Planning Director.

Section 293. Section 19.86.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.86.090 LANDSCAPING INSTALLATION - TIMING

Where landscaping is required by this chapter, no use shall commence nor occupancy permit issued (building finaled) until:

A. The landscaping and irrigation system has been completely installed; or

B. The property owner has posted an acceptable financial assurance (performance bond, certificate of deposit, or letter of credit) in an amount equal to one hundred and fifty percent (150%) of the estimated cost of installation of the required landscaping and irrigation system, in which case, the property owner shall have up to one (1) year from the date of occupancy or commencement of use to install the required landscaping and irrigation system. The estimated cost of installing the required landscaping and irrigation system shall be submitted in writing for approval by the Director of the Kern County Planning Department prior to the property owner obtaining the required financial assurance.

Section 294. Subsection 19.88.050.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Graded slopes shall be revegetated with a mixture of grass seed or shrubs as recommended by the Planning Director. Planting may be waived by the Planning Director for slopes that, due to the rock character of the material, will not support plant growth.

Section 295. Subsections A, B, C, and D of Section 19.88.050 remain unchanged.

Section 296. Subsection 19.88.070.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. Driveways and access roads serving residential projects of three (3) or more units shall be improved with a minimum of three (3) inches of road mix and shall tie to a paved road (under encroachment permit from the Kern County Transportation Management Department, where applicable). The paving requirement may be waived by the

Planning Director when site access is not obtained from a paved road and when the project is not part of a precise development (PD) plan or cluster (CL) development.

Section 297. Subsections A, B, C, D, E, and G of Section 19.88.070 remain unchanged.

Section 298. Subsection 19.90.050.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. Plot plan drawn at the scale specified by the Planning Director, including the following:
1. Property lines and lot dimensions
2. Location of all existing buildings and structures
3. Location of the proposed secondary residential unit
4. Location of all easements
5. Location of existing and proposed parking areas
6. North arrow

Section 299. Subsections A, B, C, D, E, F, H, and I of Section 19.90.050 remain unchanged.

Section 300. Subsection 19.92.040.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. A site development plan drawn at the scale specified by the Planning Director, which includes the following information:
1. Topography of the lot(s)
2. Proposed street system and parking area
3. Lot design
4. Location of buildings
5. Location of other proposed uses
6. Proposed setbacks
7. Areas to be reserved for parks, schools, or other public or quasi-public facilities
8. Proposed landscaping
9. Water supply and distribution
10. Sewage disposal system
11. Drainage system
12. North arrow

Section 301. Subsections A, B, C, D, and F of Section 19.92.040 remain unchanged.

Section 302. Section 19.92.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.92.060 PRELIMINARY REVIEW

Prior to submitting a formal application for a density bonus permit pursuant to this chapter or prior to submitting a formal application for a tentative map for conversion of apartments to a condominium project, an applicant shall submit to the Planning Director a preliminary proposal in writing for the residential project or condominium project. The Planning Director shall, within ninety (90) days of receipt of a written proposal, notify the applicant in writing of the procedures the applicant must follow to secure a density bonus provided for in this chapter.

Section 303. Subsection 19.94.040.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Not more than twenty-five percent (25%) of the gross area of one (1) floor of a residence, or equivalent area in an enclosed detached accessory building, shall be used for such purpose.

Section 304. Subsections A, C, D, E, F, G, H, I, and J of Section 19.94.040 remain unchanged.

Section 305. Section 19.94.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.94.050 HOME OCCUPATION PERMIT — REQUIRED

No home occupation shall be established until an application for a home occupation permit has been submitted to and approved by the Planning Director as consistent with the requirements of this chapter in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

Section 306. Section 19.96.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.96.030 PERMIT REQUIRED

No large family day-care home shall be established until an application for a large family day-care home permit has been submitted to and approved by the Planning Director in accordance with the procedures set out in Section 19.96.050.

Section 307. Subsection 19.96.040.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Plot plan drawn at the scale specified by the Planning Director, which includes the following information:
   1. Existing and proposed buildings and structures
   2. Distance of all existing and proposed buildings and structures from property lines
   3. Outside play areas, including screening
   4. Off-street loading space
   5. North arrow

Section 308. Subsections A, B, C, D, F, G, and H of Section 19.96.040 remain unchanged.

Section 309. Section 19.96.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.96.050 PERMIT APPLICATION — REVIEW AND APPROVAL

A large family day-care home permit application shall be approved according to the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

A. The applicant or other affected person may appeal the decision of the Planning Director according to the procedures set out in Section 19.102.060 of this title.

Section 310. Subsection 19.98.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation-Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Planning Director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Planning Director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

Section 311. Subsection B of Section 19.98.030 remains unchanged.

Section 312. Subsection 19.98.050.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. All derricks, boilers, and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Planning Director, for the drilling of another well or wells on the premises.

Section 313. Subsection 19.98.050.G of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Planning Director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

Section 314. Subsection 19.98.050.H of the Ordinance Code of the County of Kern is hereby amended to read as follows:

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Planning Director may approve the use of a standard type of derrick.

Section 315. Subsection 19.98.050.N of the Ordinance Code of the County of Kern is hereby amended to read as follows:

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Planning Director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

Section 316. Subsections A, B, C, D, E, I, J, K, L, M, and O of Section 19.98.050 remain unchanged.

Section 317. Subsection 19.98.060.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Planning Director, which includes the following information:
   1. Topography and proposed grading
   2. Location of all proposed well holes and related accessory equipment, structures, and facilities to

be installed and any abandoned wells if such are known to exist

3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings
4. North arrow

Section 318. Subsections A, B, C, D, and F of Section 19.98.060.E remain unchanged.

Section 319. Subsection 19.100.030.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. Site development plan drawn at a scale specified by the Planning Director, which includes the following information:
   1. Property boundary lines and dimensions
   2. Areas proposed for development
   3. Location of proposed buildings and structures
   4. Parking and vehicle maneuvering areas
   5. Method of vehicular access
   6. Location of any existing or proposed roads, water lines or other pipelines, easements proposed or existing, and any existing buildings, structures, or major areas of use for the property being considered
   7. Height, type, and location of fencing
   8. Such additional information as may be deemed necessary to permit adequate consideration of the proposal

Section 320. Subsection 19.100.030.L of the Ordinance Code of the County of Kern is hereby amended to read as follows:

L. Reclamation plan including the following information:
   1. The anticipated quantity and type of minerals for which the surface mining operation is to be conducted
   2. The proposed dates for the initiation and termination of such operation
   3. The maximum anticipated depth of the surface mining operation
   4. The size and legal description of the lands that will be affected by such operation, a map that includes the boundaries and topographic details of such lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, such lands, the location of all proposed access roads to be constructed in conducting such operation, and the names and addresses of the owners of all surface and mineral interests of such lands
   5. A description of and plan for the type of surface mining to be employed and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation
   6. A description of the proposed use or potential uses of the land after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses
   7. A description of the environmental setting of the site and the effect that possible alternate re-

claimed site conditions may have upon the existing and future uses of surrounding lands.

8. A description of how site reclamation may impact the public health and safety, giving consideration to the degree and type of present and probable future exposure of the public to the site.
9. A description of any areas to be mined to produce additional materials for backfilling and grading, as well as settlement of filled areas.
10. A description of the manner in which reclamation adequate for the proposed use or potential uses will be accomplished, including:
    a. A description of the manner in which contaminants will be controlled and mining waste will be disposed
    b. A description of the manner in which rehabilitation of affected stream bed channels and stream banks to a condition minimizing erosion and sedimentation will occur
    c. A description of existing wildlife habitat and a plan to ensure that habitat conditions which exist are maintained or improved in the course of reclamation, unless the proposed end use precludes its use as wildlife habitat
    d. A description of the manner in which backfilling, regrading, slope stabilization, scarification, ripping, and recontouring will occur
    e. A description of the manner in which topsoil will be salvaged and the manner in which the site will be revegetated
    f. A description of any existing topographical features that will be significantly altered as a result of mining activity
    g. A description of the manner in which existing site drainage patterns will be disturbed through mining activity and a description of drainage patterns that are expected after site reclamation
    h. A description of the manner in which all buildings, structures, and equipment will be removed, including any previously abandoned structures or equipment
    i. A description of the necessity for and the manner in which post reclamation monitoring will occur
11. A detailed line item cost breakdown estimating all reclamation costs, including, but not limited to:
    a. Costs of backfilling, regrading, slope stabilization, and recontouring
    b. Costs of revegetation and wildlife habitat replacement
    c. Costs of final engineering design
    d. Costs of labor, including supervision
    e. Costs of mobilization
    f. Costs of equipment
    g. Costs of removal of buildings, structures, and equipment
    h. Costs associated with reduction of specific hazards, such as: heap leaching facilities, chemical processing ponds, soil decontamination, in-water slopes, highwalls, landslides, subsidence, or other mass ground failure
    i. Costs of drainage and erosion control measures
    j. Costs of soil tests
    k. Costs of haul road ripping and reseeding
    l. Costs of fencing
    m. Costs of liability insurance
    n. Costs of long-term stabilization, control, containment of waste solids and liquids

12. A letter from the Kern County Public Works Department stating that the estimated costs of reclamation have been reviewed and found to be sufficient by that department
13. An assessment of the effect of implementation of the reclamation plan on future mining in the area
14. A statement that the person submitting the plan accepts the responsibility for reclaiming the mined lands in accordance with the reclamation plan
15. Any other information determined by the Planning Director or the State Mining and Geology Board to be necessary for consideration of the reclamation plan

Section 321. Subsections A, B, C, D, E, F, G, H, J, and K of Section 19.100.030 remain unchanged.

Section 322. Subsection 19.100.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Surface mining operations shall comply with the requirements of the California Surface Mining and Reclamation Act, the State Policy for Surface Mining and Reclamation Practice, and any standards or procedures adopted by the Board of Supervisors to implement the act, state policy, or this chapter. In all cases, the following minimum development standards shall be observed:
1. The designed steepness and proposed treatment of the mined lands' final slope shall take into consideration the physical properties of the slope material, its probable maximum water content, landscaping requirements, and other factors. In all cases, the reclamation plan shall specify the critical gradient needed to maintain slope stability and shall specify slope angles flatter than the critical gradient for the type of material involved. Whenever final slopes approach the critical gradient for the type of material involved, an engineering analysis of the slope stability shall be performed and submitted as part of the reclamation plan.
2. Where ultimate site uses include roads, building sites, or other improvements sensitive to settlement, the reclamation plan shall provide for the compaction of fill materials in conformance with good engineering practice.
3. The removal of vegetation and overburden, if any, in advance of surface mining shall be kept to the minimum.
4. Stockpiles of overburden and minerals shall be managed to minimize water and wind erosion.
5. Settling ponds or basins shall be constructed to prevent potential sedimentation of streams at operations where they will provide a significant benefit to water quality.
6. Operations shall be conducted to substantially prevent siltation of groundwater recharge areas.
7. All reasonable measures shall be taken to protect the habitat of fish and wildlife.
8. Permanent piles or dumps of mine waste rock and overburden shall be stable and shall not restrict the natural drainage without suitable provisions for diversion.
9. Grading and revegetation shall be designed to minimize erosion and to convey surface runoff to natural drainage courses or interior basins designed for water storage. Basins that will store water during periods of surface runoff shall be designed to prevent erosion of spillways when these basins have outlet to lower ground.

10. When the reclamation plan calls for resoiling, course hard mine waste shall be leveled and covered with a layer of finer material or weathered waste. A soil layer shall then be placed on this prepared surface. Surface mines that did not salvage soil during their initial operations shall attempt, where feasible, to upgrade remaining materials. The use of soil conditioners, mulches, or imported topsoil shall be considered where revegetation is part of the reclamation plan or where such measures appear necessary as determined by the Planning Director or the Soil Conservation Service. It shall not be permissible to denude adjacent areas of their soil to achieve this purpose.
11. Revegetation methods and the selection of species shall be suitable for the topographical, resoiling characteristics, and climate of the mined areas and shall be reviewed and approved by the Soil Conservation Service.

Section 323. Subsections A and C of Section 19.100.040 remain unchanged.

Section 324. Section 19.100.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.050 MINOR PLAN MODIFICATIONS

The Planning Director may review and approve minor plan modifications to approved reclamation plans in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. Where the Planning Director determines that a proposed amendment constitutes a substantial deviation from the original plan, the proposed amendment shall be considered by the Board of Zoning Adjustment.

Section 325. Subsection 19.100.060.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. The Building Official shall make a report, not less often than quarterly, of the results of his inspections. The report shall be filed with the Board of Supervisors, and copies shall be furnished to the Planning Director. Copies of the report shall also be furnished to any officer of the County or State, or any interested person who has filed a written request.

Section 326. Subsections A and B of Section 19.100.060 remain unchanged.

Section 327. Section 19.100.065 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.065 IDLE MINES - INTERIM MANAGEMENT PLANS

A. Within ninety (90) days of a surface mining operation becoming idle, as defined in Section 2727.1 of the Surface Mining and Reclamation Act, the operator shall submit an interim management plan for review and approval by the Planning Director. The interim management plan shall be developed in accordance with all requirements of the Surface Mining and Reclamation Act and the State Mining and Geology Board.

Section 328. Subsection 19.100.110.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. The Board of Zoning Adjustment shall determine whether the posting of security is necessary to guarantee reclamation in accordance with any approved reclamation plan or amended reclamation plan, and, if so, shall fix the amount thereof, subject to the limitations provided in this section. In making any such determination, the

Board of Zoning Adjustment shall consider the recommendations of the Director of Engineering and Survey Services and the Planning Director.

Section 329. Subsections A, B, D, E, F, G, H, and I of Section 19.100.110 remain unchanged.

Section 330. Section 19.102.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.040 GENERAL REQUIREMENTS — PERMIT TYPES

The ministerial permits specified in this title for review pursuant to this article shall be issued by the Planning Director upon submission of an application containing the information specified in applicable sections of this title and a determination by the Planning Director that the proposed use or development meets the development standards and conditions specified in the applicable section or sections of this title. These permits include:

A. Temporary animal permits plot plan review (Sections 19.14.130 and 19.60.130 through 19.60.160)
B. Extensions for temporary mobilehomes and recreational vehicles (Sections 19.16.130 and 19.18.130)
C. Mobilehome park plot plan review (Sections 19.26.130 through 19.26.190)
D. Minor plan modifications (Sections 19.52.130 through 19.52.180, 19.56.130 through 19.56.200, 19.58.130 through 19.58.180, and 19.100.050)
E. Temporary use permits (Sections 19.56.130 through 19.56.200)
F. Wind generator plot plan review (Sections 19.64.130 through 19.64.150)
G. Geologic hazard plot plan review (Sections 19.68.130 through 19.68.150)
H. Architectural design plot plan review (Sections 19.74.130 through 19.74.160)
I. Airport approach height approval (Sections 19.76.130 and 19.76.140)
J. Special development standards plot plan review (Sections 19.80.040 through 19.80.070)
K. Off-street parking plot plan review not in conjunction with a ministerial permit (Sections 19.82.100 through 19.82.130)
L. Landscaping plot plan review not in conjunction with a ministerial permit (Sections 19.86.070 through 19.86.100)
M. Hillside development plot plan review (Sections 19.88.080 through 19.88.110)
N. Density bonus permit (Sections 19.92.030 through 19.92.060)
O. Home occupation permit (Sections 19.94.050 through 19.94.080)
P. Production water injection wells for the purpose of disposing of production wastewater produced in the same oilfield in which the injection well is located (Section 19.98.030)
Q. Oil and gas plot plan review (Section 19.98.030)
R. Large family day-care permit (Sections 19.96.030 through 19.96.060)
S. Temporary batch plant (thirty (30) days or less) plot plan review (Section 19.08.290)

Section 331. Section 19.102.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.050 APPLICATION — APPROVAL OR DENIAL

A. An applicant for a ministerial permit pursuant to this article shall submit an application to the Planning Director in the format and number of copies specified by the Planning Director. The application shall contain all the information specified for the application by the applicable section of this title, unless the Planning

Director waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

B. The Planning Director shall inform the applicant either verbally or in writing within seven (7) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

C. Within seven (7) calendar days of determining the application is complete, the Planning Director shall issue the permit if he/she determines that the proposed use or development standards meets the development standards and conditions specified in the applicable section or sections of this title or deny the permit if he/she determines that the proposed use or development does not meet the standards and conditions specified in the applicable section or sections of this title.

Section 332. Section 19.102.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.060 PERMIT DENIAL — APPEAL

If the Planning Director denies a permit pursuant to this article, the applicant may appeal such action to the Board of Zoning Adjustment.

A. The applicant may file with the Planning Director a notice of appeal to the action of the Planning Director indicating the basis of appeal within seven (7) calendar days of such action. The appeal shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

B. The Board of Zoning Adjustment shall consider the appeal within thirty (30) days of the filing of such appeal. No public hearing or notice shall be required.

C. The Board of Zoning Adjustment may reverse or affirm the action of the Planning Director. The action of the Board shall constitute a ministerial action and shall be based solely on whether or not the proposed use or development meets the development standards and conditions specified in or established pursuant to the applicable section or sections of this title.

D. The decision of the Board of Zoning Adjustment pursuant to Subsection C of this section may be appealed to the Board of Supervisors pursuant to Subsection A of Section 19.102.170 of this chapter.

Section 333. Section 19.102.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.070 GENERAL REQUIREMENTS — PERMIT TYPES

The discretionary permits specified in this title for review pursuant to this article may be issued by the Planning Director following submission of an application containing the information specified in the applicable section of this title and a properly noticed public hearing. These permits include:

A. Precise development plan review (Sections 19.56.130 through 19.56.200)

B. Cluster combining site development plan review (Sections 19.58.130 through 19.58.180)

C. Conditional use permits and variances when filed in conjunction with an application for a discretionary permit to be heard by the Planning Director (Chapters 19.106 and 19.108)

D. Zone modifications (Chapter 19.110)

E. Extensions of time

F. Variances (Chapter 19.106)

Section 334. Section 19.102.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.080 APPLICATION

A. An applicant for a discretionary permit pursuant to this article shall submit an application to the Planning Director in the format and number of copies specified by the Planning Director. The application shall contain all the information specified for the application by the applicable section of this title, unless the Planning Director waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

B. The Planning Director shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

C. Upon acceptance of the application as complete and completion of an environmental document, if required, a public hearing shall be set in accordance with this chapter.

Section 335. Subsection 19.102.090.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. When an application has been accepted as complete in accordance with this chapter, the Planning Director shall set the application for a public hearing.

Section 336. Subsection 19.102.090.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Public Hearing. A public hearing shall be held before the Planning Director at a time and place in accordance with the public notice. The Planning Director may establish his/her own rules for the conduct of such hearings. Evidence shall be offered or presented, and the name and address of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the Planning Director or his/her designee shall announce the time and place to which the hearing will be continued. If it is determined to be in the public interest, the Planning Director may schedule a public hearing for any permit type specified in Section 19.102.070 directly before the Board of Supervisors, in which case a decision shall be rendered in accordance with Section 19.102.220.

Section 337. Subsection B of Section 19.102.090 remains unchanged.

Section 338. Section 19.102.100 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.100 DECISION

A. The Planning Director may approve, conditionally approve, or deny any application following the close of the public hearing on the matter. Such decision shall include findings in accordance with the provisions of this title. The decision shall be final, subject to appeal in accordance with Section 19.102.110 of this chapter.

B. Written notice of such decision shall be given by mail within seven (7) calendar days after the date of the decision to the applicant and any person filing a written request for notice of the decision.

C. The decision of the Planning Director shall be final on expiration of fourteen (14) calendar days from and including the date of decision, unless a notice of appeal is filed with the Planning Director within such time.

D. All conditions of approval shall be final, and a request to delete or to modify a condition to make it less restrictive shall only be considered at a properly

noticed public hearing, unless such conditions are appealed pursuant to Section 19.102.110 of this chapter.

Section 339. Section 19.102.110 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.110 APPEAL

A. Any decision of the Planning Director made pursuant to this article shall be subject to appeal to the Board of Supervisors.

B. The applicant or any other person aggrieved may appeal from such decision by filing a written notice of appeal with the Planning Director prior to the time the decision becomes final. The Planning Director shall furnish forms of notice of appeal. The appeal shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

C. Notice of the hearing on the appeal shall be given in the manner and time provided in Section 19.102.210 of this chapter.

D. The Board of Supervisors may reverse, affirm wholly or partly, modify, or attach other or additional conditions to the decision appealed from.

E. The decision of the Board of Supervisors on any such appeal shall be final on adoption of an order or resolution containing its determination, and no notice thereof need be given.

Section 340. Section 19.102.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.130 GENERAL REQUIREMENTS — PERMIT TYPES

The permits specified in this article may be issued by the Board of Zoning Adjustment following submission of an application containing the information specified in the applicable section of this title and a properly noticed public hearing. These permits include:

A. Conditional use permits (Chapter 19.104)

B. Zone modifications when filed in conjunction with an application for a permit to be heard by the Board of Zoning Adjustment (Chapter 19.110)

C. Surface mining permits and reclamation plans (Chapter 19.100)

D. Secondary residential unit (Chapters 19.90 and 19.104)

E. Density bonus permit, when filed in conjunction with an application for a permit to be heard by the Board of Zoning Adjustment (Sections 19.92.030 through 19.92.060)

Section 341. Section 19.102.140 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.140 APPLICATION

A. An applicant for a discretionary permit pursuant to this article shall submit an application to the Planning Director in the format and number of copies specified by the Planning Director. The application shall contain all the information specified for the application by the applicable section of this title, unless the Planning Director waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

B. The Planning Director shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

C. Upon acceptance of the application as complete and completion of an environmental document, if required, a public hearing shall be set in accordance with this chapter.

D. The Board of Zoning Adjustment may waive public hearings on an application for conditional use permits and associated zone variances for public utility or public service uses or public buildings and facilities, when found to be necessary for reasons that affect the public health, safety, or welfare.

Section 342. Subsection 19.102.150.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. When an application has been submitted in accordance with this chapter, the Planning Director shall set the application for a public hearing.

Section 343. Subsection 19.102.150.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Public Hearing. A public hearing shall be held before the Board of Zoning Adjustment at a time and place in accordance with the public notice. The Board of Zoning Adjustment may establish its own rules for the conduct of such hearings. Evidence shall be offered or presented, and the name and address of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the presiding officer shall announce the time and place to which the hearing will be continued. If it is determined to be in the public interest, the Planning Director may schedule a public hearing for any permit type specified in Section 19.102.130 directly before the Board of Supervisors, in which case a decision shall be rendered in accordance with Section 19.102.220.

Section 344. Subsection B of Section 19.102.150 remains unchanged.

Section 345. Subsection 19.102.160.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. The decision of the Board of Zoning Adjustment shall be final on expiration of fourteen (14) calendar days from and including the date of the decision, as required by Subsection (C) of this section, unless a notice of appeal is filed with the Planning Director within such time.

Section 346. Subsections A, B, and D of Section 19.102.160 remain unchanged.

Section 347. Subsection 19.102.170.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. The applicant or any other person aggrieved may appeal from such decision by filing a written notice of appeal with the Planning Director prior to the time the decision becomes final. The Planning Director shall furnish forms of notice of appeal. The appeal shall be accompanied with the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

Section 348. Subsections A, C, D, and E of Section 19.102.170 remain unchanged.

Section 349. Subsection 19.102.190.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Appeals of discretionary decisions by the Planning Director (Subsection (A) of Section 19.102.110)

Section 350. Subsections A, B, C, D, F, G, H, I and J of Section 19.102.190 remain unchanged.

Section 351. Section 19.102.200 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.200 APPLICATION

A. An applicant for a discretionary permit pursuant to this article shall submit an application to the Planning Director in the format and number of copies specified by the Planning Director. The application shall contain all the information specified for the application by the applicable section of this title, unless the Planning Director waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

B. The Planning Director shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

C. Upon acceptance of the application as complete and completion of an environmental document, if required, a public hearing shall be set in accordance with Section 19.102.210 of this chapter.

Section 352. Section 19.102.210 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.210 NOTICE AND HEARING

A. When an application has been submitted in accordance with Section 19.102.200 of this chapter, the Planning Director shall set the application for a public hearing.

B. At least ten (10) days before the date of any public hearing, the date, time, place of the hearing, identity of the hearing body, and the nature and location of the application shall be given by the following methods:

1. Publishing such notice once in a newspaper of general circulation.

2. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment roll of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth (1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice.

3. In lieu of the requirements set forth in Subparagraph (1) of this subsection, notice may also be given by posting notices not more than three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property.

4. The notification for appeals of discretionary decisions by the Planning Director shall be the same as required for that particular permit application as specified in Section 19.102.090

5. Notification requirements for items listed in Section 19.102.190 (J) shall be as required by the California Land Conservation Act of 1965.

C. Public Hearing. A public hearing shall be held before the Board of Supervisors at a time and place in accor-

dance with the public notice. The Board of Supervisors may establish rules for the conduct of such hearings. Evidence shall be offered or presented, and the name and address of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the presiding officer shall announce the time and place to which the hearing will be continued.

Section 353. Section 19.103.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.103.020 MINIMUM DEVELOPMENT SIZE

A development agreement may be authorized for any development containing a minimum of five (5) gross acres. The Planning Director may grant a waiver to the project size eligible for a development agreement if the Director determines that the consideration of the development agreement, in the particular case, is in the best interest of the County.

Section 354. Subsection 19.103.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. The Planning Director shall prescribe the form for each application, notice, and document provided for or required by these regulations for the preparation and implementation of development agreements.

Section 355. Subsections B, C, D, E, F, G, H, I, J, K, and L of Section 19.103.030 remain unchanged.

Section 356. Section 19.103.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.103.040 APPLICANT QUALIFICATIONS

Only a qualified applicant or his authorized agent may file an application pursuant to this chapter. A qualified applicant is a person who (which) has a legal or an equitable interest in the real property which is the subject of the development agreement. Such interest must be such that the applicant has or will have control of the use of the property during the proposed term of the agreement. The Planning Director may require an applicant to submit proof of his (its) interest in the real property and of the authority of the agent, if any, designated to act for the applicant. The Director may require an applicant or agent to submit a title report from a reputable title insurance company or other evidence to verify the legal or equitable interest of the applicant in the property. In the case of multiple ownerships, all owners with a legal or equitable interest in the real property shall be a party to the development agreement. In addition to the County and the applicant, any federal, State, or local governmental agency, or any nonprofit agency, may be included as a party to any development agreement.

Section 357. Section 19.103.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.103.050 REVIEW OF APPLICATION

A. The Planning Director shall review each application to determine whether it is complete and accurate. If the application is found to be incomplete or inaccurate, the Director shall reject the application and inform the applicant of the items necessary to properly complete the application. The Director shall reject any application where the development agreement would be inconsistent with the General Plan, any applicable Specific Plan, zoning, or any other land use regulations applicable to the subject property. If the application for a development agreement is submitted in conjunction with an application for other land use approvals, the proposed

development agreement shall be reviewed for consistency with the existing and, separately, the proposed land use approvals.

B. If the Planning Director determines that the application is complete and accurate, copies of the application shall be forwarded to each appropriate County department, applicable outside agency, and any agency or individual who requests, in writing, a copy of the application. The Director shall specify a time period for department, agency, and individual responses to the application to be submitted to the Director. Following review of said responses and after consultation where appropriate, the Director shall prepare a staff report and recommendation to the Board of Supervisors.

Section 358. Section 19.103.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.103.090 ANNUAL REVIEW

A. The Planning Director shall review the development agreement annually to ascertain the good faith compliance by the property owner with its terms.

B. The developer shall initiate the required annual review by submitting a written request at least sixty (60) days prior to the review date specified in the agreement. The property owner shall also provide evidence as determined necessary by the Planning Director to demonstrate good faith compliance with the provisions of the development agreement. The burden of proof by substantial evidence of compliance is upon the property owner.

C. If the Planning Director finds and determines on the basis of substantial evidence that the property owner has complied in good faith with the terms and conditions of the agreement during the period under review, the review for that period is concluded.

D. If the Planning Director finds and determines on the basis of substantial evidence that the property owner has not complied in good faith with the terms and conditions of the agreement during the period under review, the Director may recommend that the Board of Supervisors modify or terminate the agreement. The written decision of the Director recommending modification or termination of the agreement shall be delivered to the property owner not later than ten (10) days after the final action of the Director. The Director shall then set the matter for public hearing before the Board of Supervisors in the manner set forth in Section 19.103.060.

E. If as a result of an annual review it finds and determines, on the basis of substantial evidence, that the owner or successor in interest has not complied in good faith with the terms and conditions of the agreement, the Board of Supervisors may terminate or modify the agreement. The decision of the Board of Supervisors is final.

Section 359. Subsection 19.104.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. A site development plan drawn at the scale specified by the Planning Director, which includes the following information:
   1. Location of all existing buildings, structures, and improvements on the property
   2. Location of all proposed buildings, structures, and improvements on the property
   3. Existing and proposed streets and highways bordering and within the boundaries of the property
   4. Location of existing and proposed parking areas
   5. Proposed landscaping
   6. North arrow

Section 360. Subsections A, B, C, D, F, G, and H of Section 19.104.020 remain unchanged.

Section 361. Subsection 19.106.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Site development plan drawn at a scale specified by the Planning Director, which includes:
   1. Location of all existing buildings, structures, and improvements on the property
   2. Location of all proposed buildings, structures, and improvements on the property
   3. North arrow

Section 362. Subsections A, B, C, D, F, G, and H of Section 19.106.020 remain unchanged.

Section 363. Section 19.108.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.108.080 DETERMINATION OF NONCONFORMING STATUS

Where there is doubt regarding the legal nonconforming status of structures, uses of structures, uses of land, parcel size, or signs, documentation shall be submitted to the Planning Director to establish legal nonconforming status. The burden of proof in submitting adequate documentation for determination of legal nonconforming status shall rest entirely on the party making said request. The Planning Director shall grant legal nonconforming status only when the preponderance of information submitted clearly establishes the legality of the applicable use, structure, or parcel size. The determination of the Planning Director shall be final and no administrative appeal is provided for under this title.

Section 364. Subsection 19.110.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Site development plan drawn at the scale specified by the Planning Director, which includes the following information:
   1. Location of all existing buildings, structures, and improvements
   2. Location of all proposed buildings, structures, and improvements
   3. North arrow

Section 365. Subsections A, B, C, D, F, G, and H of Section 19.110.020 remain unchanged.

Section 366. Section 19.112.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.112.030 INITIATION BY AN INTERESTED PERSON

A property owner, his/her authorized representative, or any other interested person may initiate an amendment to the Official Zoning Maps to reclassify property from one (1) district to another by submitting an application to the Planning Director.

A. An application for a reclassification of property shall include:
   1. The name and address of the applicant
   2. The name(s) and address(es) of the property owner(s)
   3. Assessor's parcel number(s)
   4. Legal description of the property
   5. A map of the property
   6. Identification of the zoning district reclassification being sought
   7. Signatures or letter of consent from all property owners of record
   8. If the property is designated as a flood hazard area according to the Flood Insurance Rate Maps

(FIRM), the application shall include a request for the applicable flood hazard zoning, including legal descriptions for same, as required by the Planning Director.

B. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.108.020 of this title.

C. The Planning Director shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

Section 367. Section 19.114.065 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.065 NOTICE OF ZONING VIOLATION

Whenever the Director of the Engineering and Survey Services Department or his designee has knowledge of a violation of Title 19 of this code, he may cause a notice of intent to record a notice of violation to be mailed by certified mail to the then current owner of record of the property. The notice shall state that within thirty (30) days of the date of the notice, the owner may request a meeting with the Planning Director or his designee to present evidence that a violation does not exist. The notice shall further describe the property and violation in detail.

Following the sending of the notice of intent to record a notice of violation and prior to recording the notice, if it is determined that no violation exists, the Director of the Engineering and Survey Services Department or his designee shall mail a clearance letter by certified mail to the then owner(s) of record.

In the event that a meeting is not requested and the violation has not been corrected, or in the event that after consideration of evidence, it is determined by the Planning Director, or the Board of Supervisors upon appeal pursuant to the procedure specified by Section 19.102.110, that a Zoning Ordinance violation in fact exists, the Director of the Engineering and Survey Services Department may record, without fee, a notice of violation in the Office of the County Recorder.

Upon request, the Director of the Engineering and Survey Services Department or his designee shall issue the affected property owner a notice of expungement of violation upon correction of all violation(s) noticed hereunder.

Section 368. Section 19.114.100 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.100 RECOVERY OF COSTS

This section establishes procedures for the recovery of administrative costs incurred by the County in the enforcement process, for the abatement of conditions defined as a violation by Section 19.04.879 in cases where no permit is required pursuant to the provisions of this title to abate such violation. These procedures are used where a violation is abated in advance of initiation of the procedures specified by this chapter.

A. **Definition of Costs.** For the purpose of this chapter, costs shall mean administrative costs, including staff time expended and reasonably related to violation abatement cases where no permit is required, for items including, but not limited to, investigation, site inspection and monitoring, reports, telephone contacts, correspondence, photography labs, consultants, and meetings with affected parties.

B. **Cost Accounting and Recovery Required.** The enforcement personnel shall maintain records of all administrative costs incurred by responsible County departments associated with the enforcement process pursuant to this chapter and shall recover the costs from the property owner as provided by this section. Staff time shall be calculated at an hourly rate as established and revised from time to time by the Planning Director.

C. **Notice of Cost Recovery Requirements.** The enforcement personnel shall include in the notice of violation a statement of the intent of the County to charge the property owner for all administrative costs associated with enforcement, and of the owner's right to a hearing if he or she objects to such charges. The notice shall state that the property owner will receive, at the conclusion of the enforcement case, a summary of administrative costs associated with the processing of the enforcement case at the hourly rate in effect at the time the case is initiated. The notice shall state that the property owner will have the right to object to the charges by filing a request for hearing with the Planning Director within fourteen (14) days of service of the summary of charges, pursuant to Subsection D of this section.

D. **Summary of Costs.** At the conclusion of the enforcement case, the enforcement personnel shall send a summary of costs associated with enforcement to the property owner by certified mail. The summary shall include a notice which states that if the owner objects to the charges, a request for hearing must be filed as provided by Subsection E of this section, and that if no such hearing is requested, the owner's right to object will be waived, and he or she will be fully liable for the charges, to be recovered in a civil action in the name of the County, in any court of competent jurisdiction within the County.

E. **Hearing on Objection to Charges.** Any property owner who receives a summary of costs pursuant to Subsection D of this section shall have the right to a hearing before the Planning Director on his or her objections to the proposed costs, as follows:

1. **Request for Hearing.** A request for hearing shall be filed with the Planning Department within fourteen (14) days of the service by mail of the summary of costs, in the form of a letter setting forth the nature of the property owner's objections to the costs.
2. **Scheduling of Hearing.** Within thirty (30) days of the filing of the request for hearing, and on fourteen (14) days written notice to the owner, the Planning Director shall hold a hearing on the owner's objections and determine the validity thereof.
3. **Decision by the Planning Director.** In determining the validity of the costs, the Planning Director shall consider whether total costs are reasonable in the circumstances of the case. Factors to be considered include, but are not limited to, whether the present owner created the violation; whether there is a present ability to correct the violation; whether the owner moved promptly to correct the violation; the degree of cooperation provided by the owner; whether reasonable minds can differ as to whether a violation exists.
4. **Appeal.** The decision of the Planning Director may be appealed to the Board of Supervisors.

F. **Collection of Charges.** In the event that no request for hearing is filed pursuant to Subsection E of this section or after a hearing, the Planning Director affirms the validity of the costs, the property owner shall be liable to the County in the amount stated in the summary or any lesser amount as determined by the Director of the

Engineering and Survey Services Department. The County shall be reimbursed for all of said costs within thirty (30) days from the date of decision pursuant to Subsection E or, if no appeal is filed, within thirty (30) days from the mailing of the summary of costs pursuant to Subsection D. Payment may be received at the Planning Director. Delinquent fees shall be subject to a penalty of twenty-five percent (25%) of the total summary of costs. If payment is not received, such costs shall be recoverable in a civil action in the name of the County in any court of competent jurisdiction within the country.

SUMMARY OF ENACTED ORDINANCE G-6077

AMENDED ZONING ORDINANCE TEXT

NOTICE IS HEREBY GIVEN:

On the 11th day of April, 1994, at the hour of 2:00 p.m., in the Chambers of the Board of Supervisors, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California, the Board of Supervisors of the County of Kern conducted a public hearing and adopted an ordinance revising the Kern County Zoning Ordinance text, including various minor changes throughout the ordinance. Zoning Ordinance text amendments include, but are not limited to, the addition of use categories to various zone district classifications, the addition and modification of pertinent definitions, changing the name of the department to the Kern County Planning Department, simplification of various procedures and other changes recommended by the Kern County Department of Planning and Development Services.

Pursuant to section 15061(b)(3) and section 15305 of the State CEQA Guidelines, the granting of the subject zone district changes is exempt from the requirements of the California Environmental Quality Act because it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, and the activity is categorically exempt.

The effective date of the ordinance adopted is:

Ayes: Ashburn, Austin, Larwood, Peterson

Noes: None

Absent: Shell

Dated: April 11 , 1994.

BOARD OF SUPERVISORS KERN COUNTY, CAL.

SUE DAVIS
Clerk of the Board of Supervisors

By Kaaren Shatswell, DEPUTY

BD:wl/HDm2
not&sum.pd4
94.2750

CORRECTED

ORDINANCE NO. G-6551

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN, STATE OF CALIFORNIA REPEALING CHAPTER 2.30 AND ADDING A NEW CHAPTER 2.30 AND REPEALING, ADDING, AND AMENDING VARIOUS SECTIONS OF TITLE 19 OF THE KERN COUNTY CODE (THE KERN COUNTY ZONING ORDINANCE)

The following ordinance, consisting of one hundred thirty-one (131) sections, was duly and regularly passed and adopted by the Board of Supervisors of the County of Kern, State of California, at a regular meeting of the Board of Supervisors held on the 23rd day of November, 1998, by the following vote, to wit:

AYES: McQuiston, Perez, Patrick, Peterson, Parra

NOES: None

ABSENT: None

Chairman of the Board of Supervisors of the County of Kern, State of California

(SEAL)

ATTEST:

DENISE PENNELL
Clerk of the Board of Supervisors

By _____, Deputy Clerk

THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN ORDAINS AS FOLLOWS:

Section 1. This ordinance shall take effect and be in full force on and after the 1st day of January, 1999, ~~1998,~~ and shall be published once in Bakersfield Californian, a newspaper of general circulation, published in the County of Kern, State of California, together with the names of the members of the Board of Supervisors voting for and against the same.

Book No. _____

CORRECTED Ord. No. G-6551

Section 2. Chapter 2.30 of the Kern County Code is hereby repealed, and a new Chapter 2.30 is hereby adopted, to read as follows:

Chapter 2.30
Planning Commission

Sections:

2.30.010 Members
2.30.020 Organization
2.30.030 Personnel
2.30.040 Compensation
2.30.050 Reimbursement of Travel Expenses

2.30.010 Members.

There is a Planning commission in the county. The Planning Commission shall consist of five (5) members, who shall be appointed by the Board of Supervisors and serve for a two year term, except that the first appointment nominated by the supervisors from the Second and the Third Supervisorial Districts shall each serve for a one year term, and thereafter nominees from those Districts shall serve for two year terms.

2.30.020 Organization.

Immediately upon the appointment of the members of the Planning Commission, or within a reasonable time thereafter, the members shall hold an organizational meeting in order to elect a chairman. The members of the Planning Commission shall also adopt such rules and regulations at they deem necessary and proper to conduct the business of the Planning Commission.

2.30.030 Personnel.

The director of the Planning Department shall furnish the Planning Commission with such clerical, administrative and other personnel deemed necessary in order to perform the duties of the Planning Commission. The Planning Director or his designated representative shall attend the meeting of the Planning Commission in the capacity of administrative advisor and executive secretary of the Commission.

2.30.040 Compensation.

Each member of the Planning Commission and the county counsel, or his designated deputy, shall receive compensation in the amount of sixty-five dollars ($65.00) for each meeting attended.

2.30.050 Reimbursement of Travel Expenses.

Members of the Planning Commission shall be reimbursed for expenses actually and necessarily incurred in travel to and from the place of meeting of the Commission and while traveling on the business of the Commission. Such travel expenses shall include the cost of transportation, meals, lodging, and other incidental items, and transportation by private

automobile pursuant to the rates and per diem expenses allowed county offices and employees on similar business.

Section 3. Sections 2.34.060, 2.34.070, 2.34.080, 2.34.090, 2.34.100, and 2.34.110 of the Kern County Code are hereby repealed.

Section 4. Section 19.04.084 of the Ordinance Code of the County of Kern is hereby repealed.

Section 5. Section 19.04.156 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.156 Conditional use.

"Conditional use" means a use permitted in a particular zoning district only upon showing that such use in a specified district will comply with all the conditions and standards for the location or operation of such use as specified in this title and authorized by the Planning Commission through the issuance of a conditional use permit.

Section 6. Section 19.04.159 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.159 Conditional use permit.

"Conditional use permit" means a permit issued by the Planning Commission or other decision-making authority stating that the conditional use meets all conditions set forth in this title and all others established by the Planning Commission or other decision-making authority.

Section 7. Section 19.04.198 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.198 Decision-making authority.

"Decision-making authority" means the Planning Director, Planning Commission, or Board of Supervisors, depending on which has been assigned the responsibility and authority for reviewing and approving a particular permit pursuant to Chapter 19.102 of this title.

Section 8. Section 19.04.394 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.04.394 Lot area, net.

"Net lot area" means the total area within the lot lines of a lot, excluding existing and future public roads, private and public access easements, utility easements with a width greater than five (5) feet, slope easements, drainage easements, floodways, public trails and similar easements, and conveyances resulting in areas on which development is prohibited or unsuitable, as determined by the Planning Director.

Section 9. Section 19.04.824 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.04.824 Temporary event.

"Temporary event" means a nonpublicly sponsored, organized event held on privately owned property involving more than one hundred (100) participants and spectators where such a use is not otherwise permitted by the applicable zoning district or when the event would not normally be considered an accessory use, as determined by the Planning Director.

Section 10. Section 19.04.566 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.04.565 Pigeons.

"Pigeon" means a bird which is classified as a member of the family Columbidae, and is limited to "racing pigeons," "fancy pigeons," and "sporting pigeons" as defined in this section.

"Racing Pigeon" means a pigeon which, through selective past breeding, has developed the distinctive physical and mental characteristics as to enable it to return to its home after having been released a considerable distance therefrom, and which is accepted as such by the American Racing Pigeon Union, Inc. or the International Federation of Racing Pigeon Fanciers. Also, commonly known as Racing Homer, Homing Pigeon, or Carrier Pigeon.

"Fancy Pigeon" means a pigeon which, through past breeding, has developed certain distinctive physical and performing characteristics as to be clearly identified and accepted as such by the National Pigeon Association, the American Pigeon Club, or the Rare Breeds Pigeon Club. Examples: Fantails, Pouters, Trumpeters.

"Sporting Pigeon" means a pigeon which, through selective past breeding, has developed the ability to fly in a distinctive manner, such as aerial acrobatics or endurance flying. Examples: Rollers, Tipplers.

Section 11. Section 19.04.566 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.04.566 Planning commission.

"Planning Commission" means the hearing and review body established pursuant to Chapter 2.30 of this code.

Section 12. Subsection 19.08.210.A and B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.210 Fences, walls, and hedges.

A. In the E (1/4), E (1/2), E (1), E (2 1/2), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the rear or side yards shall exceed a height of six (6) feet, except when a higher fence, wall, or hedge is required as a condition of approval of a discretionary permit except when

approved by the Director in the manner contained in Subsection G of this section.

B. In the E (1/4), E (1/2), E (1), E (2 1/2), R-1, R-2, and R-3 Districts, no fence, wall, or hedge located in the required front yard shall exceed a height of four (4) feet, except when a higher fence, wall, or hedge is required as a condition of approval of a discretionary permit or except when approved by the Director in the manner contained in Subsection paragraph G of this section.

Section 13. Subsections C, D, E, F, and G of Section 19.08.210 remain unchanged.

Section 14. Section 19.08.230 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.230 Private oil pipelines and related facilities -- County Review.

The provisions of this title shall not be construed to apply to the construction, installation, operation, and maintenance of pipelines for the transmission of crude oil or natural gas operated by private enterprises; provided, however, before any right-of-way for transmission lines is acquired for regional or interstate facilities, the proposed route shall be submitted for the Planning Director review and recommendation.

Section 15. Section 19.08.340 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.08.340 Temporary events.

Temporary carnivals, circuses, or similar events not exceeding four (4) days during any calendar year may be permitted in any zone district with the prior written approval of the Planning Director. In conjunction with such an approval, the Director may impose reasonable conditions to safeguard public health and safety. If the Director determines that the nature or scope of the proposed event could have a significant adverse impact on surrounding properties, the Director may deny the issuance of a temporary event permit or require the processing of a conditional use permit following the procedures set forth in Chapter 19.104 (Conditional Use Permits). No permit issued for a temporary event shall ever ripen into the status of a permanent entitlement or legal, nonconforming use.

Section 16. Subsection 19.12.020.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. Miscellaneous uses:
- -- Accessory buildings, including cargo containers, if incidental and accessory to a permitted use
- -- Commercial coach, when incidental and accessory to a permitted use
- -- Day-care home, large family, pursuant to Chapter 19.96
- -- Day-care home, small family

-- Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
-- Flood control facilities
-- Garage or yard sales pursuant to Subsection C of Section 19.12.130
-- Home occupation pursuant to Chapter 19.94
-- Hunting or fishing club, not involving structures
-- Liquid fuel storage tanks, above ground, for dispensing purposes
-- Water storage or groundwater recharge facilities
-- Water system, small or large
-- Wildlife or nature preserve;

Section 17. Subsections A, B, C, D, and E of Section 19.12.020 remain unchanged.

Section 18. Subsection 19.12.030.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Residential uses:
-- Additional single-family dwellings, not to exceed a density of one (1) dwelling unit per twenty (20) acres, except for properties subject to a Williamson Act Land Use Contract requiring a minimum lot size of eighty (80) acres where the maximum permitted density shall be one (1) dwelling unit per eighty (80) acres
-- Community care facility
-- Farm labor housing for contract labor
-- Secondary residential unit, pursuant to Chapter 19.90 of this title;

Section 19. Subsection 19.12.030.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Recreation, entertainment, and tourist facilities:
-- Bed and breakfast inn, pursuant to Section 19.12.130.D of this chapter
-- Equestrian establishment
-- Golf course and golf driving ranges
-- Guest ranch, when accessory to a commercial ranching operation
-- Lakes, private, for recreational skiing or boating
-- Park or playground
-- Racetrack or test track, automobile, bicycle, horse, or motorcycle
-- Recreational vehicle park
-- Retreat, church or nonprofit organization owned and operated

-- Shooting range or gun club, simulated war games, or similar activities, outdoor only
-- Thermal pools and hot springs
-- Trade fairs, exhibitions, and festivals, excluding flea markets and swap meets
-- Whitewater rafting launch or landing site;

Section 20. Subsection 19.12.030.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. Miscellaneous uses:
-- Construction staging and equipment storage, temporary, related to a specific construction project.
-- Corporate or administrative offices in conjunction with, and accessory to, a use permitted or conditionally permitted in this chapter
-- Drainage sump
-- Hunting or fishing club
-- Kennel or dog training facilities
-- Liquefied petroleum gas, bulk storage or distribution, in excess of two thousand (2,000) gallons capacity
-- Railroad caboose and similar accessory structures
-- Wild animal keeping;

Section 21. Subsections A, C, E, F, G, H, I, and J of Section 19.12.030 remain unchanged.

Section 22. Subsection 19.12.130.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Commercial poultry farms and dairies are permitted if all of the following criteria are satisfied:

1. No portion of the proposed site lies within two (2) miles of the City of Bakersfield or within one (1) mile of any other incorporated city.

2. The General Plan designation for the entire site is 8.1 or 8.3 and no portion of the site is designated 2.3 (Shallow Groundwater) or is located in a floodway.

3. There is no property zoned or designated by the General Plan or applicable Specific Plan for residential development (E or R-1, R-2, and R-3) within three (3) miles from the exterior boundary of the site.

4. There is no property designated 4.2 (Rural Community) within one (1) mile from the exterior boundary of the site and no property designated 4.3 (Specific Plan Required) within three (3) miles from the exterior boundary of the site.

5. There are no areas zoned or designated by the General Plan or applicable Specific Plan for commercial uses and no retail

commercial uses, including hotels and motels, within a one (1) mile radius from the exterior project boundary.

6. There are no residential facilities, community care facilities, hospitals, recreational vehicle parks, or public or private schools within a two (2) mile radius from the exterior project boundary.

7. The facility operator obtains all local, State, and federal approvals, licenses, and permits prior to the commencement of operations.

Section 23. Subsections A, B, C, D, F, and G of Section 19.12.130 remain unchanged.

Section 24. Subsection 19.14.030.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Residential uses:

-- Additional single-family dwellings, not to exceed a density of one (1) dwelling unit per two and one-half (2 1/2) acres (net) and not to exceed the maximum density permitted by the applicable General or Specific Plan. A maximum of two (2) mobilehomes may be permitted on any one (1) lot, and one (1) of the mobilehomes shall be owner occupied
-- Community care facility
-- Farm labor housing for on-site farm employees
-- Manufactured home or mobilehome, pursuant to Section 19.14.130.G.6 of this chapter
-- Secondary residential unit pursuant to Chapter 19.90 of this title
-- Single-family dwelling, with a width of sixteen (16) feet or less;

Section 25. Subsection 19.14.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Recreation, entertainment, and tourist facilities:

-- Camps and campgrounds
-- Circus or carnival, temporary
-- Country club
-- Equestrian establishment
-- Fishing or fly casting pond
-- Golf course
-- Golf driving range
-- Lakes, private, for recreational skiing or boating
-- Park or playground
-- Racetrack or test track, automobile, bicycle, horse, or motorcycle
-- Recreational vehicle park
-- Trade fairs and exhibitions, temporary (fourteen- (14-) day maximum), excluding flea markets and swap meet;

Section 26. Subsections A, D, E, F, G, H, I, J, and K of Section 19.14.030 remain unchanged.

Section 27. Subsection 19.16.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Agricultural uses:
- -- Birds, including doves, pigeons, and other small fowl in excess of twenty-five (25), raised for noncommercial purposes.
- -- Greenhouses for growing flowers and horticultural specialties for mail order of off-site sales;

Section 28. Subsection 19.16.030.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Residential uses:
- -- Additional single-family dwellings, subject to the density limit set by Section 19.16.060 of this chapter, and not to exceed the maximum density permitted by the applicable General or Specific Plan
- -- Community care facility
- -- Manufactured home or mobilehome, pursuant to Section 19.16.130.E.6 of this chapter
- -- Rest home
- -- Retirement home
- -- Secondary residential unit pursuant to Chapter 19.90 of this title
- -- Single-family dwelling, with a width of sixteen (16) feet or less;

Section 29. Subsections C, D, E, F, G, H, I, J, K, and L of Section 19.16.030 remain unchanged.

Section 30. Subsection 19.18.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Residential uses:
- -- Additional single-family dwellings, not to exceed a density of one (1) dwelling unit per four thousand three hundred and fifty-six (4,356) square feet (net) and not to exceed the maximum density permitted by the applicable General or Specific Plan. A maximum of two (2) manufactured homes may be permitted on any one (1) lot, and one (1) of the manufactured homes shall be owner occupied
- -- Community care facility

-- Manufactured home or mobilehome, pursuant to Section 19.18.130.E.6 of this chapter
-- Rest home
-- Retirement home
-- Secondary residential unit pursuant to Chapter 19.90 of this title
-- Single-family dwelling, with a width of sixteen (16) feet or less;

Section 31. Subsections B, C, D, E, F, G, H, and I of Section 19.18.030 remain unchanged.

Section 32. Subsection 19.28.020.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Residential uses:
-- Dwelling units located entirely above the ground floor of a commercial building as specified in Section 19.28.130.C
-- Manager, caretaker, or proprietor quarters;

Section 33. Subsection 19.28.020.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Commercial uses.
1. Offices:
-- Business or professional
-- Financial institution, including bank, savings and loan, or credit union
-- Real estate
-- Research and development,
2. General retail sales:
-- Art gallery,
3. Services:
-- Artist studio
-- Barber or beauty shop
-- Chiropractic or massage therapy
-- Clinic, medical or physical therapy, out-patient only
-- Interior decorator, provided there is no on-site sale of merchandise
-- Laboratory, medical, dental, optical, or biological
-- Packaging and mailing services
-- Photography studio
-- Telegraph
-- Ticket agency
-- Travel agency;

Section 34. Subsections C, D, E, F, and G of Section 19.28.020 remain unchanged.

Section 35. Section 19.28.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.28.070 Yards and setbacks.

The following yard and setback requirements apply in the CO District:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Forty (40) feet from the legal centerline of any existing or proposed public or private local street and access easement;

2. Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway;

3. Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

B. Side Yard. None required.

C. Rear Yard. There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required where a public alley exists adjacent to the rear property line. The Planning Director may reduce rear yard requirements in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief.

D. Yards and Setbacks for Residential Development. Yards and setbacks for residential developments shall be the same as those specified in Section 19.22.070 of this title. For developments containing both commercial and residential uses within the same building, yards and setbacks shall be as specified in Subsections A, B, and C of Section 19.28.070 of this chapter.

E. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 36. Subsection 19.30.020.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Residential uses:

-- Bed and breakfast inn

-- Dwelling units located entirely above the ground floor of a commercial building as specified in Section 19.30.130.C

-- Manager, caretaker, or proprietor quarters

-- Residential facility, serving twelve (12) or fewer persons;

Section 37. Subsection 19.30.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Commercial uses.

1. Offices:
   - -- Business or professional
   - -- Financial institution, including bank, savings and loan, or credit union
   - -- Real estate
   - -- Research and development,

2. General Retail Sales:
   - -- Antiques, with no outside storage
   - -- Appliances, including service and repair, provided there is no outside storage
   - -- Art gallery
   - -- Auto parts and accessories
   - -- Bicycle, including rental and service
   - -- Bookstore, general
   - -- Christmas tree, temporary
   - -- Clothing and apparel
   - -- Drugs and pharmaceuticals
   - -- Fireworks stand, temporary
   - -- Florist
   - -- Gift and card
   - -- Hardware, general, excluding lumber sales and outside storage of materials
   - -- Ice vending machine
   - -- Lawnmower, including repair, when located entirely within a building
   - -- Locksmith or key and lock shop
   - -- Music stores, excluding instrument repair
   - -- Newspaper or magazine stand
   - -- Shoes
   - -- Stationery and office supply
   - -- Tobacco
   - -- Variety
   - -- Video and audio tape sales and rentals

3. Food and Beverage Retail Sales:
   - -- Bakery, small
   - -- Convenience market
   - -- Drive-in food market or dairy
   - -- Food store
   - -- Specialized, including meat, vegetables, health foods, or candy

4. Eating and Drinking Establishments:
   - -- Bar, tavern, or cocktail lounge
   - -- Ice cream parlor
   - -- Restaurant, cafe, or coffee shop
   - -- Restaurant, fast-food

5. Services:
   - -- Artist studio

-- Auto service station, small
-- Barber or beauty shop
-- Bath house, including sauna, spa, turkish, steam, or tanning
-- Chiropractic or massage therapy
-- Clinic, medical or physical therapy, out-patient only
-- Interior decorator
-- Laboratory, medical, dental, optical, or biological
-- Laundromat, self-service
-- Laundry, drop off and pick up only
-- Packaging and mailing services
-- Pet grooming
-- Photography studio
-- Shoe repair
-- Shoe-shine stand
-- Tailor or dressmaker
-- Tanning salons
-- Taxidermist
-- Telegraph
-- Ticket agency
-- Travel agency
-- Veterinary, household pets only, provided there are no outside kennels;

Section 38. Subsections B, D, E, F, G, and H of Section 19.30.020 remain unchanged.

Section 39. Section 19.30.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.30.070 Yards and setbacks.

The following yard and setback requirements apply in the C-1 District:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Forty (40) feet from the legal centerline of any existing or proposed public or private local street and access easements;

2. Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway;

3. Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

B. Side Yard. None required.

C. Rear Yard. There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. The Planning Director may reduce rear yard requirements in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief.

D. Yards and Setbacks for Residential Developments. Yards and setbacks for residential developments shall be the same as those specified

in Section 19.22.070 of this title. For all developments containing both commercial and residential uses within the same building, yards and setbacks shall be as specified in Subsections A, B, and C of Section 19.30.070 of this chapter.

E. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 40. Subsection 19.32.020.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Residential uses:
- -- Bed and breakfast inn
- -- Community care facility
- -- Dwelling units located entirely above the ground floor of a commercial building as specified in Section 19.32.130.C
- -- Manager, caretaker, or proprietor quarters
- -- Retirement or rest home;

Section 41. Subsection 19.32.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Commercial uses.

1. Offices:
   - -- Business or professional
   - -- Financial, including bank, savings and loan, or credit union
   - -- Real estate
   - -- Research and development
2. General Retail Sales:
   - -- Antiques, provided there is no outside display
   - -- Appliances, including service and repair, provided there is no outside storage
   - -- Art gallery
   - -- Auto leasing
   - -- Auto, new
   - -- Auto parts and accessories
   - -- Auto tire, including service, pursuant to Section 19.32.130.D
   - -- Auto, used
   - -- Bicycle, including rental and service
   - -- Boat, including service and parts when incidental to sales
   - -- Bookstore, general
   - -- Christmas tree, temporary
   - -- Clothing and apparel

-- Computer, including service and repair
-- Department store
-- Drugs and pharmaceuticals
-- Electric appliances, including service and repair
-- Electric equipment, including service and repair
-- Feed, provided there is no outside storage
-- Fireworks stand, temporary
-- Floor covering, drapery, or upholstery
-- Florist
-- Fruit stand
-- Furniture
-- Gardening and landscaping supply, provided there is no outside storage
-- Gift and card
-- Gun, including repair
-- Hardware, general, including lumber sales, provided areas devoted to outside storage of materials are screened from public view
-- Hobby supplies
-- Home or office furnishings
-- Ice vending machine
-- Jewelry and watches
-- Lapidary
-- Lawnmower, including repair, when located entirely within a building
-- Leather goods and luggage
-- Locksmith or key and lock shop
-- Military surplus, provided there is no outside storage
-- Mobilehome, including rental and service
-- Motorcycles, including service and repair
-- Musical instruments (including repair)
-- Newspaper or magazine stand
-- Nursery, plant
-- Office machines and equipment
-- Paint and wallpaper
-- Pawn shop
-- Pet store
-- Photographic supply or camera
-- Plumbing supply, provided there is no outside storage
-- Pottery
-- Recreational vehicles, including service
-- Shoes
-- Sporting goods and athletic equipment
-- Stationery and office supply
-- Tobacco
-- Toys
-- Truck, including rental

-- Used clothing and household goods, provided there is no outside storage
-- Variety
-- Video and audio tape sales and rentals

3. Food and Beverage Retail Sales:
   -- Bakery
   -- Catering
   -- Convenience market
   -- Drive-in food market or dairy
   -- Farmers' market
   -- Food store
   -- Liquor store
   -- Specialized, including meat, vegetables, health foods, or candy
4. Eating and Drinking Establishments:
   -- Bar, tavern, or cocktail lounge
   -- Ice cream parlor
   -- Restaurant, cafe, or coffee shop
   -- Restaurant, fast-food
5. Services:
   -- Ambulance
   -- Appliance repair
   -- Artist studio
   -- Auto body repair and painting
   -- Auto rental
   -- Auto service or repair
   -- Auto service station
   -- Auto wash
   -- Auto wash, self-service
   -- Barber or beauty shop
   -- Bath house, including sauna, spa, Turkish, steam, or tanning
   -- Carpet cleaning
   -- Chiropractic or massage therapy
   -- Clinic, medical or physical therapy, out-patient only
   -- Equipment, small, rental
   -- Furniture cleaning, refinishing, or upholstery
   -- Interior decorator
   -- Janitorial service
   -- Laboratory, medical, dental, optical, or biological
   -- Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials
   -- Laundromat, self-service
   -- Laundry, drop off and pick up only
   -- Mini-warehouse, for storage of personal household goods, provided there is no outside

storage; excludes cargo containers and other temporary storage structures
-- Mortuary or funeral parlor
-- Packaging and mailing services
-- Pest control, administrative offices only
-- Pet grooming
-- Photography studio
-- Picture framing
-- Printing, lithography, or blueprinting
-- Shoe repair
-- Shoe-shine stand
-- Tailor or dressmaker
-- Tanning salons
-- Taxidermist
-- Telegraph
-- Ticket agency
-- Travel agency
-- Truck fueling station, without repair facilities
-- Veterinary, household pets only, provided there are no outside kennels
-- Wedding chapel

Section 42. Subsection 19.32.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Institutional uses:
-- Auditorium, public
-- Charitable or public service organization
-- Church
-- Club or lodge
-- Community or senior citizen's center
-- Convalescent hospital
-- Fire or police station
-- Government office or building
-- Hospital
-- Labor union hall
-- Library
-- Museum, indoor only
-- Public agency or utility buildings and facilities
-- Post office
-- Rehabilitation facilities
-- Sanitarium

Section 43. Subsections B, D, F, and G of Section 19.32.020 remain unchanged.

Section 44. Subsection 19.32.030.B of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. Recreation, entertainment, and tourist facilities:
- -- Amusement park
- -- Card room
- -- Circus or carnival
- -- Equestrian establishment
- -- Movie theater, drive-in
- -- Park or playground
- -- Racetrack or test track, automobile, motorcycle, or horse
- -- Recreational vehicle park
- -- Shooting range or gun club
- -- Skateboard arenas, unenclosed
- -- Sports arena, indoor
- -- Sports arena, outdoor
- -- Swimming pool, public
- -- Thermal pools and hot springs
- -- Trade fairs and exhibitions, temporary (fourteen- (14-) day maximum), excluding flea markets and swap meets
- -- Whitewater rafting launch or landing site

Section 45. Subsection 19.32.030.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. Institutional uses:
- -- Cemetery, mausoleum, or columbarium
- -- Community or regional correctional and similar involuntary detention facilities
- -- Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary
- -- Museum, except as authorized by Section 19.32.020.E
- -- Zoo

Section 46. Subsection 19.32.030.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. Miscellaneous uses:
- -- Commercial coach, exceeding six (6) months
- -- Day-care center, with extended overnight services
- -- Drainage sump
- -- Flea market or swap meet
- -- Flood control facilities
- -- Water treatment plant

Section 47. Subsections A, C, D, E, F, G, H, and J of Section 19.32.020 remain unchanged.

Section 48. Section 19.32.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.32.070 Yards and setbacks.

Yard and setback requirements in the C-2 District are as follows:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Forty (40) feet from the legal centerline of any existing or proposed public or private local street and access easements;

2. Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway;

3. Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

B. Side Yard. None required.

C. Rear Yard. There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. Rear yard requirements may be reduced in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief and Planning Director.

D. Yards and Setbacks for Residential Developments. Yards and setbacks for residential developments shall be the same as those specified in Section 19.22.070 of this title. For all developments containing both commercial and residential uses within the same building, yards and setbacks shall be as specified in Subsections A, B, and C of Section 19.32.070 of this chapter.

E. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 49. Subsection 19.34.020.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Residential uses:
- -- Bed and breakfast inn
- -- Dwelling unit located entirely above the ground floor of a commercial building as specified in Section 19.34.130.C
- -- Manager, caretaker, or proprietor quarters

Section 50. Subsection 19.34.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Commercial uses.

1. Offices:
   - -- Business and professional
   - -- Real estate
2. General Retail Sales:
   - -- Antiques, with no outside storage or displays
   - -- Auto, new or used
   - -- Auto tire, including service

-- Bait and tackle shop
-- Bicycle, including rental, service, and repair
-- Boat sales
-- Drugs and pharmaceuticals
-- Fireworks stand, temporary
-- Gift and card
-- Gun sales, including repair, when accessory to a permitted use
-- Ice vending machine
-- Locksmith or key and lock shop
-- Mobilehomes, including rental and service
-- Motorcycles, including service and repair
-- Photographic supply or camera
-- Recreational vehicles, including service
-- Ticket agency
-- Variety
-- Video and audio tape sales and rentals

3. Food and Beverage Retail Sales:
   -- Convenience market
   -- Drive-in food market or dairy
   -- Food store
   -- Liquor store
   -- Specialized, including meat, vegetables, health food, or candy
4. Eating and Drinking Establishments:
   -- Bar, tavern, or cocktail lounge
   -- Restaurant, cafe, or coffee shop
   -- Restaurant, fast-food
5. Services:
   -- Ambulance
   -- Auto rental
   -- Auto service or repair
   -- Auto service station, large
   -- Auto service station, small
   -- Auto towing
   -- Auto wash
   -- Auto wash, self-service
   -- Barber or beauty shop
   -- Packaging and mailing services
   -- Shoe-shine stand
   -- Telegraph
   -- Travel agency
   -- Truck fueling station, without repair facilities

Section 51. Subsections B, D, E, F, G, I, and J of Section 19.34.020 remain unchanged.

CH (CUP) Section 52. Subsection 19.34.030.J of the Ordinance Code of the County of Kern is hereby amended to read as follows:

J. Miscellaneous:
-- Commercial coach, in excess of six (6) months
-- Day-care center, with extended overnight services
-- Drainage sump
-- Water treatment plant

Section 53. Subsections A, B, C, D, E, F, G, H, and I of Section 19.34.030 remain unchanged.

Section 54. Section 19.34.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.34.070 Yards and setbacks.

Yard and setback requirements in the CH District are as follows:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Forty (40) feet from the legal centerline of any existing or proposed public or private local street.

2. Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

3. Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

B. Side Yard. None required.

C. Rear Yard. There shall be a rear yard of not less than twenty (20) feet, except that no rear yard shall be required in the event that a public alley exists. Rear yard requirements may be reduced in accordance with the Kern County Fire Code if written approval is obtained from the Kern County Fire Chief and Planning Director.

D. Yards and Setbacks for Residential Development. Yards and setbacks for residential developments shall be the same as those specified in Section 19.22.070 of this title. For developments containing both commercial and residential uses within the same building, yards and setbacks shall be as specified in Subsections A, B, and C of Section 19.34.070 of this chapter.

E. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 55. Subsection 19.36.020.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Commercial uses.
1. Offices:
-- Business or professional

-- Financial institution, including bank, savings and loan, or credit union
-- Real estate
-- Research and development

2. General Retail Sales:
-- Antiques
-- Appliances, including service and repair
-- Art gallery
-- Auto leasing
-- Auto, new
-- Auto parts and accessories
-- Auto tire, including service
-- Auto, used
-- Bicycle, including rental and service
-- Boat, including service and parts
-- Bookstore, general
-- Christmas tree, temporary
-- Clothing and apparel
-- Computer, including service and repair
-- Department store
-- Drugs and pharmaceuticals
-- Electric appliances, including service and repair
-- Electric equipment, including service and repair
-- Feed
-- Fireworks stand, temporary
-- Floor covering, drapery, or upholstery
-- Florist
-- Furniture
-- Gardening and landscaping supply
-- Gift and card
-- Gun, including repair
-- Hardware, general, including lumber sales
-- Hobby supplies
-- Home or office furnishings
-- Ice vending machine
-- Jewelry and watches
-- Lapidary
-- Lawnmower, including repair
-- Leather goods and luggage
-- Locksmith or key and lock shop
-- Military surplus
-- Mobilehomes, including rental and service
-- Motorcycles, including rental and repair
-- Musical instruments, including repair
-- Newspaper or magazine stand
-- Nursery, plant
-- Office machines and equipment
-- Paint and wallpaper

-- Pawn shop
-- Pet store
-- Photographic supply or camera
-- Plumbing supply
-- Pottery
-- Recreational vehicles, including service
-- Shoes
-- Sporting goods and athletic equipment
-- Stationery and office supply
-- Tobacco
-- Toys
-- Truck, including rental
-- Used clothing and household goods
-- Variety
-- Video and audio tape sales and rentals

3. Food and Beverage Retail Sales:
   -- Bakery
   -- Catering
   -- Convenience market
   -- Drive-in food market or dairy
   -- Farmers' market
   -- Food store
   -- Liquor store
   -- Specialized, including meat, vegetables, health foods, or candy
4. Eating and Drinking Establishments:
   -- Bar, tavern, or cocktail lounge
   -- Ice cream parlor
   -- Restaurant, cafe, or coffee shop
   -- Restaurant, fast-food
5. Services:
   -- Ambulance
   -- Appliance repair
   -- Artist studio
   -- Auto body repair and painting
   -- Auto rental
   -- Auto service or repair
   -- Auto service station
   -- Auto tire repair
   -- Auto towing
   -- Auto wash
   -- Auto wash, self-service
   -- Barber or beauty shop
   -- Bath house, including sauna, spa, Turkish, steam, or tanning
   -- Carpet cleaning
   -- Chiropractic or massage therapy

-- Clinic, medical or physical therapy, out-patient only
-- Equipment, heavy, or truck or trailer rental
-- Equipment, small, rental
-- Furniture cleaning, refinishing, or upholstery
-- Interior decorator
-- Janitorial service
-- Laboratory, medical, dental, optical, or biological
-- Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials
-- Laundromat, self-service
-- Laundry, drop off and pick up only
-- Mini-warehouse
-- Mortuary or funeral parlor
-- Packaging and mailing services
-- Pest control, administrative offices only
-- Pet grooming
-- Photography studio
-- Picture framing
-- Printing, lithography, or blueprinting
-- Shoe repair
-- Shoe-shine stand
-- Tailor or dressmaker
-- Tanning salon
-- Taxidermist
-- Telegraph
-- Ticket agency
-- Travel agency
-- Truck or heavy equipment repair, wholly enclosed within a building
-- Truck fueling station
-- Veterinary, including veterinary hospital
-- Wedding chapel

Section 56. Subsection 19.36.020.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Industrial uses.
1. Industrial Manufacturing or Assembly:
-- Electronic equipment, assembly only
-- Pipe, pipe product, and pipe filter, assembly only
-- Plastics, assembly only
2. Industrial Storage:
-- Automobile
-- Bottled gas
-- Cargo containers

-- Chemical storage when accessory to a permitted use
-- Cold storage
-- Contractor's storage yard
-- Draying or freight
-- Equipment and building material
-- Feed and wood
-- Lumber
-- Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed
-- Moving and storage, yards or warehouse
-- Petroleum
-- Recreational vehicle
-- Recyclable materials, collection and storage, provided there is no more than three thousand (3,000) square feet of outside storage and all compression and bailing operations are conducted wholly within an enclosed structure
-- Truck and heavy equipment
-- Warehouse

3. Other Industrial Uses:
-- Assaying
-- Bakery, large
-- Billboard sign fabrication and storage
-- Light machining
-- Photographic processing plant and/or wholesale supply
-- Sheet metal shop
-- Tire retreading
-- Welding or blacksmith
-- Well drilling service
Wholesale distribution

Section 57. Subsection 19.36.020.H of the Ordinance Code of the County of Kern is hereby amended to read as follows:

H. Institutional uses:
-- Auditorium, public
-- Charitable or public service organization
-- Church
-- Club or lodge
-- Fire or police station
-- Government office or building
-- Labor union hall
-- Library
-- Museum
-- Post office

Section 58. Subsections A, B, E, F, G, I, and J of Section 19.36.020 remain unchanged.

Section 59. Subsection 19.36.030.A of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Residential uses:
- -- Dwelling units located entirely above the ground floor of a commercial building as specified in Section 19.36.020.A
- -- Single-family dwelling (including a mobilehome), one (1) per lot, not accessory to an industrial use

Section 60. Subsection 19.36.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Industrial uses.

1. Industrial Manufacturing or Assembly:
   - -- Furniture
   - -- Prefabricated buildings and structures
   - -- Mobilehomes
2. Other Industrial Uses:
   - -- Asphaltic concrete batch plant
   - -- Concrete batch plant
   - -- Machine shop
   - -- Metal or electroplating
   - -- Newspaper, magazine, or book printing
   - -- Pallets, including repair
   - -- Powder coating, spray painting, and sandblasting, all enclosed

Section 61. Subsection 19.36.030.K of the Ordinance Code of the County of Kern is hereby amended to read as follows:

K. Miscellaneous uses:
- -- Day-care center, with extended overnight services
- -- Flea market or swap meet
- -- Flood control facilities
- -- Water treatment plant

Section 62. Subsections B, D, E, F, G, H, I, and J of Section 19.36.030 remain unchanged.

Section 63. Section 19.36.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.36.060 Minimum lot area per dwelling unit.

There is no requirement for minimum lot area per dwelling in the M-1 District.

Section 64. Section 19.36.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.36.070 Yards and setbacks.

Yard and setback requirements in the M-1 District are as follows:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Forty (40) feet from the legal centerline of any existing or proposed public or private local street or access easements.

2. Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

3. Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

B. Side Yard. None required.

C. Rear Yard. None required.

E. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 65. Subsection 19.38.020.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Commercial uses.

1. Offices:
   - -- Business or professional
   - -- Financial institutions, including bank, savings and loan, or credit union
   - -- Real estate
   - -- Research and development

2. General Retail Sales:
   - -- Antiques
   - -- Appliances, including service and repair
   - -- Art gallery
   - -- Auto leasing
   - -- Auto, new
   - -- Auto parts and accessories
   - -- Auto tire, including service
   - -- Auto, used
   - -- Bicycle, including rental and service
   - -- Boat, including service and parts
   - -- Bookstore, general
   - -- Christmas tree, temporary
   - -- Clothing and apparel

-- Computer, including service and repair
-- Department store
-- Drugs and pharmaceuticals
-- Electric appliances, including service and repair
-- Electric equipment, including service and repair
-- Feed
-- Fireworks stand, temporary
-- Floor covering, drapery, or upholstery
-- Florist
-- Furniture
-- Gardening and landscaping supply
-- Gift and card
-- Gun, including repair
-- Hardware, general, including lumber sales
-- Hobby supplies
-- Home or office furnishings
-- Ice vending machine
-- Jewelry and watches
-- Lapidary
-- Lawnmower, including repair
-- Leather goods and luggage
-- Locksmith or key and lock shop
-- Military surplus
-- Mobilehome, including rental and service
-- Motorcycles, including rental and repair
-- Musical instruments, including repair
-- Newspaper or magazine stand
-- Nursery, plant
-- Office machines and equipment
-- Paint and wallpaper
-- Pawn shop
-- Pet store
-- Photographic supply or camera
-- Plumbing supply
-- Pottery
-- Recreational vehicles, including service
-- Shoes
-- Sporting goods and athletic equipment
-- Stationery and office supply
-- Tobacco
-- Toys
-- Truck, including rental
-- Used clothing and household goods
-- Variety
-- Video and audio tape sales and rentals

3. Food and Beverage Retail Sales:
-- Bakery
-- Catering

-- Convenience market
-- Drive-in food market or dairy
-- Farmers' market
-- Food store
-- Liquor store
-- Specialized, including meat, vegetables, health food, or candy

4. Eating and Drinking Establishments:
---Bar, tavern, or cocktail lounge
-- Ice cream parlor
-- Restaurant, cafe, or coffee shop
-- Restaurant, fast-food

5. Services:
-- Ambulance
-- Artist studio
-- Auto rental
-- Auto service or repair, including body and paint shop
-- Auto service station
-- Auto tire repair
-- Auto towing
-- Auto wash
-- Auto wash, self-service
-- Barber or beauty shop
-- Bath house, including sauna, spa, turkish, steam, or tanning
-- Carpet cleaning
-- Clinic, medical or physical therapy, out-patient only
-- Equipment, heavy, or truck or trailer rental
-- Equipment, small, rental
-- Furniture cleaning, refinishing, or upholstery
-- Interior decorator
-- Janitorial service
-- Laboratory, medical, dental, optical, or biological
-- Laboratory, testing, classifying, or experimental, not involving the use of explosives
-- Laundromat, self-service
-- Laundry, dry cleaning and dyeing plants
-- Mini-warehouse
-- Mortuary or funeral parlor
-- Packaging and mailing services
-- Pest control
-- Pet grooming
-- Photography studio
-- Picture framing
-- Printing, lithography, or blueprinting
-- Shoe repair

-- Shoe-shine stand
-- Tailor or dressmaker
-- Tanning salon
-- Taxidermist
-- Telegraph
-- Ticket agency
-- Travel agency
-- Truck fueling station
-- Truck service and repair
-- Veterinary, including veterinary hospital
-- Wedding chapel

Section 66. Subsection 19.38.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Industrial uses.

1. Industrial Manufacturing or Assembly:

-- Aircraft, assembly, when conducted wholly within a building
-- Auto/truck, assembly, when conducted wholly within a building
-- Batteries
-- Building material
-- Cabinet shop
-- Carpet and mattress
-- Ceramics
-- Clothing, garments, or shoes
-- Concrete blocks
-- Cosmetics, perfumes, or toiletries
-- Drugs and pharmaceuticals
-- Electronic equipment
-- Fiberglass or silicone products
-- Furniture
-- Ice
-- Mobilehome, modular home, or recreational vehicle
-- Musical instruments
-- Neon signs
-- Paint mixing, not employing a boiling process
-- Pallets, including repair
-- Paper or pulp
-- Plastics, assembly and extrusion
-- Prefabricated buildings and structures
-- Soap, cold mix only
-- Soil amendments, not involving liquid chemical blending or organic materials
-- Steel fabrication, excluding smelting
-- Textiles

-- Toy manufacturing and assembly
-- Trusses
-- Wind-driven electrical generators, manufacture or assembly

2. Industrial Storage:
   -- Automobile
   -- Bottled gas
   -- Cargo containers
   -- Chemical storage, when accessory to a permitted use
   -- Cold storage
   -- Contractor's storage yard
   -- Draying or freight
   -- Equipment and building materials
   -- Feed and wood yards
   -- Liquefied petroleum gas, bulk storage or distribution in excess of two thousand (2,000) gallons capacity, when located at least one-half (1/2) mile from property zoned or designated for residential use and at least one-half (1/2) mile from existing residential development with a density greater than one (1) dwelling unit per acre and at least one-half (1/2) mile from any motel or hotel
   -- Lumber
   -- Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed
   -- Moving and storage
   -- Petroleum
   -- Recreational vehicle
   -- Recyclable materials, collection and storage, provided there is no more than three thousand (3,000) square feet of outside storage and all compression and bailing operations are conducted wholly within an enclosed structure
   Truck and heavy equipment
   -- Warehouse

3. Other Industrial Uses:
   -- Asphalt batch plant
   -- Assaying
   -- Bakery
   -- Beverage bottling works
   -- Billboard sign fabrication and storage
   -- Boat building and major repair
   -- Concrete batch plant
   -- Electroplating, when conducted wholly within an enclosed building
   -- Machine shop

-- Metal extrusion
-- Newspaper, magazine, or book printing
-- Oilfield service yard
-- Photographic processing plant or wholesale supply
-- Powder coating and spray painting, enclosed
-- Sandblasting, if incidental to another permitted use and conducted wholly within an enclosed building
-- Sheet metal shop
-- Tire retreading
-- Welding or blacksmith
-- Well drilling service
-- Wholesale distribution

Section 67. Subsection 19.38.020.I of the Ordinance Code of the County of Kern is hereby amended to read as follows:

I. Institutional uses:
-- Auditorium, public
-- Charitable or public service organization
-- Church
-- Fire or police station
-- Government office or building
-- Library
-- Museum
-- Public agency or public utility buildings and facilities

Section 68. Subsections A, B, C, F, G, H, J, and K of Section 19.38.020 remain unchanged.

M-2 (CUP) Section 69. Subsection 19.38.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Recreation, entertainment, and tourist facilities:
-- Card Room
-- Circus or carnival
-- Golf course
-- Racetrack or test track, automobile, bicycle, horse, or motorcycle
-- Shooting range or gun club
-- Trade fairs and exhibitions, temporary (fourteen- (14-) day maximum), excluding flea markets and swap meets

Section 70. Subsections A, B, D, E, F, G, H, I, J, and K of Section 19.38.030 remain unchanged.

Section 71. Section 19.38.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.38.060 Minimum lot area per dwelling unit.

There is no requirement for minimum lot area per dwelling unit in the M-2 District.

Section 72. Section 19.38.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.38.070 Yards and setbacks.

The following yard and setback requirements apply in the M-2 District:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Forty (40) feet from the legal centerline of any existing or proposed public or private local street or access easements.

2. Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

3. Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

B. Side Yard. None required.

C. Rear Yard. None required.

D. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 73. Subsection 19.40.020.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Commercial uses.

1. Offices:
   - -- Business or professional
   - -- Financial institution, including bank, savings and loan, or credit union
   - -- Real estate
   - -- Research and development

2. General Retail Sales:
   - -- Antiques
   - -- Appliances, including service and repair
   - -- Art gallery
   - -- Auto leasing
   - -- Auto, new
   - -- Auto parts and accessories
   - -- Auto tire, including service
   - -- Auto, used
   - -- Bicycle, including rental and service
   - -- Boat, including service and parts
   - -- Bookstore, general

-- Christmas tree, temporary
-- Clothing and apparel
-- Computer, including service and repair
-- Department store
-- Drugs and pharmaceuticals
-- Electric appliances, including service and repair
-- Electric equipment, including service and repair
-- Feed
-- Fireworks stand, temporary
-- Floor covering, drapery, or upholstery
-- Florist
-- Furniture
-- Gardening and landscaping supply
-- Gift and card
-- Gun, including repair
-- Hardware, general
-- Hobby supplies
-- Home or office furnishings
-- Ice vending machine
-- Jewelry and watches
-- Lapidary
-- Lawnmower, including repair
-- Leather goods and luggage
-- Locksmith or key and lock shop
-- Military surplus
-- Mobilehomes, including rental and service
-- Motorcycles, including rental and repair
-- Musical instruments, including repair
-- Newspaper or magazine stand
-- Nursery, plant
-- Office machines and equipment
-- Paint and wallpaper
-- Pawn shop
-- Pet store
-- Photographic supply or camera
-- Plumbing supply
-- Pottery
-- Recreational vehicles, including service
-- Shoes
-- Sporting goods and athletic equipment
-- Stationery and office supply
-- Tobacco
-- Toys
-- Truck, includes rental
-- Used clothing and household goods
-- Variety
-- Video and audio tape sales and rentals

3. Food and Beverage Retail Sales:

-- Bakery
-- Convenience market
-- Drive-in food market or dairy
-- Farmers' market
-- Food store
-- Liquor store
-- Specialized, including meat, vegetables, health foods, or candy

4. Eating and Drinking Establishments:
   -- Bars, taverns, or cocktail lounges
   -- Ice cream parlor
   -- Restaurant, cafe, or coffee shop
   -- Restaurant, fast-food

5. Services:
   -- Ambulance
   -- Artist studio
   -- Auto body repair and painting
   -- Auto rental
   -- Auto service/repair
   -- Auto service station
   -- Auto tire repair
   -- Auto towing
   -- Auto wash
   -- Auto wash, self-service
   -- Barber or beauty shop
   -- Bath house, including sauna, spa, turkish, steam, or tanning
   -- Carpet cleaning
   -- Catering
   -- Clinic, medical or physical therapy, out-patient only
   -- Equipment, heavy, or truck or trailer rental
   -- Equipment, small, rental
   -- Furniture cleaning, refinishing, or upholstery
   -- Gardening and landscaping
   -- Interior decorator
   -- Janitorial service
   -- Laboratory, medical, dental, optical, or biological
   -- Laboratory, testing, classifying, or experimental, not involving the use of explosives
   -- Laundromat, self-service
   -- Laundry, dry cleaning, pressing, and dyeing
   -- Mini-warehouse
   -- Mortuary or funeral parlor
   -- Packaging and mailing services
   -- Pest control, administrative offices only
   -- Pet grooming
   -- Photography studio

-- Picture framing
-- Printing, lithography, or blueprinting
-- Shoe repair
-- Shoe-shine stand
-- Tailor or dressmaker
-- Tanning salon
-- Taxidermist
-- Telegraph
-- Ticket agency
-- Travel agency
-- Truck fueling station
-- Truck service and repair
-- Veterinary, including veterinary hospital
-- Wedding chapel

Section 74. Subsection 19.40.020.E of the Ordinance Code of the County of Kern is hereby amended to read as follows:

E. Industrial uses.

1. Industrial Manufacturing or Assembly

-- Acetylene or other gas
-- Acids
-- Aircraft, assembly
-- Ammonia or chlorine
-- Asphalt
-- Automobile or truck assembly
-- Bag cleaning
-- Batteries
-- Blast furnace or smelting
-- Boiler works
-- Brick, tile, or terra cotta products
-- Building materials
-- Cabinet shop
-- Candle
-- Carbon
-- Carpet and mattress
-- Celluloid or pyroxylin
-- Cement
-- Ceramics
-- Chemical blending or manufacturing
-- Clothing, garments, or shoes
-- Coal, wood, or tar distillation
-- Coke ovens
-- Concrete blocks
-- Cosmetics, perfumes, or toiletries
-- Creosote
-- Detergent
-- Disinfectant

-- Drugs and pharmaceuticals
-- Electronic appliance
-- Electronic equipment
-- Fertilizer
-- Fiberglass or silicone products
-- Furniture
-- Glass
-- Glue
-- Ice
-- Iron, steel, or other metals
-- Linoleum or oiled products
-- Machinery
-- Metal, glass, or paper recycling facility
-- Mobilehome, modular home, or recreational vehicle
-- Musical instruments
-- Neon signs
-- Oil refining
-- Ore reduction
-- Paint, shellac, turpentine, or similar products
-- Paint mixing
-- Pallets, including repair
-- Paper or pulp
-- Plastic
-- Potash
-- Prefabricated buildings and structures
-- Rolling mill
-- Rubber
-- Saw mills
-- Smelting
-- Soap
-- Sodium compounds
-- Soil amendments, not involving organic materials
-- Starch
-- Steel fabrication
-- Stove or shoe polish
-- Tar products
-- Textiles
-- Tobacco processing
-- Toy manufacturing and assembly
-- Trusses
-- Wind-driven electrical generators, manufacture or assembly

2. Industrial Storage:
   -- Automobile
   -- Bottled gas
   -- Cargo containers
   -- Chemical storage

- -- Cold storage
- -- Contractor's storage yard
- -- Draying or freight
- -- Equipment and building materials
- -- Feed and wood yards
- -- Liquefied petroleum gas, bulk storage or distribution in excess of two thousand (2,000) gallons capacity, when located at least one-half (1/2) mile from property zoned or designated for residential use and at least one-half (1/2) mile from existing residential development with a density greater than one (1) dwelling unit per acre and at least one-half (1/2) mile from any motel or hotel
- -- Log storage
- -- Lumber
- -- Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed
- -- Moving and storage
- -- Petroleum
- -- Recreational vehicle
- -- Recyclable materials, collection and storage
- -- Truck and heavy equipment
- -- Warehouse

3. Other Industrial Uses:
   - -- Asphaltic batch plant
   - -- Assaying
   - -- Bakery
   - -- Beverage bottling works
   - -- Billboard sign fabrication and storage
   - -- Boat building and major repair
   - -- Concrete batch plant
   - -- Electroplating
   - -- Machine shop
   - -- Metal extrusion
   - -- Newspaper, magazine, or book printing
   - -- Oilfield service yard
   - -- Photographic processing plant or wholesale supply
   - -- Powder coating and spray painting, enclosed
   - -- Sandblasting, if incidental to another permitted use and conducted wholly within an enclosed building
   - -- Sheet metal shop
   - -- Tire retreading or recycling
   - -- Welding or blacksmith
   - -- Well drilling service

-- Wholesale distribution

Section 75. Subsections A, B, C, F, G, H, I, J, K, and L of Section 19.40.020 remain unchanged.

Section 76. Subsection 19.40.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Recreation, entertainment, and tourist facilities:
-- Card Room
-- Circus or carnival
-- Golf course
-- Racetrack or test track, automobile, bicycle, horse, or motorcycle
-- Shooting range or gun club
-- Trade fairs and exhibitions, temporary (fourteen- (14-) day maximum), excluding flea markets and swap meets

Section 77. Subsections A, B, D, E, F, G, H, I, J, and K of Section 19.40.030 remain unchanged.

Section 78. Section 19.40.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.40.070 Yards and setbacks.

The following yard and setback requirements apply in the M-3 District:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Forty (40) feet from the legal centerline of any existing or proposed public or private local street.

2. Forty-five (45) feet from the legal centerline of any existing or proposed secondary highway.

3. Fifty-five (55) feet from the legal centerline of any existing or proposed major highway.

B. Side Yard. None required.

C. Rear Yard. None required.

D. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 79. Subsection 19.42.030.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Recreation, entertainment, and tourist facilities:
-- Bed and breakfast inn
-- Camp, private
-- Campground

-- Community recreational facilities
-- Equestrian establishments
-- Golf course
-- Golf driving range
-- Lakes, private, for recreational skiing or boating
-- Lodge
-- Marina, public
-- Racetrack or test track, automobile, bicycle, horse, or motorcycle
-- Recreational vehicle park
-- Recreational vehicle, travel trailer, and boat storage
-- Retreat, church or nonprofit organization owned and operated
-- Shooting range, gun club, simulated war games, or similar activities
-- Thermal pools and hot springs
-- Trade fairs and exhibitions, temporary (fourteen- (14-) day maximum), excluding flea markets and swap meets
-- Whitewater rafting launch or landing site

Section 80. Subsections A, B, D, E, F, G, H, I, J, and K of Section 19.42.030 remain unchanged.

Section 81. Section 19.42.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.42.070 Yards and setbacks.

Yard and setback requirements in the RF District are as follows:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Fifty-five (55) feet from the legal centerline of any existing or proposed local street or access easement.

2. Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

3. Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the front-yard minimum setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line, street or access easement.

B. Side Yard. There shall be a side yard on each side of any building of not less than ten (10) feet.

C. Rear Yard. There shall be a rear yard of not less than five (5) feet.

D. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 82. Subsection 19.46.020.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. Miscellaneous uses:
- -- Commercial coach, when incidental to a permitted use
- -- Drainage sump, if proposed and approved as part of a tentative subdivision map or tentative parcel map, or if accessory to a permitted use
- -- Garage or yard sales pursuant to Subsection A of Section 19.46.130 of this chapter
- -- Hunting or fishing club, not involving buildings or structures
- -- Water storage or groundwater recharge facilities
- -- Water system, small or large
- -- Wildlife or nature preserve

Section 83. Subsections A, B, C, D, and E of Section 19.46.020 remain unchanged.

Section 84. Subsection 19.46.030.D of the Ordinance Code of the County of Kern is hereby amended to read as follows:

D. Industrial uses:
1. Industrial Manufacturing or Assembly
   - -- Brick manufacturing
   - -- Cement
   - -- Concrete block manufacturing
   - -- Oil refining
   - -- Mining products milling
   - -- Powder coating, spray painting, and sandblasting
2. Industrial Storage:
   - -- Liquefied petroleum gas, bulk storage or distribution, in excess of two thousand (2,000) gallons capacity
   - -- Truck and heavy equipment parking and storage

Section 85. Subsections A, B, C, E, F, G, H, I, J, and K of Section 19.46.030 remain unchanged.

Section 86. Section 19.46.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.46.070 Yards and setbacks.

The following yard and setback requirements apply in the NR District:

A. Front Yard. The front-yard minimum setback for all buildings shall be as follows:

1. Fifty-five (55) feet from the legal centerline of any existing or proposed public or private local street or access easements.

2. Seventy (70) feet from the legal centerline of any existing or proposed secondary highway.

3. Eighty (80) feet from the legal centerline of any existing or proposed major highway.

In no case shall the minimum front-yard setback be less than twenty-five (25) feet from the right-of-way established by any Official or Specific Plan Line, street, or access easement.

B. Side Yard. There shall be a side yard on each side of any building of not less than five (5) feet, except that on the street side of corner lots, buildings shall have a side yard of not less than ten (10) feet from the right-of-way of any local street, existing or proposed secondary or major highway, or the right-of-way established by any Official or Specific Plan Line.

C. Rear Yard. There shall be a rear yard of not less than five (5) feet, except that in the case of through lots, the designated rear yard shall be in accordance with the front-yard setback requirements.

D. In no case shall the buildings be located in any existing or future right-of-way established by any Official or Specific Plan Line, street, access easement, or adopted Circulation Element of the applicable General or Specific Plan.

Section 87. Section 19.56.180 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.56.180 Temporary uses.

Notwithstanding Sections 19.56.140 through 19.56.150 of this chapter, when a PD District has been established and is in effect, the Planning Director is authorized to approve a temporary use of the property consistent with the uses authorized by the base district within which the PD District is combined, but involving no permanent buildings or structures, if the Planning Director determines that such temporary use would not be detrimental to the public health, safety, and welfare, subject to the following conditions:

A. The applicant shall submit an application for a PD site development plan review.

B. Authorization for a temporary use shall be evidenced by a temporary precise development plan approved by the Planning Director in accordance with the procedures set out in Sections 19.102.080 through 19.102.110 of this title.

C. The Planning Director may impose reasonable conditions to ensure that the temporary use will not be detrimental to the public health, safety, and welfare.

D. Such temporary precise development plan may be revoked by the Planning Director at any time, if, in the exercise of his/her reasonable discretion, he/she determines that continued temporary use of such property without the safeguards provided by an approved PD site development plan would be detrimental to the public health, safety, and welfare.

E. No temporary use authorized by a temporary precise development plan shall ever ripen into the status of a permanent right or legal nonconforming use.

F. Upon approval of a precise development plan authorizing the permanent use of the property or upon expiration of the temporary precise development plan, the temporary precise development plan shall become null and void and the premises shall be completely vacated and restored to its original condition, except as otherwise authorized by a precise development plan approved for the permanent use of the property.

Section 88. Section 19.58.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.58.130 Site development plan review -- Required.

No use shall be established, no development shall occur, and no building or grading permit shall be issued for any use or development in the CL District until an application for site development plan review has been submitted to and approved by the Planning Director in accordance with the procedures set out in Sections 19.102.070 through 19.102.120 of this title, the Planning Commission in accordance with the procedures set out in Sections 19.102.130 through 19.102.170 or this, or submitted to and approved by the Board of Supervisors in accordance with the procedures set out in Sections 19.102.190 through 19.102.230 of this title when submitted in conjunction with an application for a change of zone classification.

Section 89. Subsection 19.82.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

G. Institutional Uses:

1. Auditorium: One (1) per three and one-half (3 1/2) seats,

2. Cemetery: One (1) per three and one-half (3 1/2) seats in the chapel plus one (1) per two hundred and fifty (250) square feet of office space,

3. Church or auditorium: One (1) per three and one-half (3 1/2) seats,

4. Community care facilities and rehabilitation facilities: One (1) per three (3) beds, plus one (1) for each full-time employee on the shift with the largest number of employees,

5. Convalescent hospital or sanitarium: One (1) per four (4) patient beds,

6. Hospital: One (1) per two (2) patient beds,

7. Library or museum: One (1) per five hundred (500) square feet of public use area,

8. Meeting halls and other places of public assembly where no fixed seating is provided: One (1) per forty (40) square feet of gross floor area.

Section 90. Subsections A, B, C, D, E, F, H, I, J, K, L, M, and N of Section 19.82.020 remain unchanged.

Section 91. Subsection 19.84.070.C is hereby added to the Ordinance Code of the County of Kern to read as follows:

C. In addition to the above-stated entitlements to temporary subdivision signs, the following additional provisions for all that unincorporated area included within the boundaries of the Metropolitan Bakersfield 2010 General Plan shall apply pertaining to the establishment of kiosks to provide off-site directional information pertaining to residential subdivision identification:

1. Requirements for directional kiosks.

a. Kiosks shall be permitted in all zone districts except in the FPP (Floodplain Primary) District and except on a lot developed with a single-family residence. They may be permitted on private land or public right-of-way that is maintained by the property owner provided the property owner's permission has been granted in writing. Signs may also be permitted within the public right-of-way or parkway that is maintained by the County or the County's contractee, subject to approval and issuance of an encroachment permit by the Kern County Roads Department. Any such sign installed within a public road right-of-way shall be installed a minimum of ten (10) feet from the existing edge of pavement (or flowline) except as otherwise authorized by the Kern County Roads Department Director. If the Kern County Roads Department Director subsequently determines that the sign constitutes a safety hazard or must be removed to accommodate road widening, the permittee shall remove the sign within thirty (30) days of a written request to do so at no cost to the County;

b. Kiosks shall be constructed of wood or similar product with individual panels provided for placement of subdivision or project names and direction;

c. Kiosk locations shall be approved by the Planning Director or appointed designee. A kiosk shall not be placed closer than one thousand (1,000) feet from an existing kiosk or approved site where a kiosk is to be constructed. The Planning Director or appointed designee may reduce the distance between kiosks where:

i. Kiosks are located at different corners of an intersection and face different directions,

ii. The street intersection where the kiosk is proposed is less than one thousand (1,000) feet away from a street intersection that contains a kiosk and it is necessary to provide direction to subdivisions or projects to which that street provides the most direct or only access,

iii. Kiosks (two (2) maximum) are necessary to be placed adjacent to one another because the number of subdivisions or projects that are being identified exceeds the number of panels allowed on one kiosk;

d. Architectural design, color, letter style, and any other design elements of the kiosk shall be consistent with the standards shown in Figure 19.84.070.C;

e. Kiosks shall not exceed a height of twelve (12) feet and a width of six (6) feet. An individual panel shall be limited to a maximum width of six (6) feet and a height of ten (10) inches. No more than eight (8) individual name panels shall be permitted on a kiosk;

f. Kiosks may have more than one (1) face. Multiple faces are encouraged where the kiosk can be sited to serve traffic traveling in opposite directions, or where it would reduce the amount of kiosks needed to provide adequate direction to residential subdivisions. Multiple-faced kiosks shall be approved by the Planning Director or appointed designee;

g. A name panel shall be limited to a single line of text that may contain only the subdivision, project, builder or developer's name, or combination thereof. All panels shall include a direction arrow pointing in the direction of the identified project. Mileage to the specific subdivision or project may be also provided under the direction arrow. Name panels shall conform to all design elements as approved pursuant to Subsection C.1.d.;

h. Tag signs, streamers, banners, balloons, devices, display boards, or other appurtenances shall not be added, placed upon, or erected adjacent to or within a radius of one hundred (100) feet of any existing kiosk;

i. Kiosks shall not be illuminated nor shall they emit any kind of radio or microwave signal;

j. Kiosks shall not obstruct the use of sidewalks, walkways, bicycle, or hiking trails and shall not obstruct the free and clear vision of motor vehicle operators, cyclists, pedestrians, or the visibility of traffic control signs and lights as determined by the Kern County Roads Department Director;

k. Kiosks shall be set back a minimum of twenty-five (25) feet from side and rear property lines. No setback shall be required from street frontages or those kiosks located within public rights-of-way, except as otherwise specified pursuant to Subsection C.1.a.;

2. Permits:

a. Any sign company or developer of a new recorded residential subdivision which contains approved lots or homes which have never been sold, may apply for a permit to install a kiosk to provide direction to their subdivision. The individual named as the permittee shall be held legally responsible for compliance with the terms of this section (19.84.070.C);

b. Applications for kiosk shall be made on forms provided by the Planning Director or appointed designee, be signed under penalty or perjury by the applicant, and shall require a minimum, the following information:

i. The name, mailing address, title, and telephone number of the property owner, subdivider, and developer/builder of the specific development,

ii. The name, mailing address, title, and telephone number of the permittee,

iii. The name and location of the specific development,

iv. A plot plan showing the exact location of the proposed sign structure,

v. A statement that the development contains approved lots or new homes which have not yet been sold,

vi. If the permit is for the construction of a sign structure within a public road right-of-way, an encroachment permit issued by the Kern County Roads Department;

c. The Planning Director or appointed designee may issue a permit if:

i. The application is complete and truthful,

ii. The applicant is the person or entity selling new lots or new homes,

iii. The development is located entirely within the Metropolitan Bakersfield 2010 General Plan area,

iv. The kiosk and panels meet all of the design criteria within this section,

v. The location criteria of this section has been satisfied,

vi. Appropriate fees have been paid;

d. The installation of panels shall be administered by the permittee. If a dispute arises over the installation of a sign panel, the Planning Director shall make the decision concerning the installation of that panel. The decision of the Planning Director shall be final;

3. Program administration:

a. Sign structures permitted under this section (19.84.070.C) shall be continuously maintained in good condition by the permittee. Upon approval by the County, sign maintenance may be assumed by a responsible party other than the permittee;

b. Kiosks shall be sited based on demand and where they will provide the best direction to residential subdivisions where homes/lots are being sold;

c. Sign panels shall be available to all developments selling new homes on a first-come-first-serve basis, beginning with the highest panel on the kiosk and progressing downward on the kiosk with each subsequent name. Waiting lists shall be established for each kiosk (existing or proposed) for new name panels on a first-come-first-serve basis of applications that have met the requirements of Subsection C.2.c.;

d. When a panel name is changed or a panel is removed from a kiosk, all lower panels shall be moved upwards so that any new panel is placed on the bottom of the kiosk;

e. All panel changes shall be the responsibility of the permittee;

f. A specific subdivision is limited to one (1) panel for each kiosk. Multiple panels shall not be combined to identify or provide information regarding the same specific subdivision. There shall be no limit on the number of kiosks a specific project may be identified on provided the

kiosk is within a five mile radius of the exterior boundaries of the subdivision to be identified;

g. Within ten (10) days after selling the last lot or home or within two (2) years after recordation of the final map for the subdivision of which the project is located, whichever occurs first, panel signs that identify said project shall be removed from all kiosks. Two (2) extensions of time may be granted by the Planning Director not to exceed one (1) year for each request if the extension is needed to complete any sales in that project;

h. Any kiosk sign structure shall be completely removed by the permittee whenever any of the following occur:

i. A period of five (5) years has elapsed since original permit approval,

ii. There have been no new residential subdivisions recorded in the last three (3) years within a two- (2-) mile radius of the sign structure,

iii. The permittee has been notified by the Kern County Roads Department Director to remove the sign on the basis of public safety or necessity,

i. For any kiosk sign structure erected within a County road right-of-way, a performance bond in an amount sufficient to remove the structure shall be approved by and posted with the Kern County Roads Department;

4. Violations and abatement:

a. Any permit issued pursuant to this section shall be immediately revoked by the Planning Director if it has been found that the permit holder has erected and maintained any sign in violation of this section. Any affected kiosk sign structure or panel shall be completely removed within thirty (30) days upon written notification by the Planning Director or the Roads Department Director to do so;

b. Any order of the Planning Director or Roads Department Director shall be made in writing, addressed to the permit holder, and shall set forth the findings for revoking any permits and the method to appeal the decision. If no appeal is filed, the decision of the Planning Director or the Roads Department Director shall be final and conclusive;

5. Appeal:

a. Any decision of the Planning Director or Roads Department Director to deny or revoke a permit pursuant to this section (19.84.040.C) shall be subject to appeal by the permittee to the Kern County Planning Commission;

b. The applicant may file with the Planning Director a notice of appeal to the action of the Planning Director indicating the basis of appeal within seven (7) calendar days of such action. The appeal shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title;

c. The Planning Commission shall consider the appeal within thirty (30) days of the filing of such appeal. No public hearing or notice shall be required;

d. The Planning Commission may reverse or affirm the action of the Planning Director. The action of the Planning Commission shall constitute a ministerial action and shall be based solely on whether or not the proposed use or development meets the development standards and conditions specified in or established pursuant to the applicable section or sections of this title;

e. The decision of the Planning Commission pursuant to this section may be appealed to the Board of Supervisors pursuant to Subsection A of Section 19.102.170 of this chapter.

Section 92. Subsections A and B of Section 19.84.070 remain unchanged.

Section 93. Section 19.86.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.86.050 Landscaping standards -- Commercial, recreation, and Institutional uses

The following standards apply to landscaping plans for commercial developments; recreation, entertainment, and tourist facilities; and institutional uses:

A. A minimum of five percent (5%) of the total developed lot area shall be landscaped. A maximum of one-half (1/2) of the five percent (5%) may be turf.

B. Along any interior property line abutting residentially zoned lots, trees shall be planted. The planters shall be sufficiently large and protected so that a parked car does not extend into the minimum four- (4-) foot by four- (4-) foot tree planting area which shall be landscaped with ground cover, shrubs, or climbing plants.

C. Planters or landscaped areas shall be provided in off-street parking areas in accordance with the requirements of Subsection I of Section 19.82.090 of this title. No plant material that will grow to a height of more than eighteen (18) inches shall be planted in the street right-of-way, except where authorized by the Roads Department.

D. Within each planter or landscaped area, a water-efficient irrigation system with automatic timer and live landscaping shall be provided and maintained, except that an irrigation system is not required to serve planters or landscaped areas devoted exclusively to native indigenous plants. The use of drip irrigation systems shall be strongly encouraged.

E. Landscaping materials and trees installed in planters or landscaped areas shall be selected based upon their adaptability to the climatic, geologic, and topographical conditions of the site. Use and protection of native plants and natural areas is highly encouraged.

Section 94. Section 19.86.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.86.060 Landscaping standards -- Industrial uses.

The following standards apply to landscaping plans for industrial uses:

A. A minimum of five percent (5%) of the developed area shall be landscaped. A maximum of one-half (1/2) of the five percent (5%) may be turf.

B. Along any interior property line abutting residentially zoned lots, trees shall be planted. The planters shall be sufficiently large and protected so that a parked car does not extend into the minimum four- (4-) foot by four- (4-) foot tree planting area which shall be landscaped with ground cover, shrubs, and climbing plants.

C. Planters or landscaped areas shall be provided in off-street parking areas in accordance with the requirements of Subsection I of Section 19.82.090 of this title. No plant material that will grow to a height of more than eighteen (18) inches shall be planted in the street right-of-way, except where authorized by the Roads Department.

D. Within each planter or landscaped area, an irrigation system and live landscaping shall be provided and maintained, except that an irrigation system is not required to serve planters or landscaped areas devoted exclusively to native indigenous plants. Automatic timers shall be utilized and the use of drip irrigation systems shall be strongly encouraged.

E. Landscaping materials and trees installed in planters or landscaped areas shall be selected based upon their adaptability to the climatic, geologic, and topographical conditions of the site. Use and protection of native plants and natural areas is highly encouraged.

Section 95. Subsection 19.90.030.F of the Ordinance Code of the County of Kern is hereby amended to read as follows:

F. Either the principal dwelling or the secondary residential unit on the lot shall be occupied by the property owner.

Section 96. Subsections A, B, C, D, E, G, H, I, J, K, and L of Section 19.90.030 remain unchanged.

Section 97. Section 19.90.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.90.040 Conditional use permit -- Required.

No secondary residential unit may be established until an application for a conditional use permit has been submitted to and approved by the Planning Commission.

Section 98. Section 19.98.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.98.040 Drilling by conditional use permit.

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Planning Commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Planning Commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity;

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve-(12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Planning Commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

Section 99. Section 19.100.020 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.020 Permit -- Reclamation plan -- Required.

Subject to the exceptions specified in Section 19.100.010 of this chapter, no surface mining operations may be undertaken anywhere in unincorporated Kern County unless a surface mining permit and a reclamation plan has been submitted to and approved by the Planning Commission in accordance with the procedures set out in Sections 19.102.130 through 19.102.180 of this title. All surface mining permits and

reclamation plans, including amendments of same, are subject to a thirty-(30-) day review period by the State Department of Conservation. For projects requiring the preparation of an environmental document pursuant to the California Environmental Quality Act, the review period shall commence with the Department of Conservation's receipt of the draft environmental document.

Section 100. Subsection 19.100.030.L of the Ordinance Code of the County of Kern is hereby amended to read as follows:

L. Reclamation plan including the following information:

1. The anticipated quantity and type of minerals for which the surface mining operation is to be conducted

2. The proposed dates for the initiation and termination of such operation

3. The maximum anticipated depth of the surface mining operation

4. The size and legal description of the lands that will be affected by such operation, a map that includes the boundaries and topographic details of such lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, such lands, the location of all proposed access roads to be constructed in conducting such operation, and the names and addresses of the owners of all surface and mineral interests of such lands

5. A description of and plan for the type of surface mining to be employed and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation

6. A description of the proposed use or potential uses of the land after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses

7. A description of the environmental setting of the site and the effect that possible alternate reclaimed site conditions may have upon the existing and future uses of surrounding lands.

8. A description of how site reclamation may impact the public health and safety, giving consideration to the degree and type of present and probable future exposure of the public to the site.

9. A description of any areas to be mined to produce additional materials for backfilling and grading, as well as settlement of filled areas.

10. A description of the manner in which reclamation adequate for the proposed use or potential uses will be accomplished, including:

a. A description of the manner in which contaminants will be controlled and mining waste will be disposed,

b. A description of the manner in which rehabilitation of affected stream bed channels and stream banks to a condition minimizing erosion and sedimentation will occur,

c. A description of existing wildlife habitat and a plan to ensure that habitat conditions which exist are maintained or improved in the course of reclamation, unless the proposed end use precludes its use as wildlife habitat,

d. A description of the manner in which backfilling, regrading, slope stabilization, scarification, ripping, and recontouring will occur,

e. A description of the manner in which topsoil will be salvaged and the manner in which the site will be revegetated,

f. A description of any existing topographical features that will be significantly altered as a result of mining activity,

g. A description of the manner in which existing site drainage patterns will be disturbed through mining activity and a description of drainage patterns that are expected after site reclamation,

h. A description of the manner in which all buildings, structures, and equipment will be removed, including any previously abandoned structures or equipment,

i. A description of the necessity for and the manner in which post reclamation monitoring will occur;

11. A detailed line item cost breakdown estimating all reclamation costs, including, but not limited to:

a. Costs of backfilling, regrading, slope stabilization, and recontouring,

b. Costs of revegetation and wildlife habitat replacement,

c. Costs of final engineering design,

d. Costs of labor, including supervision,

e. Costs of mobilization,

f. Costs of equipment,

g. Costs of removal of buildings, structures, and equipment,

h. Costs associated with reduction of specific hazards, such as: heap leaching facilities, chemical processing ponds, soil decontamination, in-water slopes, highwalls, landslides, subsidence, or other mass ground failure,

i. Costs of drainage and erosion control measures,

j. Costs of soil tests,

k. Costs of haul road ripping and reseeding,

l. Costs of fencing,

m. Costs of liability insurance,

n. Costs of long-term stabilization, control, containment of waste solids and liquids;

12. A letter from the Kern County Engineering and Survey Services Department stating that the estimated costs of reclamation have been reviewed and found to be sufficient by that department;

13. An assessment of the effect of implementation of the reclamation plan on future mining in the area;

14. A statement that the person submitting the plan accepts the responsibility for reclaiming the mined lands in accordance with the reclamation plan;

15. Any other information determined by the Planning Director or the State Mining and Geology Board to be necessary for consideration of the reclamation plan;

Section 101. Subsections A, B, C, D, E, F, G, H, I, J, and K of Section 19.100.030 remain unchanged.

Section 102. Subsection 19.100.040.C of the Ordinance Code of the County of Kern is hereby amended to read as follows:

C. Surface mining operations shall comply with any conditions deemed necessary or convenient by the Planning Commission to effect the purposes of this chapter, including conditions with respect to the following:

1. The environmental objectives set forth in California Public Resources Code Section 21000,

2. Protection of the health, safety, and welfare of persons residing near the site of the mining operation and the general public,

3. Reasonable preservation of the values and uses and opportunity for potential uses of the adjacent and nearby areas insofar as this is not inconsistent with the provisions of the act, State policy, this chapter, or any implementing standards or procedures adopted by the Board of Supervisors.

Section 103. Subsections A and B of Section 19.100.040 remain unchanged.

Section 104. Section 19.100.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.050 Minor plan modifications.

The Planning Director may review and approve minor plan modifications to approved reclamation plans in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. Where the Planning Director determines that a proposed amendment constitutes a substantial deviation from the original plan, the proposed amendment shall be considered by the Planning Commission. Any change to adopted conditions of approval or increases in the amount of surface area to be disturbed shall be treated as a substantial deviation from the approved plan and shall be considered by the Planning Commission at a regularly scheduled public hearing.

Section 105. Section 19.100.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.070 Violation -- Notice to correct.

A. Either the Building Official or the Planning Director may initiate enforcement action pursuant to this section. If, after conducting the annual inspection or otherwise confirmed by an inspection of the mining operation, the Building Official finds that the surface mining operation is not in compliance with the approved mining plan, the approved reclamation plan, any permit conditions imposed by the County, the provisions of this ordinance, or the Surface Mining and Reclamation Act, the Building Official may notify the operator and the owner of the subject property of that violation by personal service or certified mail. If the violation continues beyond thirty (30) days after the date of issuance of the Building Official's notice of violation, the Building Official shall notify the Planning Director of that fact. Thereupon, the Planning Director may issue an order by personal service or certified mail requiring compliance or, if the operator does not have an approved reclamation plan, to cease all further mining activities. Said order shall specify which aspects of the surface mine's activities or operations are inconsistent with the approved mining plan, approved reclamation plan, permit conditions, the provisions of this ordinance, or the Surface Mining and Reclamation Act; shall specify a time for compliance which the Planning Director determines is reasonable, given the seriousness of the violation and any good faith efforts to comply with applicable requirements; shall set a date for a public hearing before the Planning Commission no sooner than thirty (30) days after the date of issuance of the order; and shall not take effect until the operator has been provided a public hearing concerning the violation pursuant to the provisions contained in Section 19.102.020. In instances where a violation of this chapter exists with respect to a mining operation which has not secured approval of a surface mining permit and/or reclamation plan, the requirement to hold a public hearing pursuant to this section and Section 19.100.080 may be waived by the Planning Director. The property owner(s) shall ultimately be held responsible for any default by any lessee or operator related to permit noncompliance or site abandonment.

B. The time within which the permittee must commence correction of the violation shall not be sooner than sixty (60) days after such notice is given, unless it is determined that earlier action is required for the protection of public safety. Any surface mining operation determined not to be in compliance with this chapter and which presents an imminent and substantial endangerment to the public health or the environment, as determined by the Planning Director or the State Department of Conservation, may be enjoined from further operations by order from a court of competent jurisdiction.

Section 106. Section 19.100.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.080 Failure to comply with notice -- Permit review.

A. Where the Building Official has reported a failure to comply with a notice pursuant to Section 19.100.070, the Planning Director shall set

a date for a public hearing before the Planning Commission for review of the surface mining permit and/or reclamation plan pursuant to Section 19.102.020 and Sections 19.102.150 through 19.102.170 of this title.

B. At the hearing, the Planning Commission shall determine whether or not the operator is complying with the approved mining plan, the approved reclamation plan, the permit conditions, or the provisions of this ordinance and may affirm, modify, or set aside the order issued by the Planning Director. The decision of the Planning Commission may be appealed to the Board of Supervisors, pursuant to the provisions specified in Section 19.102.170.

Section 107. Section 19.100.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.090 Permit review -- Actions by board.

After such matter has been heard and considered, the Planning Commission may take any of the following actions:

A. Revoke the permit;

B. Require the reclamation program to begin immediately or within a prescribed time following the effective date of revocation of the permit;

C. Allow additional time within which to cure the violation, if requested by the permittee, not to exceed a maximum of six (6) months from the date of the Board's decision;

D. Impose new or additional conditions on the permit or on the reclamation plan;

E. Increase the amount of the original security to guarantee reclamation in accordance with the plan;

F. Recommend to the Board of Supervisors proceedings to recover on any security;

G. Recommend to the Board of Supervisors that the County conduct work to accomplish the reclamation plan, to perform any conditions in default, or otherwise cure any default;

H. Recommend to the Planning Director the imposition of an administrative penalty of not more than five thousand dollars ($5,000) per day, assessed from the original date of noncompliance with this chapter or with the conditions of any approved surface mining permit or reclamation plan, as authorized by Section 2774.1 of the Surface Mining and Reclamation Act;

I. Such other order or orders as may be appropriate to correct the violation or default.

Section 108. Section 19.100.100 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.100.100 Administrative penalties.

A. Any operator who fails to comply with an order issued by the Planning Director or Planning Commission after the order's effective date or who fails to submit a report to the Director of the Department of Conservation

or County as required by Section 2207 of the Public Resources Code, shall be subject to an order by the Planning Director imposing an administrative penalty of not more than five thousand dollars ($5,000) per day, assessed from the original date of the Building Official's notice of violation or noncompliance pursuant to Section 19.100.070. In determining the amount of the administrative penalty, the Planning Director shall take into consideration the nature, circumstances, extent and gravity of the violation or violations, any prior history of violations, the degree of culpability, economic savings, if any, resulting from the violation, and any other matters justice may require. An order imposing an administrative penalty shall become effective upon issuance, and payment shall be made to the Planning Department within thirty (30) days, unless the operator petitions the Board of Supervisors for review of the order. Said order shall be served by personal service of by certified mail upon the operator.

B. If the operator petitions the Board of Supervisors for review of the order imposing an administrative penalty, the operator shall be notified by personal service or certified mail as to when the matter has been set for public hearing. The Board of Supervisors may affirm, modify, or set aside, in whole or in part, by its own order, any order of the Planning Director imposing an administrative penalty. Any order of the Board of Supervisors shall become effective upon issuance thereof and shall be served by personal service or certified mail upon the operator. Payment of any administrative penalty specified in the Board of Supervisor's order shall be made to the Planning Department within thirty (30) days of the service of the order.

Section 109. Section 19.102.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.040 General requirements -- Permit types.

The ministerial permits specified in this title for review pursuant to this article shall be issued by the Planning Director upon submission of an application containing the information specified in applicable sections of this title and a determination by the Planning Director that the proposed use or development meets the development standards and conditions specified in the applicable section or sections of this title. These permits include:

A. Temporary animal permits plot plan review (Sections 19.14.130 and 19.60.130 through 19.60.160);

B. Extensions for temporary mobilehomes and recreational vehicles (Sections 19.16.130 and 19.18.130);

C. Mobilehome park plot plan review (Sections 19.26.130 through 19.26.190);

D. Minor plan modifications (Sections 19.52.130 through 19.52.180, 19.56.130 through 19.56.200, 19.58.130 through 19.58.180, and 19.100.050);

E. Wind generator plot plan review (Sections 19.64.130 through 19.64.150);

F. Geologic hazard plot plan review (Sections 19.68.130 through 19.68.150);

G. Airport approach height approval (Sections 19.76.130 and 19.76.140);

H. Special development standards plot plan review (Sections 19.80.040 through 19.80.070);

I. Off-street parking plot plan review not in conjunction with a ministerial permit (Sections 19.82.100 through 19.82.130);

J. Landscaping plot plan review not in conjunction with a ministerial permit (Sections 19.86.070 through 19.86.90);

K. Density bonus permit (Sections 19.92.030 through 19.92.060);

L. Home occupation permit (Sections 19.94.050 through 19.94.080);

M. Production water injection wells for the purpose of disposing of production wastewater produced in the same oilfield in which the injection well is located (Section 19.98.030);

N. Oil and gas plot plan review (Section 19.98.030);

O. Large family day-care permit (Sections 19.96.030 through 19.96.060);

P. Temporary batch plant (thirty (30) days or less) plot plan review (Section 19.08.290).

Section 110. Section 19.102.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.060 Permit denial -- Appeal.

If the Planning Director denies a permit pursuant to this article, the applicant may appeal such action to the Planning Commission.

A. The applicant may file with the Planning Director a notice of appeal to the action of the Planning Director indicating the basis of appeal within seven (7) calendar days of such action. The appeal shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

B. The Planning Commission shall consider the appeal within thirty (30) days of the filing of such appeal. No public hearing or notice shall be required.

C. The Planning Commission may reverse or affirm the action of the Planning Director. The action of the Board shall constitute a ministerial action and shall be based solely on whether or not the proposed use or development meets the development standards and conditions specified in or established pursuant to the applicable section or sections of this title.

D. The decision of the Planning Commission pursuant to Subsection C of this section may be appealed to the Board of Supervisors pursuant to Subsection A of Section 19.102.170 of this chapter.

Section 111. Section 19.102.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

Article III. Discretionary Permit Decisions by the Planning Director

19.102.070 General requirements -- Permit types.

The discretionary permits specified in this title for review pursuant to this article may be issued by the Planning Director following submission of an application containing the information specified in the applicable section of this title and a properly noticed public hearing. These permits include:

A. Precise development plan review (Sections 19.56.130 through 19.56.200);

B. Cluster combining site development plan review (Sections 19.58.130 through 19.58.180);

C. Conditional use permits and variances when filed in conjunction with an application for a discretionary permit to be heard by the Planning Director (Chapters 19.106 and 19.108);

D. Zone modifications (Chapter 19.110);

E. Extensions of time;

F. Temporary event permit (Section 19.08.340);

G. Temporary precise development plan (Section 19.56.180);

H. Variances (Chapter 19.106).

Section 112. Section 19.102.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.090 Notice and hearing.

A. When an application has been accepted as complete in accordance with this chapter, the Planning Director shall set the application for a public hearing.

B. At least ten (10) calendar days before the date of any public hearing, the date, time, place of the hearing, identity of the hearing body, and the nature and location of the application shall be given by the following methods:

1. Publishing such notice once in a newspaper of general circulation,

2. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment roll of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth (1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice,

3. In lieu of the requirements set forth in Subparagraph 1 of this subsection, notice may be given by posting notices not more than

three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property,

4. Notification for the consideration of precise development plans (Section 19.56.130) and zone modifications (Chapter 19.110) shall be as specified in Subsections 19.102.090.B.1 and 3. In addition, notification shall include the mailing or delivering notice, postage prepaid, to the property owner(s), owners of all abutting properties, the applicant(s), to each member of the Board of Supervisors, and to any person who has filed a written request for such notice,

5. Notification for the consideration of any discretionary permit to permit installation of communication towers on property located outside the boundaries of the Metropolitan Bakersfield 2010 General Plan shall be as specified in Subsection 19.102.090.B.1 in instances where the communication tower will exceed thirty-five (35) feet in height and the majority of parcels abutting the project site are one (1) acre or larger in size. In addition, notification shall include the mailing or delivering notice, postage prepaid, to the property owner(s), owners of all property within eight hundred (800) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice,

6. For extension of time requests, temporary event permits, and temporary precise development plans, no formal notification pursuant to this section shall be required.

C. Public Hearing. A public hearing shall be held before the Planning Director at a time and place in accordance with the public notice. The Planning Director may establish his/her own rules for the conduct of such hearings. Evidence shall be offered or presented, and the name of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the Planning Director or his/her designee shall announce the time and place to which the hearing will be continued. If it is determined to be in the public interest, the Planning Director may schedule a public hearing for any permit type specified in Section 19.102.070 directly before the Board of Supervisors, in which case a decision shall be rendered in accordance with Section 19.102.220.

Section 113. Section 19.102.130 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

Article IV. Discretionary Permit Decisions by the Planning Commission

19.102.130 General requirements -- Permit types.

The permits specified in this article may be issued by the Planning Commission following submission of an application containing the information specified in the applicable section of this title and a properly noticed public hearing. These permits include:

A. Conditional use permits (Chapter 19.104);

B. Zone modifications when filed in conjunction with an application for a permit to be heard by the Planning Commission (Chapter 19.110);

C. Surface mining permits and reclamation plans (Chapter 19.100);

D. Secondary residential unit (Chapters 19.90 and 19.104);

E. Density bonus permit, when filed in conjunction with an application for a permit to be heard by the Planning Commission (Sections 19.92.030 through 19.92.060);

F. Variances, when filed in conjunction with an application for a permit to be heard by the Planning Commission (Chapter 19.106);

G. Cluster site development plan review (Sections 19.58.130 through 19.58.180) when filed in conjunction with an application for a tentative tract map;

H. Precise development plans, conditional use permits, variances, and zone modifications when filed in conjunction with an application for a tentative tract map (Chapters 19.104, 19.106, and 19.110);

I. Tentative tract maps (Chapters 18.10, 18.15, and 18.40 of the Land Division Ordinance).

Section 114. Section 19.102.135 is hereby added to the Ordinance Code of the County of Kern to read as follows:

19.102.135 General requirements — Advisory actions.

The following discretionary permits and actions shall be considered by the Planning Commission prior to consideration by the Board of Supervisors, following submission of an application containing the information specified in the applicable section of this title and a properly noticed public hearing. These permits and actions include the following:

A. Special planning site development plan review (Sections 19.52.130 through 19.52.180);

B. Precise development plan review, with associated variances, zone modifications, or conditional use permits, when filed in conjunction with an application for a change of zone classification (Sections 19.56.130 through 19.56.200 and Chapters 19.104, 19.106, and 19.110);

C. Cluster combining site development plan review (Sections 19.58.130 through 19.58.180) when filed in conjunction with an application for a change in zone classification;

D. Density bonus permit when filed in conjunction with an application for a change in zone classification or an application for a permit to be heard by the Board of Supervisors (Sections 19.92.030 through 19.92.060);

E. Conditional use permits, variances, and zone modifications when filed in conjunction with an application for a change in zone classification (Chapters 19.104, 19.106, and 19.110);

F. Amendments to this title (Chapter 19.112);

G. Application for change in zone classification (Chapter 19.112)

H. Agricultural preserve inclusion or exclusion requests;

I. Adoption of amendment of any General Plan or Specific Plan;

J. Williamson Act Land Use Contract cancellations, excluding cancellations of less than ten (10) acres for the purposes of creating an agricultural homesite, as determined by the Planning Director;

K. Referrals from the Board of Supervisors and the Planning Director.

Section 115. Section 19.102.140 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.140 Application.

A. An applicant for a discretionary permit or entitlement pursuant to this article shall submit an application to the Planning Director in the format and number of copies specified by the Planning Director. The application shall contain all the information specified for the application by the applicable section of this title, unless the Planning Director waives any of the information requirements. The application shall be accompanied by the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

B. The Planning Director shall inform the applicant in writing within thirty (30) calendar days of receipt that the application is complete or that additional information is needed to complete the application.

C. Upon acceptance of the application as complete and completion of an environmental document, if required, a public hearing shall be set in accordance with this chapter.

Section 116. Section 19.102.150 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.150 Notice and hearing.

A. When an application has been submitted in accordance with this chapter, the Planning Director shall set the application for a public hearing.

B. At least ten (10) days before the date of any public hearing, the date, time, place of the hearing, identity of the hearing body, and the nature and location of the application shall be given by the following methods:

1. Publishing such notice once in a newspaper of general circulation;

2. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to each member of the Planning Commission, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment roll of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth

(1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice;

3. In lieu of the requirements set forth in Paragraph 1 of this subsection, notice may also be given by posting notices not more than three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property;

4. Notification for the consideration of any discretionary permit to permit installation of communication towers on property located outside the boundaries of the Metropolitan Bakersfield 2010 General Plan shall be as specified in Subsection 19.102.150.B.1 in instances where the communication tower will exceed thirty-five (35) feet in height, and the majority of parcels abutting the project site are one (1) acre or larger in size. In addition, notification shall include the mailing or delivering notice, postage prepaid, to the property owner(s), owners of all property within eight hundred (800) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice.

C. Public Hearing. A public hearing shall be held before the Planning Commission at a time and place in accordance with the public notice. The Board of Supervisors shall establish rules for the conduct of such hearings. Evidence shall be offered or presented, and the name of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the presiding officer shall announce the time and place to which the hearing will be continued. If it is determined to be in the public interest, the Planning Director may schedule a public hearing for any permit type specified in Section 19.102.130 directly before the Board of Supervisors, in which case a decision shall be rendered in accordance with Section 19.102.220.

Section 117. Section 19.102.160 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.160 Decision.

A. The Planning Commission may approve, conditionally approve, or deny any application specified by Section 19.102.130 following the close of public testimony on the matter or within thirty-five (35) days thereafter by resolution except as provided in Title 18. Such resolution shall include findings in accordance with the provisions of this chapter. The decision shall be final, subject to appeal in accordance with this chapter. In the event that the Planning Commission is unable to reach a majority decision, as evidenced by a tie vote, the project is deemed denied.

B. Where an advisory action is required as specified by Section 19.102.135, the Planning Commission shall adopt a recommendation following the close of public testimony on the matter or within thirty-five (35) days thereafter by resolution. Such resolution shall include findings in support of the recommendation. In the event that the Planning Commission

is unable to reach a majority decision, as evidenced by a tie vote, the project is deemed denied. Within forty-five (45) days from the date a decision is rendered by the Planning Commission, a public hearing shall be scheduled before the Board of Supervisors to consider the Planning Commission's recommendation.

C. Written notice of such decision shall be given by mail within seven (7) calendar days after the date of the decision to the applicant and any person filing a written request for notice of the decision.

D. The decision of the Planning Commission on permits specified by Section 19.102.130 shall be final on expiration of fourteen (14) calendar days from and including the date of the decision, as required by Subsection (C) of this section, unless a notice of appeal is filed with the Planning Director within such time.

E. All conditions of approval shall be final, and a request to delete or to modify a condition shall only be considered at a properly noticed public hearing, unless said conditions are appealed pursuant to Section 19.102.170 of this chapter.

Section 118. Section 19.102.170 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.102.170 Appeal.

A. Any decision of the Planning Commission made pursuant to Section 19.102.130 shall be subject to appeal to the Board of Supervisors.

B. The applicant or any other person aggrieved may appeal from such decision by filing a written notice of appeal with the Planning Director prior to the time the decision becomes final. The Planning Director shall furnish forms of notice of appeal. The appeal shall be accompanied with the fee established by the Board of Supervisors pursuant to Section 19.06.030 of this title.

C. Notice of the hearing on appeal shall be given in the manner and time provided in Section 19.102.210 of this chapter. Notice of the hearing on appeal shall also be given not less than ten (10) days before such hearing to each person entitled to notice of the preceding decision.

D. The Board of Supervisors may reverse, affirm wholly or partly, modify, or attach other or additional conditions to the decision appealed from.

E. A decision of the Board of Supervisors on any such appeal shall be final on adoption of an order or resolution containing its determination, and no notice thereof need be given.

Section 119. Section 19.102.190 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

Article V. Discretionary Permit Decisions by the

19.102.190 General requirements -- Permit types.

The discretionary permits specified in this title for review pursuant to this article may be issued by the Board of Supervisors following submission of an application containing the information specified in the applicable section of this title and a properly noticed public hearing. These permits include:

A. SP site development plan review (Sections 19.52.130 through 19.52.180);

B. Precise development plan review, with associated variances, zone modifications, or conditional use permits, when filed in conjunction with an application for a change of zone classification or tentative tract map (Sections 19.56.130 through 19.56.200 and Chapters 19.104, 19.106, and 19.110);

C. CL site development plan review (Sections 19.58.130 through 19.58.180) when filed in conjunction with an application for change of zone classification or with a tentative tract map;

D. Density bonus permit when filed in conjunction with an application for a change of zone classification or an application for a permit to be heard by the Board of Supervisors (Sections 19.92.030 through 19.92.060);

E. Appeals of discretionary decisions by the Planning Director (Subsection (A) of Section 19.102.110)

F. Appeals of Planning Commission decisions (Section 19.102.170);

G. Conditional use permits, variances, and zone modifications when filed in conjunction with an application for a change in zone classification or for a tentative tract map (Chapters 19.104, 19.106, and 19.110);

H. Amendments to this title (Chapter 19.112);

I. Application for change of zone classification (Chapter 19.112);

J. Agricultural preserve inclusion or exclusion requests, agricultural preserve contracts, contract cancellation, and contract amendments;

K. Conditional use permit for native groundwater transport or transfer outside both Kern County and its watersheds (Chapter 19.118).

Section 120. Section 19.104.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.104.040 Basis for approval.

The decision-making authority may approve or conditionally approve an application for a conditional use permit if it finds all of the following:

A. The proposed use is consistent with the goals and policies of the applicable General or Specific Plan.

B. The proposed use is consistent with the purpose of the applicable district or districts.

C. The proposed use is listed as a use subject to a conditional use permit in the applicable zoning district or districts or a use determined to be similar to a listed conditional use in accordance with the procedures set out in Sections 19.08.030 through 19.08.080 of this title.

D. The proposed use meets the minimum requirements of this title applicable to the use and complies with all other applicable laws, ordinances, and regulations of the County of Kern and the State of California.

E. The proposed use will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity.

Section 121. Section 19.112.040 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.112.040 Notice of public hearing.

A. At least ten (10) days before the date of any public hearing on a proposed amendment to the text of this title changing regulations or standards affecting the use of any property or on an amendment to the Official Zoning Maps reclassifying property from one (1) district to another, notice of the hearing, identity of the hearing body, and the nature of the amendment, and identification of affected properties shall be given by the following methods:

1. Publishing such notice once in at least one (1) newspaper of general circulation,

2. Mailing or delivering notice, postage prepaid, to the property owner, the applicant, to each member of the Board of Supervisors, to each member of the Planning Commission, to the owners of all property within three hundred (300) feet of the exterior boundaries of the property which is subject of the application, and to any person who has filed a written request for such notice. For the purposes of this notice, property owners shall be the last known name and address of the property owner names on the last assessment role of the County. If the number of owners to whom notice would be mailed or delivered pursuant to this paragraph is greater than one thousand (1,000), a display advertisement of at least one-eighth (1/8) page in at least one (1) newspaper of general circulation may be published at least ten (10) days prior to the hearing in lieu of mailed or delivered notice,

3. In lieu of the requirements set forth in Paragraph (1) of this subsection, notice may also be given by posting notices not more than three hundred (300) feet apart along each street upon which the subject property abuts for a distance of not less than three hundred (300) feet in each direction from the exterior limits of the subject property.

B. At least ten (10) days before the date of any public hearing on a proposed amendment to the text of this title not changing regulations or standards affecting the use of any property, notice of the hearing, including the date, time, place of the hearing, identity of the hearing body, and the

nature of the amendment, shall be given by publishing such notice once in at least one (1) newspaper of general circulation.

Section 122. Section 19.112.050 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.112.050 Public hearing.

A. A public hearing shall first be held before the Planning Commission at a time and place in accordance with the public notice. The Board of Supervisors shall establish rules for the conduct of such hearings. The name of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the Planning Commission shall announce the time and place to which the hearing will be continued. Planning Commission shall adopt a recommendation for consideration by the Board of Supervisors as specified in Section 19.102.160.B.

B. Within forty-five (45) days from the date a decision is rendered by the Planning Commission, a public hearing shall be scheduled before the Board of Supervisors to consider the Planning Commission's recommendation. A public hearing shall be held before the Board of Supervisors at a time and place in accordance with the public notice. The Board of Supervisors may establish rules for the conduct of such hearings. The name of each witness shall be recorded and made a part of the permanent files. Any hearing may be continued provided that prior to adjournment or recess, the Board of Supervisors shall announce the time and place to which the hearing will be continued.

Section 123. Section 19.112.070 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.112.070 Time limitations on challenges.

Any action or proceeding to attack, review, set aside, void, or annul any decision made pursuant to Section 19.112.060, or concerning any of the proceedings, acts, or determinations taken, done, or made prior to such decision, or to determine the reasonableness, legality, or validity of any condition attached thereto, shall not be maintained by any person unless the action or proceeding is commenced within thirty (30) days after the date of decision, and the legislative body is served within sixty (60) days after the date of the decision. Thereafter, all persons are barred from any such action or proceeding or any defense of invalidity or unreasonableness of that decision or of these proceedings, acts, or determinations.

Section 124. Section 19.114.030 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.030 Inspection.

The Building Official or Planning Director may upon the presentation of proper credentials to the occupant or owner enter any premises, building,

or structure at any reasonable time for the purpose of investigating and inspecting said premises, building, or structure to determine whether the same are being used in compliance with the provisions of this title. If admission or entry is refused, the Building Official may apply to the District Attorney to obtain an inspection warrant.

Section 125. Section 19.114.060 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.060 Misdemeanor.

Any person, firm, corporation, owner of the land, or possessor who violates or who causes, permits, or allows a violation of any provision of this title is guilty of a misdemeanor and is subject to penalties and procedures as described in Chapter 8.54 of the Ordinance Code, and upon conviction thereof, shall be punished by a fine of not more than one thousand dollars ($1,000) or by imprisonment in the County Jail for not exceeding six (6) months, or by both such fine and imprisonment. Each day the violation of this title continues shall be considered a separate offense.

Section 126. Section 19.114.065 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.065 Notice of zoning violation.

Whenever the Building Official or his designee has knowledge of a violation of Title 19 of this code, he may cause a notice of intent to record a notice of violation to be mailed by certified mail to the then current owner of record of the property. The notice shall state that within thirty (30) days of the date of the notice, the owner may request a hearing with the Board of Supervisors to present evidence that a violation does not exist. The notice shall further describe the property and violation in detail.

Following the sending of the notice of intent to record a notice of violation and prior to recording the notice, if it is determined that no violation exists, the Building Official or his designee shall mail a clearance letter by certified mail to the then owner(s) of record.

In the event that a meeting is not requested and the violation has not been corrected, or in the event that after consideration of evidence, it is determined by the Board of Supervisors that a Zoning Ordinance violation in fact exists, the Building Official may record, without fee, a notice of violation in the Office of the County Recorder.

Upon request, the Building Official or his designee shall issue the affected property owner a notice of expungement of violation upon correction of all violation(s) noticed hereunder.

Section 127. Section 19.114.080 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.080 Injunctive relief.

The County may seek injunctive relief in Superior Court to abate any violation of this title or to prohibit any violation of this title. Injunctive relief may be sought at any time, including prior to the issuance or compliance with the Notice of Violation if, in the opinion of the Building Official, an alleged or anticipated violation of this title may be injurious to the public health or safety.

Section 128. Section 19.114.090 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.090 Abatement proceeding.

Any building or structure set up, erected, constructed, altered, enlarged, converted, moved, or maintained contrary to the provisions of this title, or any use of land, building, or premises conducted, operated, or maintained contrary to the provisions of this title or contrary to a permit or variance or the terms and conditions imposed therein is declared to be unlawful and a public nuisance, and the Building Official and/or the District Attorney shall commence action or proceedings for the abatement and removal and/or enjoinment thereof in the manner provided by this code or law and shall take such other steps and shall apply to such court or courts as may have jurisdiction to grant relief as will abate and remove such building or structure and restrain and enjoin any person, firm, or corporation from setting up, erecting, building, maintaining, or using any such building, structure, or vehicle or using any property contrary to the provisions of this title.

Section 129. Section 19.114.100 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

19.114.100 Recovery of costs.

This section establishes procedures for the recovery of administrative costs incurred by the County in the enforcement process, for the abatement of conditions defined as a violation by Section 19.04.879 in cases where no permit is required pursuant to the provisions of this title to abate such violation. These procedures are used where a violation is abated in advance of initiation of the procedures specified by this chapter.

A. Definition of Costs. For the purpose of this chapter, costs shall mean administrative costs, including staff time expended and reasonably related to violation abatement cases where no permit is required, for items including, but not limited to, investigation, site inspection and monitoring, reports, telephone contacts, correspondence, photography labs, consultants, and meetings with affected parties.

B. Cost Accounting and Recovery Required. The enforcement personnel shall maintain records of all administrative costs incurred by responsible County departments associated with the enforcement process pursuant to this chapter and shall recover the costs from the property owner as provided by this section. Staff time shall be calculated at an hourly rate as established and revised from time to time by the Planning Director.

C. Notice of Cost Recovery Requirements. The enforcement personnel shall include in the notice of violation a statement of the intent of the County to charge the property owner for all administrative costs associated with enforcement, and of the owner's right to a hearing if he or she objects to such charges. The notice shall state that the property owner will receive, at the conclusion of the enforcement case, a summary of administrative costs associated with the processing of the enforcement case at the hourly rate in effect at the time the case is initiated. The notice shall state that the property owner will have the right to object to the charges by filing a request for hearing with the Board of Supervisors within thirty (30) days of service of the summary of charges, pursuant to Subsection D of this section.

D. Summary of Costs. At the conclusion of the enforcement case, the enforcement personnel shall send a summary of costs associated with enforcement to the property owner by certified mail. The summary shall include a notice which states that if the owner objects to the charges, a request for hearing must be filed as provided by Subsection E of this section, and that if no such hearing is requested, the owner's right to object will be waived, and he or she will be fully liable for the charges, to be recovered in a civil action in the name of the County, in any court of competent jurisdiction within the County.

E. Hearing on Objection to Charges. Any property owner who receives a summary of costs pursuant to Subsection D of this section shall have the right to a hearing before the Board of Supervisors on his or her objections to the proposed costs, as follows:

1. Request for Hearing. A request for hearing shall be filed with the Planning Department within thirty (30) days of the service by mail of the summary of costs, in the form of a letter setting forth the nature of the property owner's objections to the costs;

2. Scheduling of Hearing. Not less than ten (10) days of the filing of the request for hearing, and on thirty (30) days written notice to the owner, the Board of Supervisors shall hold a hearing on the owner's objections and determine the validity thereof;

3. Decision by the Board of Supervisors. In determining the validity of the costs, the Board of Supervisors shall consider whether total costs are reasonable in the circumstances of the case. Factors to be considered include, but are not limited to, whether the present owner created the violation; whether there is a present ability to correct the violation; whether the owner moved promptly to correct the violation; the degree of cooperation provided by the owner; whether reasonable minds can differ as to whether a violation exists. The decision of the Board of Supervisors shall be final.

F. Collection of Charges. In the event that no request for hearing is filed pursuant to Subsection E of this section or after a hearing, the Board of Supervisors affirms the validity of the costs, the property owner shall be liable to the County in the amount stated in the summary or any lesser amount as determined by the Building Official. The County shall be reimbursed for all of said costs within forty-five (45) days from the date of

decision pursuant to Subsection E or, if no appeal is filed, within thirty (30) days from the mailing of the summary of costs pursuant to Subsection D. Payment may be received at the Planning Department. Delinquent fees shall be subject to a penalty of twenty-five percent (25%) of the total summary of costs. If payment is not received, such costs shall be recoverable in a civil action in the name of the County in any court of competent jurisdiction within the country.

Section 130. OPERATIVE DATE. This ordinance shall take effect and become operative on January 1, 1999.

BD:wl
#29759
98.2750

COPIES FURNISHED:
County Counsel
Planning
Tax Collector
12-11-98 sm

ORDINANCE NO. G-8035

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN, STATE OF CALIFORNIA:

AMENDING SECTIONS 2.16.010, 2.16.020, 2.23.030, 2.23.040; AMENDING CHAPTERS 2.25, 2.28, 2.32, 2.34, 2.36; AMENDING SECTIONS 2.56.030 AND 2.56.040; AMENDING SUBSECTION (C) OF SECTION 2.66.030 - ALL OF TITLE 2; AMENDING SECTION 4.30.050 - OF TITLE 4; AMENDING SECTIONS 5.04.080, 5.16.130, 5.16.150, 5.16.280, AND 5.20.060 - ALL OF TITLE 5; AMENDING SUBSECTION (E) OF SECTION 7.20.040 - OF TITLE 7; AMENDING SUBSECTION (C) OF SECTION 8.28.020; AMENDING SUBSECTION (H) OF SECTION 8.36.020 - ALL OF TITLE 8;
AMENDING SUBSECTIONS (C) AND (D) OF SECTION 10.08.040; AMENDING SECTION 10.08.070; AMENDING SUBSECTION (A) OF SECTION 10.08.090; AMENDING SUBSECTIONS (6), (21), (24), (25), (26), (32), AND (34) OF SECTION 10.16.160; AMENDING SUBSECTION (1) OF SECTION 10.16.170; AMENDING SUBSECTION (1) OF SECTION 10.16.180; AMENDING SUBSECTION (1) OF SECTION 10.16.190; AMENDING SUBSECTIONS (2), (3), AND (4) OF SECTION 10.16.200; AMENDING SUBSECTION (A) OF SECTION 10.16.205; AMENDING SUBSECTION (1) OF SECTION 10.16.230 - ALL OF TITLE 10; AMENDING SECTIONS 13.12.060, 13.12.090, AND 13.12.100 - ALL OF TITLE 13; AMENDING SECTION 14.08.230; AMENDING SUBSECTION (4) OF SECTION 14.12.300 – ALL OF TITLE 14; AMENDING SUBSECTIONS (B), (E), AND (G) OF SECTION 17.04.060; AMENDING SUBSECTION (A) OF SECTION 17.12.080; AMENDING SUBSECTION (A) OF SECTION 17.16.050; AMENDING SECTION 17.20.170; AMENDING SUBSECTION (D) OF SECTION 17.24.020; AMENDING SUBSECTION (A) OF SECTION 17.36.060; AMENDING SUBSECTION (12) OF SECTION 17.48.060; AMENDING SUBSECTION (B) OF SECTION 17.52.180 – ALL OF TITLE 17;
AMENDING SECTION 18.05.070; AMENDING SECTIONS 18.10.027 AND 18.10.030; AMENDING SECTIONS 18.70.123, 18.70.140, AND 18.70.186 - ALL OF TITLE 18; AMENDING SECTIONS 19.04.096, 19.04.568, 19.04.597, AND 19.04.600; AMENDING SUBSECTION (C) OF SECTION 19.14.130;
AMENDING SUBSECTION (A) OF SECTION 19.60.150; AMENDING SUBSECTION (F) OF SECTION 19.70.040; AMENDING SUBSECTION (B) OF SECTION 19.86.030; AMENDING SUBSECTION (B) OF SECTION 19.86.040; AMENDING SUBSECTION (B) OF SECTION 19.89.040; AMENDING SUBSECTION (O) OF SECTION 19.98.050 - ALL OF TITLE 19;
ALL OF THE ORDINANCE CODE OF THE COUNTY OF KERN RELATED TO THE DEVELOPMENT SERVICES AGENCY (FORMERLY THE RESOURCE MANAGEMENT AGENCY)

The following ordinance, consisting of eighty-five (85) sections, was duly and regularly passed and adopted by the Board of Supervisors of the County of Kern, State of California, at a regular meeting of the Board of Supervisors held on the 20th day of April, 2010, by the following vote, to wit:

AYES: McQuiston, Maben, Maggard, Watson, Rubio
NOES: None
ABSENT: None

Chairman of the Board of Supervisors of
the County of Kern, State of California

(SEAL)
ATTEST:

KATHLEEN KRAUSE
Clerk of the Board of Supervisors

By _____, Deputy Clerk

THE BOARD OF SUPERVISORS OF THE COUNTY OF KERN ORDAINS AS FOLLOWS:

Section 1. This ordinance shall take effect and be in full force on and after the 20th day of May, 2010, and shall be published once in the Bakersfield Californian, a newspaper of general circulation, published in the County of Kern, State of California, together with the names of the members of the Board of Supervisors voting for and against the same.

Section 2. Section 2.16.010 of Chapter 2.16, Title 2 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

2.16.010 Created.

The Engineering, Surveying, and Permit Services Department is established and shall be a component of the Development Services Agency of the County. The Department shall provide the drainage design, floodplain management, code compliance, building inspection, subdivision review, liquid waste management, county service area administration, permit administration, and county surveyor functions of the formerly existing engineering and survey services department. All existing directives and instructions which are applicable to the functions previously performed by the Engineering and Survey Services Department and Public Works Departments shall be applicable to and binding upon the Director and/or the Engineering and Survey Services.

Throughout this code, the term "Engineering and Survey Services Department" refers to and means the Engineering, Surveying, and Permit Services Department.

Section 3. Section 2.16.020 of Chapter 2.16, Title 2 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

2.16.020 Director.

The position of Director of Engineering, Surveying, and Permit Services is created. The Director shall be appointed by and serve under the direction and authority of the Development Services Agency Director. The Director shall, subject to the civil service system of the county, employ such assistances and/or employees as are from time to time provided for the department by the ordinances of the County.

Throughout this code, the term "Director of the Engineering and Survey Services Department" shall refer to and mean the Director of the Engineering, Surveying, and Permit Services Department.

Section 4. Sections 2.23.030 and 2.23.040 of Chapter 2.23, Title 2 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

2.23.030 Environmental Health Division established.

The Environmental Health Division, of and within the administrative control of the Director of Public Health Services, is hereby established and shall consist of the Director of Environmental Health and such necessary assisting personnel as may be approved by the Board of Supervisors. All division personnel who engage in the enforcement of orders, quarantines, and other regulations, as well as rules prescribed by the State Department of Health Services and statutes relating to public health, shall be qualified as required by state law.

Throughout this code, the term "Environmental Health Services Department" shall refer to and mean the Environmental Health Division of the Department of Public Health Services.

2.23.040 Director of Environmental Health.

The position of Director of Environmental Health is established. The Director shall be appointed by and serve under the direction and authority of the Director of Public Health Services. The Director of Environmental Health shall, subject to the civil service system of the county, employ such assistants and/or employees as are, from time to time, provided for the Department by the ordinances of the County.

Throughout this code, the term "Director of the Environmental Health Services Department" shall refer to and mean the Director of Environmental Health.

Section 5. Chapter 2.25, Title 2 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

Chapter 2.25

DEVELOPMENT SERVICES AGENCY

Sections:

2.25.010 Development Services Agency – Established as Comprehensive County Agency – Component Departments.
2.25.020 Development Services Agency Director.

2.25.010 Development Services Agency--Established as Comprehensive County Agency--Component Departments.

The Development Services Agency of the County of Kern is established as a comprehensive local agency for coordination of county policies and regulations concerning county land use planning and regulation, transportation management, engineering, surveying, and permit services, administration of county service areas, and community development. The Development Services Agency acts to provide administration and coordination with respect to the efforts, power, and duties of the Planning and Community Development Department, the Roads Department, and the Engineering, Surveying, and Permit Services Department. The powers and duties of these departments are as enumerated in state law and in Chapters 2.16, 2.34, 2.36, and 2.82 of Title 2 of the Kern County Code herein.

2.25.020 Development Services Agency director.

The Development Services Agency of the County of Kern is established as a comprehensive local agency for coordination of county policies and regulations concerning county land use planning and regulation, transportation management, engineering, surveying, subdivisions and permit services, administration of county service areas, and community development. The Development Services Agency acts to provide administration and coordination with respect to the efforts, power, and duties of the Planning and Community Development Department, the Roads Department, and the Engineering, Surveying, and Permit Services Department. The powers and duties of these departments are as enumerated in state law and in Chapters 2.16, 2.34, 2.36, and 2.82 of Title 2 of the Kern County Code herein.

Section 6. Chapter 2.28, Title 2 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

Chapter 2.28

ROAD COMMISSIONER

Sections:

2.28.010 Commissioner to Direct County Road Employees.
2.28.010 Commissioner to Direct County Road Employees.

There is hereby established the position of Kern County Road Commissioner, who shall direct County road employees and perform all other duties prescribed by California Street and Highways Code Sections 2006 et seq.

Section 7. Chapter 2.32, Title 2 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

2.32.010 Established – Membership – Powers and Duties.

There is established the Kern County Board of Building Appeals composed five (5) voting members. The Director of the Development Services Agency or his designee shall act as secretary of the board. Four (4) of the members of the board shall be qualified by training and experience in building construction or the building trades. The fifth member shall be a member at large. All five (5) members shall be appointed by, and serve terms not to exceed four (4) years, at the pleasure of the Board of Supervisors. As soon as practical after the appointment of its membership and the board is constituted, the board shall meet and organize. Thereafter, the board shall have the powers granted, and shall assume the responsibilities and functions imposed, by the code of building regulations upon a board of appeals, except for appeals taken under the Kern County housing code.

Section 8. Chapter 2.34, Title 2, of the Ordinance Code of the County of Kern, is hereby repealed; and a new Chapter 2.34, Title 2 of the Ordinance Code of the County of Kern, is hereby added to read as follows:

Chapter 2.34

Planning and Community Development

Sections:

2.34.010 Department and Office of Director Established.
2.34.020 Director Given Powers of Zoning Administrator.
2.34.030 Planning Agency.
2.34.040 Related Functions of Board of Supervisors – Procedures and Notices.

2.34.010 Department and Office of Director Established.

There is in the County of Kern a Department of Planning and Community Development, and the office of Director of Planning and Community Development is established in accordance with Government Code Section 65100.

Throughout this code, the term "Planning Director" shall refer to the Director of Planning and Community Development and the term "Planning Department" shall refer to the Department of Planning and Community Development.

All duties and responsibilities of the former Department of Community Development are hereby vested in and assigned to the Community Development Division of the Department of Planning and Community Development and the director thereof.

2.34.020 Director Given Powers of Zoning Administrator.

The Director of Planning and Community Development of the County is vested with the powers of Zoning Administrator, pursuant to Government Code Sections 65900 et seq., and shall have all powers and duties of a Zoning Administrator as prescribed by Article 3 of Chapter 4 of Chapter 4 of Division 1 of Title 7 of the Government Code (commencing with Section 65900), excepting those powers and duties assigned to the Board of Zoning Adjustment under the Land Use Zoning Ordinance of Kern (Title 19 of this code) and under Section 2.30.030 of this Title.

2.34.030 Planning Agency.

A. The Kern County Planning Agency is established in accordance with Government Code Section 65100(a), which shall consist of a combination of the Board of Supervisors and the department of Planning and Community Development, and which shall have all the functions and duties of a planning agency, as provided in Chapter 3 of Division 1 of Title 7 of the Government Code (commencing with Section 65100). In the absence of any assignment of the function of the planning agency pursuant to the provisions of this code, the Board of Supervisors shall carry out all the functions of the Planning Agency, including those otherwise assignable to a planning commission.

B. The Board of Supervisors may, from time to time, in the exercise of its discretion, initiate and conduct any or all functions and duties of a planning agency or order the Department of Planning and Community Development to initiate and conduct any or all such functions and duties.

C. The Department of Planning and Community Development may, from time to time, in the exercise of the discretion of the Director of Planning and Community Development, initiate and conduct any or all functions and duties of a planning agency, consistently with any initiated or conducted by the Board of Supervisors, and except as otherwise ordered by the Board of Supervisors.

D. The Department of Planning and Community Development shall perform all the functions of a county planning agency as prescribed in the Government Code Section 65402.

2.34.040 Related Functions of Board of Supervisors - Procedures and Notices.

In connection with adoption or amendment of general plan elements, specific plans, or zoning regulations, the only procedures and notices to be observed shall be those required of a legislative body under Chapters 3 and 4 of Division 1 of Title 7 of the Government Code (commencing with Section 65100), for such respective adoptions or amendments.

Section 9. Subsection (A) of Section 2.36.010 of Chapter 2.36, Title 2 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

2.36.010 Established – Organization – Functions.

A. The term "Building Inspection Department" as used throughout this code shall mean and refer to the Building Inspection Division of the Engineering, Surveying,

and Permit Services Department, a component of the Development Services Agency of the County. The Director of the Development Services Agency shall exercise the authority and perform the duties provided by law for the Director of Building Inspection of the County and may delegate such authority to employees of the Engineering, Surveying, and Permit Services Department to administer and implement of the functions of his office.

Section 10. Subsection (B) of Section 2.36.010, Chapter 2.36, Title 2 of the Ordinance Code of the County of Kern remains unchanged.

Section 11. Subsections (C) and (D) of Section 2.36.010 of Chapter 2.36, Title 2 of the Ordinance Code of the County of Kern are hereby repealed.

Section 12. Sections 2.56.030 and 2.56.040 of Chapter 2.56, Title 2 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

2.56.030 Membership.

The committee shall be composed to twenty-three (23) members, including two (2) members of the Board of Supervisors and the Development Services Agency Director (who shall also provide the committee with secretarial services from his office staff) or his designee. Members shall be appointed by majority vote of the Board of Supervisors. Each Supervisor shall nominate four (4) persons to membership on the committee, not including the two (2) supervisor members and the Development Services Agency Director.

2.56.040 Terms of Members.

The terms of ten (10) members (except the Supervisors and the Development Services Agency Director serving thereon) shall expire December 31, 2004, and the terms of the remaining ten (10) members shall expire on December 31, 2006. The terms of members thereafter appointed shall be for four (4) years from and after the expiration of the term of their predecessors. Appointees filling vacancies shall serve the unexpired portion of the term of their predecessors. Members of the committee may be removed from office at any time upon majority vote of the Board of Supervisors. The Supervisors who are members of the committee shall serve at the pleasure of the majority of the Board.

Section 13. Subsection (C) of Section 2.66.030 of Chapter 2.66, Title 2 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

C. The Kern County Emergency Council shall be composed of the following members or their designees:

1. County Administrative Officer, who shall be chairman;
2. Director of Emergency Services (the Fire Chief), who shall be vice-chairman;
3. Sheriff-Coroner;

4. Director of Development Services Agency;
5. Director of Public Health Services;
6. Director of Emergency Medical Services;
7. Director of Environmental Health;
8. Director of Waste Management;
9. Assistant County Administrative Officer for General Services; and
10. Chief Executive Officer of Kern Medical Center.

Nonvoting members of the Council shall be composed of the following members or their designees:

1. Chairman of the Board of Supervisors;
2. County Counsel;
3. Emergency Services Manager;
4. Director of the Personnel Department
5. Director of the Human Services Department;
6. Director of the Mental Health Department;
7. Director of Aging and Adult Services Department;
8. Agricultural Commissioner/Sealer;
9. Director of the Engineering, Surveying, and Permit Services Department.

Section 14. Subsections (A), (B), and (D) through (G) of Section 2.66.030 of Chapter 2.66, Title 2 of the Ordinance Code of the County of Kern remain unchanged.

Section 15. Section 4.30.050, Chapter 4.30, Title 4 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

4.30.050 Fee – Payment.

The IM fee shall be paid in full, in cash, when collected at the time the project applicant makes application for a building permit. The fee may be paid by cash, pledged certificate of deposit, irrevocable letter of credit, or of performance/surety bond if the project applicant wishes to pay the IM fee prior to recordation of the final tract or parcel map. All but cash shall be made payable upon demand by the Director of the Planning and Community Development Department.

Section 16. Section 5.04.080, Chapter 5.04, Title 5 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

5.04.080 Investigation of Business Location.

No license for any of the businesses specified in this title shall be issued until it is determined that the appropriate zoning ordinance and regulations and the provisions of the Uniform Fire Code have been or will be complied with. It shall be the duty of the Director of Planning and Community Development, the County Health Officer, and the Fire Marshal to conduct the appropriate investigation, and for that purpose said persons and departmental employees are "investigating officers" as that term is used in this Title. To assure compliance with the applicable ordinances, rules, and regulations, such investigating officers may attach conditions to their respective approvals and may

conduct follow-up investigations to assure compliance and to determine that the conditions are being observed.

Section 17. Sections 5.16.130, Chapter 5.16, Title 5 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

5.16.130 Investigation of Applicant.

Upon receipt of the completed application, the Sheriff shall make an investigation to determine whether all of the statements in the application are true and shall refer the application to other interested departments of the County, including, but not limited to, the Directors of the Planning and Community Development Department, Public Health Services Department, and Fire Department to determine whether the appropriate zoning ordinances and regulations, building code ordinances, health ordinances and regulations, and the provisions of the Uniform Fire Code have been or will be complied with.

Section 18. Section 5.16.150, Chapter 5.16, Title 5 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

5.16.150 Denial of License.

In the event the Sheriff's Vice Division, or other interested department of the County, including, but not limited to, the Directors of the Planning and Community Development Department, Public Health Services Department, and Fire Department, recommends against the issuance of the license, the Sheriff shall refuse to issue the license and shall refund one-half (1/2) of the application fee to the applicant together with written notification of the denial of the license.

Section 19. Section 5.16.280, Chapter 5.16, Title 5 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

5.16.280 Attendance Limited to Occupancy Capacity.

Notwithstanding that bingo games are open to the public, attendance at any bingo game shall be limited to the occupancy capacity of the room in which such game is conducted, as determined by the Fire Department and Planning and Community Development Department of the County in accordance with applicable laws and regulations. The licensee shall not reserve seats or space for any person.

Section 20. Section 5.20.060 of Chapter 5.20, Title 5 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

5.20.060 Investigation by Sheriff.

Upon receipt of the completed application, the Sheriff's office shall make an investigation to determine whether the application is complete, whether there are material omissions, and whether all of the statements and information in the application are true, and shall refer the application to other interested departments of the County, including, but not limited to, the Directors of the Planning and Community Development

Department, Building Inspection Division, Public Health Services Department, and Fire Department to determine whether the appropriate zoning ordinances and regulations, building code ordinances, health ordinances and regulations, and the provisions of the Uniform Fire Code have been or will be complied with.

Section 21. Subsection (E) of Section 7.20.040 of Chapter 7.20, Title 7 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

E. "Enforcement Officer" shall mean the Development Services Agency Director or his/her designee. When enforcing the provisions of this chapter, the employees of the Enforcement Officer shall have the power to issue citations for violations of the provisions of this chapter.

Section 22. Subsections (A) through (D) and (F) through (M) of Section 7.20.040 of Chapter 7.20, Title 7 of the Ordinance Code of the County of Kern remain unchanged.

Section 23. Subsection (C) of Section 8.28.020 of Chapter 8.28, Title 8 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

C. "Enforcement Officer" means the Development Services Agency Director or his designee, the Director of Engineering, Surveying, and Permit Services or his designee, or the Director of the Waste Management Department or his designee. When enforcing the provisions of this chapter, the employees of the Enforcement Officer shall have the power to make arrests for violation of the provisions of this chapter which occur in their presence and to issue citations for such violation in accordance with Chapter 5 of Title 3 of Park 2 of the Penal Code of the State of California.

Section 24. Subsections (A), (B), and (D) through (K) of Section 8.28.020 of Chapter 8.28, Title 8 of the Ordinance Code of the County of Kern remain unchanged.

Section 25. Subsection (H) of Section 8.36.020 of Chapter 8.36, Title 8 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

H. To create noise from construction, between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling except as provided below:

1. The Development Services Agency Director or his designated representative may for good cause exempt some construction work for a limited time.

2. Emergency work is exempt from this section.

Section 26. Subsections (A) through (G) of Section 8.36.020 of Chapter 8.36, Title 8 of the Ordinance Code of the County of Kern remain unchanged.

Section 27. Subsections (C) and (D) of Section 10.08.040 of Chapter 10.08, Title 10 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

C. The Road Commissioner of the County is authorized and directed to cause signs, indicating the maximum gross weight capacity so established, be erected at each end of that portion of any alley upon which the permissible gross weight is established, as hereinafter provided.

D. In the event that any person, firm, or corporation finds it necessary to move or transport over any alley, upon which a weight limitation has been fixed, any vehicle or vehicle and load, the weight of which is in excess of the fixed weight limitations, and it is impossible to divide such load or reduce the weight thereof, application may be made to the Board of Supervisors and hearing conducted by the Board of Supervisors for a special permit to move such load over or upon such alley, in substantially the same manner and mode as prescribed by Sections 10.08.060 and 10.08.080 of this chapter. In lieu of an application presented to the Board of Supervisors, the application may be made to the Road Commissioner in substantially the same manner and mode as prescribed by Section 10.08.070 of this chapter.

Section 28. Subsections (A), (B), and (E) through (G) of Section 10.08.040 of Chapter 10.08, Title 10 of the Ordinance Code of the County of Kern remain unchanged.

Section 29. Section 10.08.070 of Chapter 10.08, Title 10 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

10.08.070 Permit to Move Indivisible Loads – Roads Commissioner Authority.

The application mentioned in Section 10.08.060 for a special permit to move indivisible loads or to move loads without reducing the weight thereof, may be made to the County Road Commissioner in lieu of to the Board of Supervisors, and the Road Commissioner shall then have the power to give approval to said application and grant the permit to move if he finds that the load in indivisible and that it is necessary to move it as stated in the application, and if, considering the structural strength of the road involved, the weight of the vehicle and load, and the precautions to be used to prevent damage to the road and any bridge therealong he believes that no damage to such road or bridge is likely to occur, or he may grant approval on such conditions as he sees fit to impose for the protection of such road or bridge. All such findings and permits shall be reported to the Board and the application and permit filed with the Board.

Section 30. Subsection (A) of Section 10.08.090 of Chapter 10.08, Title 10 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

A. The County Road Commissioner shall, upon application in writing, and if good cause appears, issue a special permit in writing authorizing the applicant to

operate or move over county roads a vehicle or combination of vehicles or special mobile equipment whose load exceeds the stated legal maximums for the purpose of moving perishable and semi-perishable raw agricultural products from the fields to processing plants when the applicant has a valid extralegal weight permit issued by the State Department of Transportation, Division of Highways for hauling such overweight agricultural loads on state roads or would otherwise be eligible for such a permit.

Section 31. Subsections (B) and (C) of Section 10.08.090 of Chapter 10.08, Title 10 of the Ordinance Code of the County of Kern remain unchanged.

Section 32. Subsections (6), (21), (24), (25), (26), (32), and (34) of Section 10.16.160, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

6. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, that portion of the highway being the east side of alley that is north of Decatur Street and ninety-six (96) feet west of Chester Avenue, beginning where said east side of alley intersects with north side of Decatur Street and a point seventy-five (76) feet north thereof along the alley, is established as a loading zone for that portion of the unincorporated area of the county.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in this paragraph (a) of this subsection as "loading zone" between 8:00 a.m. and 4:00 p.m., with the exception of Saturdays, Sundays, and holidays, is guilty of an infraction.

21. a. Pursuant to Section 21458 of the Vehicle Code of the State of California, a bus loading zone is established beginning at the southwest curb return of Fairview Road at Sparks Street, thence westerly along the south curb for a distance of one hundred thirty-nine (139) feet to the true point of beginning, thence westerly for a distance of one hundred five (105) feet.

b. Any person, other than the operator of a bus, when loading or unloading passengers, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portion of the street described in paragraph (a) of this subsection as "bus loading zone" between the hours of 8:00 a.m. and 4:00 p.m., with the exception of Saturdays, Sundays, and holidays, is guilty of an infraction.

24. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, a passenger and freight loading and unloading zone on the north side of Minner Avenue beginning at a point two hundred seventy-seven (277) feet east of the easterly flowline of California Street, thence easterly for a distance of seventy (70) feet is established as a three (3) minute loading and unloading zone for that portion of the unincorporated area of the County.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or freight who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subparagraph (a) of this subsection as "loading and unloading zone" is guilty of an infraction.

25. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, a bus loading zone is established on Casa Loma Drive at Casa Loma School, beginning at the southwest curb return with Madison Street, thence westerly for a distance of three hundred ninety (390) feet to the true point of beginning, thence westerly for a distance of one hundred sixty-four (164) feet.

b. Any person, other than the operator of a bus, when loading or unloading passengers who stops, parks, or leave standing a vehicle adjacent to the curb on any portions of the street described in subparagraph (a) of this subsection as "bus loading zone" between the hours of 8:00 a.m. and 4:00 p.m., with the exception of Saturdays, Sundays, and holidays, is guilty of an infraction.

26. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, a bus loading zone is established on Oswell Street south of Center Street at Sierra Junior High School, beginning at the southwest curb return on Center Street, thence southerly for a distance of two hundred sixty-five (65) feet to the true point of beginning, thence southerly for a distance of one hundred sixty-one (161) feet.

b. Any person, other than the operator of a bus, when loading or unloading passengers who stops, parks, or leaves standing a vehicle adjacent to the curb on any portions of the street described in subparagraph (a) of this subsection as a "bus loading zone" between the hours of 8:00 a.m. and 4:00 p.m., with the exception of Saturdays, Sundays, and holidays, is guilty of an infraction.

32. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, a freight loading and unloading zone on the west side of Airport Drive beginning eighty (80) feet south of the curb return on Olive, thence southerly for a distance of forty-four (44) feet is established for that portion of the unincorporated area of the county.

b. Any person, other than the operator of a vehicle, when loading or unloading freight who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subparagraph (a) of this subsection as "loading and unloading zone" is guilty of an infraction.

34. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, a passenger and freight five (5) minute loading and unloading zone along the south side of Texas Street beginning at a point two hundred seventy (270) feet east of the southeast curb return at Bliss Street, thence easterly for a distance of two hundred eighty (280) feet is established.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or freight who stops, parks, or leaves standing a vehicle, whether

attended or unattended, in that space adjacent to the curb on any of the portion described in subparagraph (a) of this subsection as a five (5) minute "loading and unloading" zone is guilty of an infraction.

Section 33. Subsections (1) through (4), (9) through (11), (13) through (16), (19) through (20), (27) through (28) through (30), (33), (35), (37) through (39), (44) through (47), (50) through (57) of Section 10.16.160, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern remain unchanged.

Section 34. Subsection (1) of Section 10.16.170, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

1. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, that portion of the highway on the north side of Twenty-Mule Team Road, beginning two hundred forty (240) feet east of the east flowline of Boron Avenue, thence easterly for a distance of fifty (50) feet is established as a three (3) minute loading zone for that portion of the unincorporated area of the County.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or freight, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subsection (a) of this section as "loading zone" is guilty of an infraction.

Section 35. Subsection (1) of Section 10.16.180, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

1. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, that portion of the highway on the west side of Main Street beginning at a point forty-three (43) feet south of the south curb line of First Street, thence southerly a distance of thirty-five (35) feet in Buttonwillow, California, is established as a loading zone for that portion of the unincorporated area of the County.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or depositing mail, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subsection (a) of this section as "loading zone" for more than three (3) minutes, is guilty of an infraction.

Section 36. Subsection (1) of Section 10.16.190, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

1. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, that portion of the highway on the west side of Bace Street beginning at the southwest curb return on Base Street at the intersection of Taft Highway, thence south twenty-five (25) feet is established as a three (3) minute loading zone for that portion of the unincorporated area of the County.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or freight, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subsection (a) of this section as "loading zone," is guilty of an infraction.

Section 37. Subsections (2), (3), and (4) of Section 10.16.200, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

2. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, that portion of the highway beginning at the south gutter line of Paradise Road where it intersects the west gutter line of Myrtle Avenue, thence westerly for a distance of seventy (70) feet along the south gutter line of Paradise Road, is established as a loading zone for that portion of the unincorporated area of the county.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or freight, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in paragraph (1) of this subsection as "loading zone" is guilty of an infraction.

3. a. Pursuant to section 22507 of the Vehicle Code of the State of California, on the south side of Palm Avenue beginning one hundred nineteen (119) feet east of the southeast curb return of Main Street on Palm Avenue, thence easterly for a distance of one hundred (100) feet, is established as a loading zone for that portion of the unincorporated area of the county.

b. Any persons other than the operator of a vehicle, when loading or unloading passengers or freight who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subparagraph (1) of this subsection as "loading zone is guilty of an infraction.

4. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, on the north side of Segrue Road beginning at the northeast curb return of Main Street on Segrue Road, thence easterly for a distance of ninety-seven (97) feet to the true point of beginning, thence easterly for a distance of one hundred (100) feet is established as a loading zone for that portion of the unincorporated area of the county.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or freight, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subparagraph (1) of this subsection as "loading zone" is guilty of an infraction.

Section 38. Subsection (A) of Section 10.16.205, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

A. 1. Pursuant to Section 22507 of the Vehicle Code of the State of California, a bus loading zone is established along the west side of Laura Street, beginning at the southwest curb return with Pat Avenue, thence southerly for a distance of two hundred eighty (280) feet.

2. Any person, other than the operator of a bus, when loading or unloading passengers, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portion described in paragraph (a) of this subsection as "bus loading zone" is guilty of an infraction.

Section 39. Subsection (1) of Section 10.16.230, Chapter 10.16, Title 10 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

1. a. Pursuant to Section 22507 of the Vehicle Code of the State of California, that portion of the north side of Park Road beginning one hundred forty-seven (147) feet west of Santa Maria Drive, thence westerly for a distance of three hundred sixty (360) feet, is established as a five (5) minute loading zone.

b. Any person, other than the operator of a vehicle, when loading or unloading passengers or freight, who stops, parks, or leaves standing a vehicle, whether attended or unattended, in that space adjacent to the curb on any of the portions described in subsection (a) of this section as "five (5) minute loading zone' is guilty of an infraction.

Section 40. Section 13.12.060, Chapter 13.12, Title 13 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

13.12.060 Appeals of the Environmental Health Division action.

If the Public Health Services Department acting through its Environmental Health Division denies a request for a variance to the ordinance or subjects the variance to conditions which the applicant believes to be unreasonable, the applicant may appeal the decision of the Department to the Board of Supervisors. The notice of appeal shall be filed with the Clerk of the Board of Supervisors within thirty (30) days after the decision of the Department and shall set forth each and all grounds of objection to the decision appealed.

The Clerk of the Board of Supervisors shall forthwith file a copy of the notice of appeal with the Department. The Board of Supervisors shall, within thirty (30) days after receipt of a written appeal, hold a hearing to determine whether the variance shall be issued to the applicant and if a variance is to be issued, the terms and conditions under which it shall be issued. Such a hearing shall be conducted in accordance with Section 13.12.070 of this chapter and may be continued from time to time by the Board. The decision of the Board of Supervisors shall be rendered within seven (7) days after the conclusion of the hearing and the decisions shall be final as to all matters determined. Notice of the decision shall be given as provided in Section 13.12.075 of this chapter.

Section 41. Section 13.12.090, Chapter 13.12, Title 13 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

13.12.090 Enforcement by the Environmental Health Division.

The Public Health Services Department acting through its Environmental Health Division and its employees have the duty to enforce the provisions of this chapter and are given the power pursuant to Penal Code Section 836.5 to make arrests and to issue citations pursuant to Chapter 5C of Title 3 of Part 2 of the Penal Code (commencing with Section 835.5) for the violation of any provisions of this chapter occurring in the Environmental Health Division employee's presence.

Section 42. Sections 13.12.100, Chapter 13.12, Title 13 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

13.12.100 Cooperation of the Department of Planning and Community Development.

The Public Health Services Department acting through its Environmental Health Division may call upon the Department of Planning and Community Development for technical assistance in the enforcement of the provisions of this chapter.

Section 43. Section 14.08.230, Chapter 14.08, Title 14 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

14.08.230 Hazardous Material Monitoring Well.

Hazardous material monitoring wells shall be constructed and sealed in conformance with the standards set forth in the County Health Department publication UT-50 or any successor publication.

Section 44. Subsection (4) of Section 14.12.300, Chapter 14.12, Title 14 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

4. "Building Inspector" means the Director of the Engineering, Surveying, and Permit Services Department of the County of Kern, and includes his deputies.

Section 45. Subsections (1) through (3) and (5) through (12) of Section 14.12.300 of Chapter 14.12, Title 14 of the Ordinance Code of the County of Kern remain unchanged.

Section 46. Subsections (B), (E), and (G) of Section 17.04.060, Chapter 17.04, Title 14 of the Ordinance Code of the County of Kern, are hereby amended to read as follows:

B. "Building Official," "Administrative Authority," "Plumbing Official," and "Chief Electrical Inspector" means the Director of the Development Services Agency of the County of Kern or his authorized designee.

E. "Building Inspection Department" and "Department" means the Building Inspection Division and the Engineering, Surveying, and Permit Services Department established by Section 2.36.010 of the Kern County Code.

G. "Director" means the Director of the Development Services Agency of the County of Kern or his designee.

Section 47. Subsections (A), (C), (D), (F), and (H) through (J) of Section 17.04.060 of Chapter 17.04, Title 17 of the Ordinance Code of the County of Kern remain unchanged.

Section 48. Subsection (A), Section 17.12.080, Chapter 17.12, Title 17 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

17.12.080 Chapter 2 Amended – Definitions.

Chapter 2 of the California Mechanical Code is amended by changing or adding certain definitions as follows:

A. Section 204:

"Building Code" means the Kern County Building Code as adopted by the Code of Building Regulations.

"Building Official" means the Director of the Development Services Agency of the County of Kern in his capacity as Building Official or his authorized designee.

Section 49. Subsection (B), Section 17.12.080 of Chapter 17.12, Title 17 of the Ordinance Code of the County of Kern remains unchanged.

Section 50. Subsection (A), Section 17.16.050, Chapter 17.16, Title 17 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

17.16.050 Section 401 Amended – Definitions.

Section 401 of the Uniform Housing Code is amended by changing or adding certain definitions as follows:

A. Definitions added.

"Building Official" is added and shall mean the Director of the Development Services Agency in his capacity as Building Official or his designee, under any other adopted code, is necessarily intended.

"Public Official" shall mean the Building Official, Health Officer, or designees.

Section 51. Subsection (B), Section 17.16.050 of Chapter 17.16, Title 17 of the Ordinance Code of the County of Kern remains unchanged.

Section 52. Section 17.20.170, Chapter 17.20, Title 17 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

17.20.170 Appendix K, Section K1 Amended – Private Sewage Disposal – General.

Section K1 of Appendix K of the California Plumbing Code is amended by adding paragraph (K) to read as follows:

(k) In certain areas of the County which have poor soils or other problems relative to sewage disposal, the sewage disposal system shall be installed and inspected before the building foundation inspection is made. In the case of a lot which will not accommodate the one hundred percent (100%) expansion area for leaching purposes, lying within a legal subdivision of land existing prior to the effective date of Ordinance G-5137, the Director of the Development Services Agency or his authorized designee may approve a lesser area for leaching purposes in exercise of his discretion.

Section 53. Subsection (D) of Section 17.24.020, Chapter 17, Title 17 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

D. "Director" means the Director of the Development Services Agency of the County of Kern or his designee.

Section 54. Subsections (A) through (C), (E), and (F) of Section 17.24.020, Chapter 17.16, Title 17 of the Ordinance Code of the County of Kern remain unchanged.

Section 55. Subsection (A), Section 17.36.060, Chapter 17.36, Title 17 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

17.36.060 Section 301 amended – Definitions.

Section 301 of the Uniform Housing Code for the Abatement of Dangerous Buildings is amended by changing or adding certain definitions as follows:

A. Definitions added.

"Board" and "Board of Appeals" are added and shall mean the Kern County Board of Supervisors.

"Public Works Department" and "Public Works Director" shall mean the Engineering, Surveying, and Permit Services Department and the Director thereof.

Section 56. Subsection (B), Section 17.36.060 of Chapter 17.36, Title 17 of the Ordinance Code of the County of Kern remains unchanged.

Section 57. Subsection (12), Section 17.48.060, Chapter 17.48, Title 17 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

12. "Building Official" means the Director of the Development Services Agency of the County of Kern or his/her designee.

Section 58. Subsections (1) through (11) and (13) through (75), Section 17.48.060 of Chapter 17.48, Title 17 of the Ordinance Code of the County of Kern remain unchanged.

Section 59. Subsection (B) of Section 17.52.180, Chapter 17.52, Title 17 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

B. The school district shall request the hearing required by this section. Such request shall contain the amounts needed for interim school facilities and the facts which support finding s paragraphs (1) through (5) of subsection (A) of this section. A copy of such request shall be forwarded to the County Department of Planning and Community Development, which shall determine whether the Board may properly make findings (A)(1) through (A)(5) of this section and advise the Board in writing of its conclusions.

Section 60. Subsections (A) and (C), Section 17.52.180 of Chapter 17.52, Title 17 of the Ordinance Code of the County of Kern remain unchanged.

Section 61. Section 18.05.070, Chapter 18.05, Title 18 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

18.05.070 Relationship to Other Regulations and Requirements.

The regulations of this title and requirements or conditions imposed pursuant to this title shall not supersede any other regulations or requirements adopted or imposed by the Kern County Board of Supervisors, the Kern County Fire Department, the Kern County Public Health Services Department acting through its Environmental Health Division, the Regional Water Quality Control Board, the Air Pollution Control District, the Kern County Engineering, Surveying, and Permit Services Department, the Kern County Water Agency, or any other local, state, or federal agency that has jurisdiction by law over uses and development authorized by this title. All uses and development authorized by this title shall comply with all other such regulations and requirements. Where two (2) or more ordinances regulate the same use or activity, the more restrictive ordinance shall apply unless a variation has been specifically granted.

No application authorized under this title shall be processed if the property for which the application is submitted contains any violations of the Kern County Zoning Ordinance (Title 19 - Kern County Ordinance Code) until such time as all such violations are fully abated, unless processing the application is necessary to abate the applicable Zoning Ordinance violation.

Section 62. Section 18.10.027, Chapter 18.10, Title 18 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

18.10.027 Development Services Agency.

The Development Services Agency includes the Planning and Community Development Department, the Roads Department, and the Engineering, Surveying, and Permit Services Department. The Development Services Agency Director may authorize changes in the scope of responsibilities in the member departments that are included in Development Services Agency that may result in some changes in the responsibilities of those member departments as set forth in this title.

Section 63. Subsection (A) of Section 18.10.030 of Chapter 18.10, Title 18 of the Ordinance Code of the County of Kern is hereby amended to read as follows:

A. Membership. The subdivision review committee is a staff level meeting to discuss technical matters relating to study maps, tentative tract maps, and any associated development and limited design variations. It shall be composed of the Planning and Community Development Director, the Environmental Health Director, the Fire Chief, the Director of Engineering, Surveying, and Permit Services, the Director of Roads Department, or their designated representatives. The Board of Supervisors may also appoint the head of any other County department or agency to membership on such committee. The Planning and Community Development Director or his designated representative shall act as chair of the committee. In the absence of both, the committee shall elect a temporary chairperson. By acting as chairperson, a member shall not be disqualified to vote.

Section 64. Subsection (B) of Section 18.10.030 of Chapter 18.10, Title 18, remains unchanged.

Section 65. Section 18.70.123, Chapter 18.70, Title 18 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

18.70.123 Planning Director.

"Planning Director" means the Director of the Planning and Community Development Department of the County of Kern or his/her designated representative.

Section 66. Section 18.70.140, Chapter 18.70, Title 18 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

18.70.140 Engineering and Survey Services - Director.

"Director of Engineering and Survey Services" means the Director of the Engineering, Surveying, and Permit Services Department of the County of Kern or his/her designated representative.

Section 67. Section 18.70.186, Chapter 18.70, Title 18 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

18.70.186 Health Officer.

"Health Officer" means the Director of Environmental Health for the County of Kern or his/her designated representative.

Section 68. Section 19.04.096, Chapter 19.04, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

19.04.096 Building Official.

"Building Official" means the Kern County Development Services Agency Director or his/her designee.

Section 69. Section 19.04.568, Chapter 19.04, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

19.04.568 Planning Director.

"Planning Director" means the Director of the Planning and Community Development Department of the County of Kern or his/her designee.

Section 70. Section 19.04.597, Chapter 19.04, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

19.04.597 Engineering and Survey Services Department.

"Engineering and Survey Services Department" means the Engineering, Surveying, and Permit Services Department of the County of Kern, including the County Surveyor's office.

Section 71. Section 19.04.600, Chapter 19.04, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

19.04.600 Engineering and Survey Services Director.

"Engineering and Survey Services Director" means the Engineering, Surveying, and Permit Services Director of the County of Kern or his/her designee.

Section 72. Subsection (C) of Section 19.14.130, Chapter 19.04, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

C. The breeding and raising of livestock, in greater numbers than allowed by subsection (A) of Section 19.14.130 of this chapter, by minors in conjunction with a student-oriented fair project sponsored by a bona fide agricultural organization shall be permitted upon application to and approval by the Planning and Community Development Director of a temporary animal permit in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title.

1. Application Contents. An application for a temporary animal permit shall include the following:

a. The name and address of the applicant;
b. The name(s) and address(es) of the property owner(s);
c. Assessor's Parcel Number(s);
d. Legal description of the subject property;
e. Name of the organization sponsoring the applicant;
f. A plot plan showing the location of proposed pens, coops, or areas for the breeding and raising of animals in relation to existing residence(s) and other buildings and structures within one hundred (100) feet of pens, coops, or areas housing livestock;
g. The signature of each owner of the real property abutting the subject lot consenting to the granting of the temporary animal permit.

2. Development Standards and Conditions. The breeding and raising of animals on a temporary basis shall comply with the following standards and conditions:

a. Applicant shall be sponsored by a bona fide organization, such as, but not limited to, Future Farmers of America, 4-H Club, Cow-Belles, or Junior Farmers.
b. The increase in animal density shall not exceed the density allowed by subsection (A) Section 19.14.130 of this chapter by more than fifty percent (50%). In any case, however, at least two (2), but no more than six (6), additional animals shall be allowed.
c. The temporary animal permit shall be effective for a maximum period of six (6) months from the effective date of the permit. No more than one (1) such permit shall be approved for any lot within a one (1) year period.
d. The written consent of each abutting property owner consenting to the granting of the temporary animal permit must be obtained.
e. The applicant shall allow inspection of animal maintenance facilities by the Kern County Engineering and Survey Services Department (Building Inspection Division) and the Kern County Health Department.
f. The Planning and Community Development Director may revoke the temporary animal permit at any time for noncompliance with subsection (C)(2) of Section 19.14.130 of this chapter or upon receipt of a recommendation for revocation from the Kern County Public Health Services Department.
g. Each additional animal authorized by the temporary animal permit over the allowable animal density specified by subsection (A) of Section 19.14.130 of this chapter shall be removed upon expiration of the permit.

Section 73. Subsections (A), (B), and (D) through (H) of Section 19.14.130 of Chapter 19.14, Title 19 of the Ordinance Code of the County of Kern remain unchanged.

Section 74. Subsection (A) of Section 19.60.150, Chapter 19.60, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

A. The breeding and raising of animals on a temporary basis shall comply with the following standards and conditions:

1. The applicant shall be sponsored by a bona fide organization, such as, but not limited to, Future Farmers of America, 4-H Club, Cow-Belles, or Junior Farmers.

2. The increase in animal density shall not exceed the density allowed by Section 19.60.020 of this chapter by more than fifty percent (50%). In any event, at least two (2), but no more than six (6), additional animals shall be allowed.

3. The temporary animal permit shall be effective for a maximum period of six (6) months from the effective date of the permit. No more than one (1) such permit shall be approved for any lot within a one (1) year period.

4. The written consent of each abutting property owner consenting to the granting of the temporary animal permit must be obtained.

5. The applicant shall allow inspection of animal maintenance facilities by the Kern County Engineering, Surveying, and Permit Services Department (Building Inspection Division) and the Kern County Public Health Services Department.

6. Each additional animal authorized by the temporary animal permit over the allowable animal density specified by Section 19.60.020 of this chapter shall be removed upon expiration of the permit.

Section 75. Subsection (B) of Section 19.60.150 of Chapter 19.60, Title 19 of the Ordinance Code of the County of Kern remains unchanged.

Section 76. Subsection (F) of Section 19.70.040, Chapter 19.70, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

F. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Engineering, Surveying, and Permit Services Department and constructed in accordance with the requirements of the Kern County Public Health Services Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters;

Section 77. Subsections (A) through (E), (G), and (H) of Section 19.70.040 of Chapter 19.70, Title 19 of the Ordinance Code of the County of Kern remain unchanged.

Section 78. Subsection (B) of Section 19.86.030, Chapter 19.86, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

B. Front-yard and street-side side-yard setback areas, excluding approved driveway entrances, maneuvering areas, and public sidewalks, shall be landscaped. Within this area, trees are required and shall be planted no farther than fifty (50) feet apart and no closer than five (5) feet from the back of the sidewalks. No plant material that will grow to a height of more than eighteen (18) inches shall be planted in the street right-of-way, except where authorized by the Roads Department.

Section 79. Subsections (A) and (C) through (E) of Section 19.86.030 of Chapter 19.86, Title 19 of the Ordinance Code of the County of Kern remain unchanged.

Section 80. Subsection (B) of Section 19.86.040, Chapter 19.86, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

B. Setback areas between streets and the perimeter fence of the mobile home park, excluding approved driveway entrances and public sidewalks, shall be landscaped. Within this area, trees are required and shall be planted no closer than five (5) feet from the back of the sidewalks. No plant material that will grow to a height of more than eighteen (18) inches shall be planted in the street right-of-way, except where authorized by the Roads Department.

Section 81. Subsections (A) and (C) through (E) of Section 19.86.040 of Chapter 19.86, Title 19 of the Ordinance Code of the County of Kern remain unchanged.

Section 82. Subsection (B) of Section 19.89.040, Chapter 19.89, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

B. The following performance standards shall apply to all adult businesses:

1. No alcoholic beverages shall be served, sold, or consumed on the premises.

2. The adult business shall not conduct or sponsor any special events, promotions, festivals, concerts, or similar activities which would create a demand for parking spaces beyond the number of spaces required for the business.

3. The traffic generated by the adult business shall not overload the capacity of the surrounding street system and shall not create a hazard to public safety, as determined by the Kern County Roads Department.

4. No adult business shall be operated in any manner that permits the observation of any persons or material depicting, describing, or related to "specified sexual activities" or "specified anatomical areas," inside the premises, from any public way or from any location outside the building or area of such establishment. This provision shall apply to any display, decoration, sign, show window, or other opening.

5. No loudspeakers or sound equipment shall be used by an adult business for the amplification of sound to a level audible beyond the walls of the building in which the business is located.

6. All exterior areas of the adult business, including buildings, landscaping, and parking areas shall be maintained in a clean and orderly manner at all times.

7. Any license required by the Kern County Sheriff's Department pursuant to Chapter 5.08 of this code shall be kept current at all times.

8. Each adult business shall confirm to all applicable laws and regulations.

Section 83. Subsection (A) of Section 19.89.040 of Chapter 19.86, Title 19 of the Ordinance Code of the County of Kern remains unchanged.

Section 84. Subsection (O) of Section 19.98.050, Chapter 19.98, Title 19 of the Ordinance Code of the County of Kern, is hereby amended to read as follows:

O. All required federal, state, and county rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas;
2. Kern County Fire Department;
3. Kern County Public Health Services Department;
4. Regional Water Quality Control Board;
5. Air Pollution Control District;
6. Kern County Engineering, Surveying, and Permit Services Department.

Section 85. Subsections (A) through (N) of Section 19.98.050 of Chapter 19.98, Title 19 of the Ordinance Code of the County of Kern remain unchanged.

BD/kjw
#190792 v5
CC20104881

COPIES FURNISHED:
Co. Counsel, CAO
RMA, ESS, EHS
Plan., Roads
Comm. Dev.
Fire, Sheriff
4-21-10 JL

- **19.98.030 - Drilling by ministerial permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in the Light Industrial (M-1) or Recreation Forestry (RF) districts until an application for plot plan review has been submitted to and approved by the planning director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the planning director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity.

(Ord. G-6077 § 310, 1994; Prior code § 7260.03)

- **19.98.040 - Drilling by conditional use permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the planning commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the planning commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity;

Current

1994 update

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1)or Recreation-Forestry (RF) Districts until *an application* for *plot plan review has been submitted* to and approved by the Director of Planning and Development Services as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In *approving an application* for plot plan review, the Director of Planning and Development Services may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

July 1993 - May 1994

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1)or Recreation-Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Planning Director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Planning Director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

May 1994 - May 1995

- **19.98.030 - Drilling by ministerial permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in the Light Industrial (M-1) or Recreation Forestry (RF) districts until an application for plot plan review has been submitted to and approved by the planning director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the planning director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity.

(Ord. G-6077 § 310, 1994; Prior code § 7260.03)

- **19.98.040 - Drilling by conditional use permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the planning commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the planning commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity;

current

1990 update

C.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while such permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) month period, the permittee has not completed his drilling program on the lands covered by such permit, the planning commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

(Ord. G-6551 § 98, 1998: Ord. G-5346 § 100, 1990; Prior code § 7260.04

- **19.98.050 - Development standards and conditions.**

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A.

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B.

All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the county fire department shall be maintained on the site at all times during drilling and production operations.

C.

No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D.

Sanitary toilet and washing facilities, if required by the county health department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E.

Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F.

All derricks, boilers and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers and drilling equipment are to be used within a reasonable time, as determined by the planning director, for the drilling of another well or wells on the premises.

current

D. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation-Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Director of Planning and Development Services may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

change

A. No well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and

May 1989 - Sept 1990

procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the

may 1989 - Sept 1990

D. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation-Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Director of Planning and Development Services as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Director of Planning and Development Services may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 19.98.050 of this

Sept 1990 - Dec. 1991

chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of

Sept 1990 - Dec 1991

- **19.98.030 - Drilling by ministerial permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in the Light Industrial (M-1) or Recreation Forestry (RF) districts until an application for plot plan review has been submitted to and approved by the planning director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the planning director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity.

(Ord. G-6077 § 310, 1994; Prior code § 7260.03)

- **19.98.040 - Drilling by conditional use permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the planning commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the planning commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity;

current

1998 update

C.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while such permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) month period, the permittee has not completed his drilling program on the lands covered by such permit, the planning commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

(Ord. G-6551 § 98, 1998: Ord. G-5346 § 100, 1990; Prior code § 7260.04

- **19.98.050 - Development standards and conditions.**

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A.

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B.

All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the county fire department shall be maintained on the site at all times during drilling and production operations.

C.

No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D.

Sanitary toilet and washing facilities, if required by the county health department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E.

Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F.

All derricks, boilers and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers and drilling equipment are to be used within a reasonable time, as determined by the planning director, for the drilling of another well or wells on the premises.

Current

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation-Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Planning Director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Planning Director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Board of Zoning Adjustment as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

July 1997 - Jan 1999

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary

July 1997 - Jan 1999

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.030 DRILLING BY MINISTERIAL PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in the Light Industrial (M-1) or Recreation-Forestry (RF) Districts until an application for plot plan review has been submitted to and approved by the Planning Director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the Planning Director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

19.98.040 DRILLING BY CONDITIONAL USE PERMIT

A. No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the Planning Commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Planning Commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

Jan 1999 - Dec 1999

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Planning Commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary

Jan 1999 - Dec 1999

C.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while such permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) month period, the permittee has not completed his drilling program on the lands covered by such permit, the planning commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

(Ord. G-6551 § 98, 1998: Ord. G-5346 § 100, 1990; Prior code § 7260.04

- **19.98.050 - Development standards and conditions.**

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A.

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B.

All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the county fire department shall be maintained on the site at all times during drilling and production operations.

C.

No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D.

Sanitary toilet and washing facilities, if required by the county health department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E.

Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F.

All derricks, boilers and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers and drilling equipment are to be used within a reasonable time, as determined by the planning director, for the drilling of another well or wells on the premises.

current

1993 update

G.

Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the planning director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H.

Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the planning director may approve the use of a standard type of derrick.

I.

Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping, or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J.

Whenever a well is located within five hundred (500) feet of an existing dwelling unit, except in case of an emergency, no materials, equipment, tools or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K.

Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L.

The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M.

All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust-binding material.

N.

After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the planning director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

current

O.

All required federal, state, and county rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas;
2. Kern County fire department;
3. Kern County public health services department;
4. Regional Water Quality Control Board;
5. Air Pollution Control District;
6. Kern County engineering, surveying, and permit services department.

(Ord. G-6077 §§ 312—315, 1994; Ord. G-5885 § 136, 1993; Prior code § 7260.05)

(Ord. No. G-8035, § 84, 4-20-10)

- **19.98.060 - Plot plan review—Conditional use permit—Application contents.**

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant;

B. Name(s) and address(es) of the property owner(s);

C. Assessor's parcel number(s);

D. Legal description of the property;

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the planning director, which includes the following information:

1. Topography and proposed grading,
2. Location of all proposed well holes and related accessory equipment, structures and facilities to be installed, and any abandoned wells if such are known to exist,
3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings,
4. North arrow;

current

chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the Board of Zoning Adjustment may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B. Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1. The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of

Dec. 1992 - July 1993

any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F. All derricks, boilers, and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Director of Planning and Development Services, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Director of Planning and Development Services for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the

Dec 1992 - July 1993

Director of Planning and Development Services may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Director of Planning and Development Services. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

0. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

    1. California Division of Oil and Gas

    2. Kern County Fire Department

    3. Kern County Health Department

    4. Regional Water Quality Control Board

    5. Air Pollution Control District

Dec. 1992 - July 1993

6. Kern County Public Works Department

19.98.060 PLOT PLAN REVIEW — CONDITIONAL USE PERMIT — APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

1. Topography and proposed grading

2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

4. North arrow

F. Narrative description of the proposed development, including:

1. Acreage or square footage of the property

2. Nature of hydrocarbon development activity

3. Description of equipment to be used

4. Distance to all existing buildings

5. Phasing or development schedule

19.98.070 PERMIT REVOCATION AND MODIFICATION

Any permit issued pursuant to this chapter may be revoked or modified pursuant to Section 19.102.020 of this title.

Dec 1992 - July 1993

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

July 1993 - May 1994

F. All derricks, boilers, and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Director of Planning and Development Services, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Director of Planning and Development Services for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Director of Planning and Development Services may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island

July 1993 - May 1994

for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Director of Planning and Development Services. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

0. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

   1. California Division of Oil and Gas

   2. Kern County Fire Department

   3. Kern County Health Department

   4. Regional Water Quality Control Board

   5. Air Pollution Control District

   6. Kern County Engineering and Survey Services Department

19.98.060 PLOT PLAN REVIEW—CONDITIONAL USE PERMIT—APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   1. Topography and proposed grading

   2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

   3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

   4. North arrow

July 1993 - May 1994

C.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while such permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) month period, the permittee has not completed his drilling program on the lands covered by such permit, the planning commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

(Ord. G-6551 § 98, 1998: Ord. G-5346 § 100, 1990; Prior code § 7260.04

- **19.98.050 - Development standards and conditions.**

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A.

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B.

All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the county fire department shall be maintained on the site at all times during drilling and production operations.

C.

No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D.

Sanitary toilet and washing facilities, if required by the county health department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E.

Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F.

All derricks, boilers and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers and drilling equipment are to be used within a reasonable time, as determined by the planning director, for the drilling of another well or wells on the premises.

current

1994 update

G.

Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the planning director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H.

Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the planning director may approve the use of a standard type of derrick.

I.

Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping, or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J.

Whenever a well is located within five hundred (500) feet of an existing dwelling unit, except in case of an emergency, no materials, equipment, tools or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K.

Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L.

The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M.

All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust-binding material.

N.

After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the planning director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

current

O.

All required federal, state, and county rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas;
2. Kern County fire department;
3. Kern County public health services department;
4. Regional Water Quality Control Board;
5. Air Pollution Control District;
6. Kern County engineering, surveying, and permit services department.

(Ord. G-6077 §§ 312—315, 1994; Ord. G-5885 § 136, 1993; Prior code § 7260.05)

(Ord. No. G-8035, § 84, 4-20-10)

- **19.98.060 - Plot plan review—Conditional use permit—Application contents.**

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant;

B. Name(s) and address(es) of the property owner(s);

C. Assessor's parcel number(s);

D. Legal description of the property;

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the planning director, which includes the following information:

1. Topography and proposed grading,
2. Location of all proposed well holes and related accessory equipment, structures and facilities to be installed, and any abandoned wells if such are known to exist,
3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings,
4. North arrow;

current

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

July 1993 – May 1994

F. All derricks, boilers, and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Director of Planning and Development Services, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Director of Planning and Development Services for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Director of Planning and Development Services may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island

July 1993 - May 1994

for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Director of Planning and Development Services. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

0. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

   1. California Division of Oil and Gas

   2. Kern County Fire Department

   3. Kern County Health Department

   4. Regional Water Quality Control Board

   5. Air Pollution Control District

   6. Kern County Engineering and Survey Services Department

19.98.060 PLOT PLAN REVIEW—CONDITIONAL USE PERMIT—APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   1. Topography and proposed grading

   2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

   3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

   4. North arrow

July 1993 - may 1994

2. The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity.

C. If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while said permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve- (12-) month period, the permittee has not completed his drilling program on the lands covered by such permit, the Board of Zoning Adjustment may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

19.98.050 DEVELOPMENT STANDARDS AND CONDITIONS

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas, and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A. No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B. All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the Kern County Fire Department shall be maintained on the site at all times during drilling and production operations.

C. No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained, or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D. Sanitary toilet and washing facilities, if required by the Kern County Health Department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E. Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

May 1994 - May 1995

F. All derricks, boilers, and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen, or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers, and drilling equipment are to be used within a reasonable time, as determined by the Planning Director, for the drilling of another well or wells on the premises.

G. Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the Planning Director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H. Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the Planning Director may approve the use of a standard type of derrick.

I. Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J. Whenever a well is located within five hundred (500) feet from an existing dwelling unit, except in case of an emergency, no materials, equipment, tools, or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K. Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L. The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M. All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust binding material.

N. After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Planning

May 1994 - May 1995

Director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

0. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

   1. California Division of Oil and Gas

   2. Kern County Fire Department

   3. Kern County Health Department

   4. Regional Water Quality Control Board

   5. Air Pollution Control District

   6. Kern County Engineering and Survey Services Department

19.98.060 PLOT PLAN REVIEW—CONDITIONAL USE PERMIT—APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Planning Director, which includes the following information:

   1. Topography and proposed grading

   2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

   3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

   4. North arrow

F. Narrative description of the proposed development, including:

May 1994 - May 1995

C.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while such permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) month period, the permittee has not completed his drilling program on the lands covered by such permit, the planning commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

(Ord. G-6551 § 98, 1998: Ord. G-5346 § 100, 1990; Prior code § 7260.04

- **19.98.050 - Development standards and conditions.**

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A.

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B.

All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the county fire department shall be maintained on the site at all times during drilling and production operations.

C.

No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D.

Sanitary toilet and washing facilities, if required by the county health department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E.

Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F.

All derricks, boilers and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers and drilling equipment are to be used within a reasonable time, as determined by the planning director, for the drilling of another well or wells on the premises.

current
2010 update

G.

Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the planning director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H.

Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the planning director may approve the use of a standard type of derrick.

I.

Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping, or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J.

Whenever a well is located within five hundred (500) feet of an existing dwelling unit, except in case of an emergency, no materials, equipment, tools or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K.

Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L.

The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M.

All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust-binding material.

N.

After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the planning director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

current

O.

All required federal, state, and county rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas;
2. Kern County fire department;
3. Kern County public health services department;
4. Regional Water Quality Control Board;
5. Air Pollution Control District;
6. Kern County engineering, surveying, and permit services department.

(Ord. G-6077 §§ 312—315, 1994; Ord. G-5885 § 136, 1993; Prior code § 7260.05)

(Ord. No. G-8035, § 84, 4-20-10)

- **19.98.060 - Plot plan review—Conditional use permit—Application contents.**

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant;

B. Name(s) and address(es) of the property owner(s);

C. Assessor's parcel number(s);

D. Legal description of the property;

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the planning director, which includes the following information:

1. Topography and proposed grading,
2. Location of all proposed well holes and related accessory equipment, structures and facilities to be installed, and any abandoned wells if such are known to exist,
3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings,
4. North arrow;

current

CA-41) Proposed Ordinance adding subsection (237) and (238) to Section 10.16.041 to Chapter 10.16 of Title 10 of the Kern County Ordinance Code establishing a no stopping zone along the west side of Pegasus Road, beginning at the northwest curb return at Unicorn Road, thence northerly a distance of 416 feet; and establishing a no stopping zone along the north side of Unicorn Road, beginning at the northwest curb return at Pegasus Road, thence westerly a distance of 373 feet, Bakersfield - ENACTED ORDINANCE G-8033

Maben-Rubio: All Ayes

CA-42) Proposed Ordinance adding subsection (12) to Section 10.16.130 to Chapter 10.16 of Title 10 of the Kern County ordinance Code establishing a no parking zone along the north and south sides of Felsite Avenue between 35th Street West and 25th Street West, a distance of approximately 6,435 feet, Rosamond - ENACTED ORDINANCE G-8034

Maben-Rubio: All Ayes

CA-43) Proposed Ordinance amending the Kern County Ordinance Code Sections related to establishment of the Development Services Agency and related department changes - ENACTED ORDINANCE G-8035

Maben-Rubio: All Ayes

MATTERS FOR EXECUTIVE APPROVAL

CA-44) Budget Transfers - APPROVED NOS. 207 THROUGH 217

Maben-Rubio: All Ayes

CA-45) Minutes for week of March 15, 2010 - APPROVED

Maben-Rubio: All Ayes

CA-46) Miscellaneous Letters and Documents - APPROVED

Maben-Rubio: All Ayes

CA-47) Claims and Lawsuits filed with and referred by Clerk of the Board - APPROVED AND FILED

Maben-Rubio: All Ayes

ADJOURNED TO TUESDAY, APRIL 27, 2010, AT 9:00 A.M.

Rubio

/s/ Kathleen Krause
Clerk of the Board

/s/ Ray Watson
Chairman, Board of Supervisors

O.

All required federal, state, and county rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas;
2. Kern County fire department;
3. Kern County public health services department;
4. Regional Water Quality Control Board;
5. Air Pollution Control District;
6. Kern County engineering, surveying, and permit services department.

(Ord. G-6077 §§ 312—315, 1994; Ord. G-5885 § 136, 1993; Prior code § 7260.05)

(Ord. No. G-8035, § 84, 4-20-10)

- **19.98.060 - Plot plan review—Conditional use permit—Application contents.**

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant;

B. Name(s) and address(es) of the property owner(s);

C. Assessor's parcel number(s);

D. Legal description of the property;

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the planning director, which includes the following information:

1. Topography and proposed grading,
2. Location of all proposed well holes and related accessory equipment, structures and facilities to be installed, and any abandoned wells if such are known to exist,
3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings,
4. North arrow;

current
1994 update

F.

Narrative description of the proposed development, including:

1. Acreage or square footage of the property,
2. Nature of hydrocarbon development activity,
3. Description of equipment to be used,
4. Distance to all existing buildings,
5. Phasing or development schedule.

(Ord. G-6077 § 317, 1994; Prior code § 7260.06)

- **19.98.070 - Permit revocation and modification.**

Any permit issued pursuant to this chapter may be revoked or modified pursuant to Section 19.102.020 of this title.

(Prior code § 7260.07)

for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the Director of Planning and Development Services. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

0. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

   1. California Division of Oil and Gas

   2. Kern County Fire Department

   3. Kern County Health Department

   4. Regional Water Quality Control Board

   5. Air Pollution Control District

   6. Kern County Engineering and Survey Services Department

19.98.060 PLOT PLAN REVIEW—CONDITIONAL USE PERMIT—APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Director of Planning and Development Services, which includes the following information:

   1. Topography and proposed grading

   2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

   3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

   4. North arrow

July 1993 - May 1994

Director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

0. All required federal, State, and County rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas

2. Kern County Fire Department

3. Kern County Health Department

4. Regional Water Quality Control Board

5. Air Pollution Control District

6. Kern County Engineering and Survey Services Department

19.98.060 PLOT PLAN REVIEW—CONDITIONAL USE PERMIT—APPLICATION CONTENTS

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant

B. Name(s) and address(es) of the property owner(s)

C. Assessor's parcel number(s)

D. Legal description of the property

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the Planning Director, which includes the following information:

1. Topography and proposed grading

2. Location of all proposed well holes and related accessory equipment, structures, and facilities to be installed and any abandoned wells if such are known to exist

3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings

4. North arrow

F. Narrative description of the proposed development, including:

May 1994 - May 1995

- **Chapter 19.98 - OIL AND GAS PRODUCTION**

Sections:

- **19.98.010 - Purpose and application.**

The purpose of this chapter is to promote the economic recovery of oil, gas and other hydrocarbon substances in a manner compatible with surrounding land uses and protection of the public health and safety by establishing reasonable limitations, safeguards and controls on exploration, drilling and production of hydrocarbon resources. The procedures and standards contained in this chapter shall apply to all exploration drilling and production activities related to oil, gas and other hydrocarbon substances carried out in unincorporated Kern County.

(Prior code § 7260.01)

- **19.98.020 - Unrestricted drilling.**

No review or permit shall be required for the drilling of any steam injection well, steam drive well, service well, or any well intended for the exploration for or development or production of oil, gas and other hydrocarbon substances, or for any related accessory equipment, structure or facility in the Exclusive Agriculture (A), Limited Agriculture (A-1), Medium Industrial (M-2), Heavy Industrial (M-3), or Natural Resource (NR) districts, provided that:

A.

All drilling installations and operations comply with the requirements of state law and with applicable fire and safety ordinances and regulations of the county.

B.

Drilling shall not be commenced within one hundred (100) feet of any existing residence without the written consent of the owner thereof.

C.

Signs shall be limited to directional, warning and identification signs in connection with oil, gas or other hydrocarbon drilling and development operations.

D.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity.

(Prior code § 7260.02)

- **19.98.030 - Drilling by ministerial permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil or gas or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in the Light Industrial (M-1) or Recreation Forestry (RF) districts until an application for plot plan review has been submitted to and approved by the planning director as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the procedures set out in Sections 19.102.040 through 19.102.060 of this title. In approving an application for plot plan review, the planning director may waive any standards set out in Section 19.98.050 of this chapter if he/she determines that such waiver will not result in material detriment to the public welfare or to the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity.

(Ord. G-6077 § 310, 1994; Prior code § 7260.03)

- **19.98.040 - Drilling by conditional use permit.**

A.

No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure or facility may be installed in any zoning district described in this title in which such uses are permitted as conditional uses until an application for a conditional use permit has been submitted to and approved by the planning commission as consistent with the standards set out in Section 19.98.050 of this chapter and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.104 of this title. In approving a conditional use permit, the planning commission may waive any condition set out in Section 19.98.050 of this chapter if it determines that such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity.

B.

Disposal of nonhazardous oilfield liquid waste and production water is considered an accessory facility only if the facility complies with the following:

1.

The nonhazardous oilfield liquid waste or production water is produced and disposed of within the same designated oilfield; or

2.

The nonhazardous oilfield liquid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation or entity;

C.

If a producing well or service well is not completed upon land subject to a conditional use permit issued pursuant to this chapter and Chapter 19.104 of this title within twelve (12) months from the date of issuance of the permit, or within any extended period thereof, the conditional use permit shall expire and the premises shall be restored as nearly as practicable to their original condition. No permit shall expire while the permittee is continuously conducting drilling, redrilling, completing or abandoning operations, or related operations, in a well on the lands covered by such permit, which operations were commenced while such permit was otherwise in effect. Continuous operations are operations suspended not more than thirty (30) consecutive days. If, at the expiration of the twelve (12) month period, the permittee has not completed his drilling program on the lands covered by such permit, the planning commission may, upon a written request of the permittee, extend the permit for the additional time requested by permittee for the completion of such drilling program.

(Ord. G-6551 § 98, 1998: Ord. G-5346 § 100, 1990; Prior code § 7260.04

- **19.98.050 - Development standards and conditions.**

All wells drilled, pursuant to Section 19.48.020 of this title and Sections 19.98.030 and 19.98.040 of this chapter, for the exploration for or development or production of oil, gas and other hydrocarbon substances and related facilities and activities shall comply with the following standards, unless otherwise provided in this chapter:

A.

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

B.

All drilling and production activities shall conform to all applicable fire and safety regulations, and firefighting apparatus and supplies required by the county fire department shall be maintained on the site at all times during drilling and production operations.

C.

No signs, other than directional and warning signs and those required for identification of the well, shall be constructed, erected, maintained or placed on the premises or any part thereof, except those required by law or ordinance to be displayed in connection with the drilling or maintenance of the well.

D.

Sanitary toilet and washing facilities, if required by the county health department or other governmental agencies, shall be installed and maintained in a clean and sanitary condition during drilling operations, and at such other times as specified by these agencies.

E.

Proven technological improvements generally accepted and used in drilling and production methods shall be employed as they may become available if they are capable of reducing nuisances or annoyances.

F.

All derricks, boilers and other drilling equipment employed pursuant to this section to drill any well hole or to repair, clean out, deepen or redrill any completed or drilling well shall be removed within ninety (90) days after completion of production tests following completion of such drilling, or after abandonment of any well, unless such derricks, boilers and drilling equipment are to be used within a reasonable time, as determined by the planning director, for the drilling of another well or wells on the premises.

G.

Within ninety (90) days after any well has been placed in production, or after its abandonment, earthen sumps used in drilling or production or both (unless such sumps are to be used within a reasonable time as determined by the planning director for the drilling of another well or wells) shall be filled and the drilling site restored as nearly as practicable to a uniform grade. Temporary earthen sumps may be used for cleanout or remedial work on an existing well or other production facility. However, these sumps shall be filled and the site restored as nearly as practicable to uniform grade within ninety (90) days after the cleanout or other remedial work is completed. Such restoration work shall comply with all applicable regulations of the California Division of Oil and Gas.

H.

Any derrick used for servicing operations shall be of the portable type, provided, however, that upon presentation of proof that the well is of such depth or has such other characteristics, or for other cause, that a portable type derrick will not properly service such well, the planning director may approve the use of a standard type of derrick.

I.

Whenever oil or gas is produced into and shipped from tanks located on the premises, such tanks, whenever located within five hundred (500) feet of any dwelling or commercial building, shall be surrounded by shrubs or trees, planted and maintained so as to develop attractive landscaping, or shall be fenced in such a manner as to, insofar as practicable, screen such tanks from public view. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

J.

Whenever a well is located within five hundred (500) feet of an existing dwelling unit, except in case of an emergency, no materials, equipment, tools or pipe used for either drilling or production operations shall be delivered to or removed from the drilling site, except between the hours of eight (8:00) a.m. and eight (8:00) p.m., unless otherwise required by the California Division of Oil and Gas.

K.

Pumping wells shall be operated by electric motors or muffled internal combustion engines.

L.

The height of all pumping units shall not exceed thirty-five (35) feet and shall be painted and kept in neat condition.

M.

All vehicle parking and maneuvering areas shall be treated and maintained with oiled sand or a similar dust-binding material.

N.

After production begins and a pump is installed on the wellhead, a fence at least six (6) feet in height shall be installed around the pump site or drilling island for public safety. This fence shall be constructed of chain link with wood or metal slats or other screening fence as may be approved by the planning director. This fencing and screening requirement shall apply only to those pump sites located within five hundred (500) feet of any dwelling. Such fencing shall comply with the requirements of the California Division of Oil and Gas.

O.

All required federal, state, and county rules and regulations shall be complied with at all times, including, but not limited to, the rules and regulations of the following agencies:

1. California Division of Oil and Gas;
2. Kern County fire department;
3. Kern County public health services department;
4. Regional Water Quality Control Board;
5. Air Pollution Control District;
6. Kern County engineering, surveying, and permit services department.

(Ord. G-6077 §§ 312—315, 1994; Ord. G-5885 § 136, 1993; Prior code § 7260.05)

(Ord. No. G-8035, § 84, 4-20-10)

- **19.98.060 - Plot plan review—Conditional use permit—Application contents.**

An application for plot plan review pursuant to Section 19.98.030 of this chapter and an application for a conditional use permit pursuant to Section 19.98.040 of this chapter shall include the following:

A. Name and address of the applicant;

B. Name(s) and address(es) of the property owner(s);

C. Assessor's parcel number(s);

D. Legal description of the property;

E. A plot plan or site development plan (in the case of a conditional use permit) drawn at the scale specified by the planning director, which includes the following information:

1. Topography and proposed grading,
2. Location of all proposed well holes and related accessory equipment, structures and facilities to be installed, and any abandoned wells if such are known to exist,
3. Location of all existing dwellings and buildings used for other purposes, located within three hundred (300) feet of the proposed well holes, identification of the use of each structure, and distances between well holes and existing buildings,
4. North arrow;

F.

Narrative description of the proposed development, including:

1. Acreage or square footage of the property,
2. Nature of hydrocarbon development activity,
3. Description of equipment to be used,
4. Distance to all existing buildings,
5. Phasing or development schedule.

(Ord. G-6077 § 317, 1994; Prior code § 7260.06)

- **19.98.070 - Permit revocation and modification.**

Any permit issued pursuant to this chapter may be revoked or modified pursuant to Section 19.102.020 of this title.

(Prior code § 7260.07)

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

September 9, 2015

File: Oil and Gas Zoning Amendment

Holly A. King
13501 Arbolado ct.
Bakersfield, CA 93314

RE: Public Records Act Request Regarding Kern County Revisions to the Zoning Ordinance 2015 C

Dear Ms. King:

On behalf of Kern County, the Kern County Planning and Community Development Department is in receipt of your September 4, 2015 Public Records Act Request for the proposed Oil and Gas EIR. In response to your request, Staff notes that all materials, subject to California Public Records Request Act, related to the aforementioned project are available for review. These files have been provided in electronic format and are available in hard copy by contacting Christopher Mynk directly at (661) 862-8607 or by email MynkC@co.kern.ca.us to schedule an appointment. The appointment can be scheduled during normal business hours (Monday through Friday, from 8:00 am to 5:00 pm) at the Kern County Planning and Community Development Department, located at 2700 M Street, Suite 100, Bakersfield, California 93301.

This completes the Kern County Planning and Community Development Department's response to your Public Records Act Request. Please contact me directly if you have any questions or concerns as they relate to this letter.

Sincerely,

Christopher B. Mynk, AICP, Supervising Planner
Planning & Community Development Dept.

Cc: County Counsel, Attn: Phil Hall

PLANNING DEPARTMENT
TED JAMES, AICP, Director
2700 "M" STREET, SUITE 100
BAKERSFIELD, CA 93301-2323
Phone: (661) 862-8600
FAX: (661) 862-8601 TTY Relay 1-800-735-2929
E-Mail: planning@co.kern.ca.us
Web Address: www.co.kern.ca.us/planning



RESOURCE MANAGEMENT AGENCY
DAVID PRICE III, RMA DIRECTOR
Community & Economic Development Department
Engineering & Survey Services Department
Environmental Health Services Department
Planning Department
Roads Department

KERN COUNTY AGRICULTURAL PROPERTY OWNER

Re: Agricultural Preserve Program

The following information is furnished in response to your request regarding the Agricultural Preserve Program:

CALIFORNIA LAND CONSERVATION PROGRAM

The California State Legislature, in formulating the California Land Conservation Program, found that preservation of a maximum amount of the limited supply of agricultural land is necessary to the conservation of the State's economic resources and is necessary not only to the maintenance of the agricultural economy of the State but also for the assurance of adequate, healthful, and nutritious food for future residents of the State and Nation. The Program, referred to locally as the "Agricultural Preserve Program," is enforced through the provisions of the Government Code of the State of California relating to the California Land Conservation Act (Williamson Act), as well as local ordinances, policies, and procedures which have been or may be adopted and/or modified from time to time. The Program is indicative of the widespread concern of the people of the State of California and their legislators for the preservation of agriculture as the State's prime economic activity and the preservation of agricultural land for the production of food and fiber for future generations.

John C. Williamson, an Assemblyman from Kern County at the time he authored the Act, stated that his bill was drafted "to guarantee the future agricultural use of our best agricultural land and that farmers who are willing to provide the public with such a guarantee are entitled to protection from forces that might otherwise drive them out of agriculture." The basis for preferential taxation is justified since the farmer who voluntarily chooses to enter into a land use contract guarantees the continued use of his land for agricultural or open space activities. Contrary to the opinion of some, both within and outside the agricultural community, preferential tax treatment is a valid concept since it results in the perpetuation of agriculture in an era of rapidly rising property values and prevents premature urbanization and the need to provide public services comparable to those required in urban or metropolitan areas.

HISTORY OF THE PROGRAM IN KERN COUNTY

The California Land Conservation Act became law in 1965, but it was not until 1967 that an amendment of the State Revenue and Taxation Code established preferential tax procedures for lands subject to land use contracts or agreements. (This is commonly known as Constitutional Amendment XXVIII.)

On December 19, 1967, the Board of Supervisors established the first agricultural preserve in Kern County. Soon thereafter, the Board completed the establishment of 25 large-scale preserves within which they would consider land use contracts or agreements. On February 11, 1969, the Board voted to disestablish Preserves Number 15, Number 20, Number 21, Number 23, and Number 25. The disestablishment of these preserves occurred because of lack of interest by owners of agricultural lands in the desert regions of eastern Kern County in placing their lands under contract or agreement.

Beginning in 1968, two types of agricultural preserve instruments were approved for use:

1. Land Use Contract:

   Only owners of "prime agricultural land," as defined in Section 51201 of the Government Code, were offered the land use contract.

2. Land Use Agreement:

   Only owners of "nonprime agricultural land," described as marginal grazing, were offered the land use agreement, the contents of which are identical to those of a contract.

In February 1968, the first land use contracts and agreements were approved by Kern County. A total of 318 land use contracts and agreements, covering 57,392 acres of prime lands and 557,471 acres of nonprime lands, represented an initial-year total of 614,863 acres of agricultural lands. At that time, the Program was supervised by the Kern County Assessor's Office.

Since February 28, 1970, the land use contract has been the only document executed by Kern County. At present it is used for both prime and nonprime lands.

CURRENT APPLICABLE POLICIES AND PROCEDURES

The California Land Conservation Act is permissive legislation, and the policies and procedures adopted by local entities may be more but not less restrictive than the State legislation. Although the Administrator of the Agricultural Preserve Program in Kern County is the Director of the Planning Department, all policies and procedures for administering the Program are initiated, developed, and amended by the Board of Supervisors upon recommendation of the Director of the Planning Department.

Kern County has adopted only those portions of the Act that apply to the preservation of agricultural lands. The many other aspects of the legislation, such as recreational uses, wildlife habitat, open space easements, wetland areas, salt ponds, etc., can be included only if they are secondary to the primary agricultural use of the land.

I. DEFINITIONS

Following are excerpts from the Government Code of the State of California relating to the Agricultural Preserve Program as administered in Kern County:

Section 51230 — An agricultural preserve shall consist of no less than 100 acres.

Section 51240 — Any County may by contract limit the use of agricultural land for the purpose of preserving such land pursuant and subject to the conditions set forth in the contract.

Section 51243 — Every such contract shall:

(a) Provide for the exclusion of uses other than agricultural, and other than those compatible with agricultural uses, for the duration of the contract.

(b) Be binding upon, and inure to the benefit of, all successors in interest of the owner. Whenever land under a contract is divided, the owner of any parcel may exercise, independent of any other owner of a portion of the divided land, any of the rights of the owner in the original contract, including the right to give notice of nonrenewal and the right to petition for cancellation.

Section 51244 — Each contract shall be for an initial term of no less than ten years. Each contract shall provide that on the anniversary date of the contract or such other annual date as specified by the contract, a year shall be added automatically to the initial term unless notice of nonrenewal is given as provided in Section 51245.

Section 51245 — If either the landowner or the County desires in any year not to renew the contract, that party shall serve written notice of nonrenewal of the contract upon the other party in advance of the annual renewal date of the contract. (In Kern County, the contract becomes null and void on its tenth anniversary date following the notice of nonrenewal.)

Section 51251 — The County or landowner may bring any action in court necessary to enforce any contract, including, but not limited to, an action to enforce the contract by specific performance or injunction.

Section 51281 — A contract may not be canceled except pursuant to a request by the landowner, and as provided in Article 5, Government Code.

Section 51282 — (a) The landowner may petition the Board (Board of Supervisors) for cancellation of any contract as to all or any part of the subject land. The Board may grant tentative approval for cancellation of a contract only if it makes one of the following findings:

(1) That the cancellation is consistent with the purposes of this chapter; or

(2) That cancellation is in the public interest.

(b) For purposes of paragraph (1) of subdivision (a), cancellation of a contract shall be consistent with the purposes of this chapter only if the Board makes all of the following findings:

(1) That the cancellation is for land on which a notice of nonrenewal has been served pursuant to Section 51245;

(2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use;

(3) That cancellation is for an alternative use which is consistent with the applicable provisions of the County General Plan;

(4) That cancellation will not result in discontiguous patterns of urban development; and

(5) That there is no proximate, noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate, noncontracted land.

As used in this subdivision, "proximate, noncontracted land" means land not restricted by contract pursuant to this chapter which is sufficiently close to land which is so restricted that it can serve as a practical alternative for the use which is proposed for the restricted land.

As used in this subdivision, "suitable" for the proposed use means that the salient features of the proposed use can be served by land not restricted by contract pursuant to this chapter. Such nonrestricted land may be a single parcel or may be a combination of contiguous or discontiguous parcels.

(c) For purposes of paragraph (2) of subdivision (a), cancellation of a contract shall be in the public interest only if the Board makes the following findings:

(1) That other public concerns substantially outweigh the objectives of this chapter; and

(2) That there is no proximate, noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate, noncontracted land.

As used in this subdivision, "proximate, noncontracted land" means land not restricted by contract pursuant to this chapter which is sufficiently close to land which is so restricted that it can serve as a practical alternative for the use which is proposed for the restricted land.

As used in this subdivision, "suitable" for the proposed use means that the salient features of the proposed use can be served by land not restricted by contract pursuant to this chapter. Such nonrestricted land may be a single parcel or may be a combination of contiguous or discontiguous parcels.

(d) For purposes of subdivision (a), the uneconomic character of an existing agricultural use shall not by itself be sufficient reason for cancellation of the contract. The uneconomic character of the existing use may be considered only if there is no other reasonable or comparable agricultural use to which the land may be put.

(e) The landowner's petition shall be accompanied by a proposal for a specified alternative use of the land. The proposal for the alternative use shall list those governmental agencies known by the landowner to have permit authority related to the proposed alterative use, and the provisions and requirements of Section 51283.4 shall be fully applicable thereto. The level of specificity required in a proposal for a specified alternative use shall be determined by the Board as that necessary to permit them to make the findings required.

(f) In approving a cancellation pursuant to this section, the Board shall not be required to make any findings other than or in addition to those expressly set forth in this section, and, where applicable, in Section 21081 of the Public Resources Code.

Section 51283 In the event the Board approves a cancellation, a fee of 12 1/2 percent of the full assessed value of the parcel will be assessed as a penalty fee. This fee, when collected, shall be transmitted by the County treasurer to the State Controller. (In addition, the Kern County Board of Supervisors has levied a $990 administrative filing fee for consideration of a request to cancel a contract or any portion thereof.)

II. CONTRACT PROCEDURES

From January 1 through October 1, inclusive, is the time period set to file a property status report. The property status report must be completed on the form provided by the County and returned to the Kern County Planning Department, 2700 "M" Street, Suite 100, Bakersfield, California 93301, accompanied by a $265 filing fee to defray the cost involved in making the necessary studies. Separate property status reports must be filed for discontiguous lands.

Upon receipt of a timely filed and properly completed property status report, the Staff will conduct an investigation and a field study of the property relative to the following categories:

A. Preserve Status:

The land must be within an existing agricultural preserve; if it is not, the necessary petition for inclusion form will be mailed to you. This petition must be completed and returned to the Planning Department, along with the appropriate fee, **on or before October 1**.

B. Zoning:

The land must be within an Exclusive Agriculture (A) District; if it is not, the necessary application for zone change form will be mailed to you. This application must be properly completed and returned to the Planning Department, along with the appropriate fee, **on or before October 1**.

C. Conformity with the Standard Uniform Rules:

The land must be consistent with the Agricultural Preserve Standard Uniform Rules as adopted from time to time by the Board of Supervisors (see enclosure).

(Special Note: Upon execution of a land use contract, the use of the contracted land must remain within the limits specified in the Standard Uniform Rules.)

D. Land Use:

The land must be used for the production of agricultural commodities or devoted to the grazing of livestock for commercial purposes described in the Government Code as follows:

> Section 51201 (a) - "Agricultural commodity" means any and all plant and animal products produced in this State for commercial purposes.
>
> Section 51201 (b) - "Agricultural use" means use of land for the purpose of producing an agricultural commodity for commercial purposes.

E. Consistency with the General Plan:

The land must be classified as Intensive Agriculture, Extensive Agriculture, or Open Space on the Land Use, Open Space, and Conservation Element of the Kern County General Plan.

F. Soil Classification:

The soil classification must be determined.

III. CONTRACT DATES

Upon completion of the investigation and the field study, you will receive, by personal service or by mail, the relevant contract forms and instructions. These items may include the following:

1. Two sets of the Land Use Contract
2. Consent by Secured Party
3. Power of Attorney
4. Application for Zone Change
5. Petition for Inclusion Within the Boundaries of an Agricultural Preserve
6. Staff Recommendations
7. Instruction Sheet to Landowner Entering Into a Land Use Contract

Each owner of land who seeks to enter into a land use contract with the County shall file such contract, along with all other necessary documents, properly completed according to an instruction sheet to landowners, together with the correct contract fees, on or before November 1. Only one contract is required for lands under the same ownership.

IV. CONTRACT FEES

0 - 10 Assessor Parcels	$590.00
11 - 20 Assessor Parcels	$740.00
21 or more Assessor Parcels	$1035.00

After receipt and review of your contract by Staff, you will be billed for the appropriate recording fees.

No contract shall be considered unless the property status report, the land use contract, and the appropriate fee have been timely received.

V. CONTRACT EXECUTION

All acceptable and timely filed land use contracts will be presented to the Board of Supervisors for approval and execution by the Board Chairman. Upon execution, the contracts will be duly recorded with the Kern County Recorder, and a fully executed copy will be returned to the applicant by regular mail. Contracts must be recorded prior to January 1 in order to be effective for the following tax year.

VI. ASSESSMENT

After completion of the contract procedures, and following execution of the contract by the Board of Supervisors, the contract will begin its term with the upcoming fiscal year.

The tax assessment on the newly contracted land will shift from a market-approach method to a capitalization-of-income method as determined by the Kern County Assessor. No property tax reduction is guaranteed, and tax estimates cannot be given by this office. For information concerning tax assessment procedures, please contact:

Kern County Assessor's Office, Rural Division
1115 Truxtun Avenue
Bakersfield, CA 93301 Telephone (661) 868-3485

If at any time you have questions regarding Agricultural Preserves or Contracts, please call this office at (661) 862-8600.

Very truly yours,

TED JAMES, AICP, Administrator
Agricultural Preserve Program

By James E. Ellis, AICP
Planning Operations Division Chief

Enclosure

26 Steph Sanders, North of the River Parks and Recreation

NORTH of the RIVER
NOR
recreation & park district
JOIN THE FUN!

July 28, 2015

Mr. Christopher B. Mynk, AICP, Supervising Planner
Kern County Planning and Community
Development Department
2700 "M" Street, Suite 100
Bakersfield, California 93301

SUBJECT: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C (Focused on Oil and Gas Local Permitting)

Dear Mr. Mynk:

The above referenced project proposing revisions to chapters of Title 19 Kern County Zoning Ordinance to implement a new permit process for oil and gas activities will not impact North of the River Recreation and Park District's facilities or services. 0026-1

Thank you for the opportunity to comment.

Sincerely,

Steph Sanders, PLA, ASLA
Landscape Architect & Park Planner

SMS:bc

405 Galaxy Avenue, Bakersfield, Ca 93308 | Phone: 661-392-2000 | Fax: 661-392-2041 | web: www.NORfun.org

0026-1

Commenter's concurrence that the Project would not impact the North of the River Recreation and Park District facilities or services is noted.

27 Lawrence Corcoran

0027

From: "Lawrence Corcoran" <copreach@isp.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county. 0027-1

The results of the thousands of jobs provided is obvious. The need for the product I would think is also obvious. The oil is available, but requires some intelligence not only in it's implementation, but among our leaders, realizing the market value and the ability to provide product in our own country, rather than transporting it thousands of miles, and still it must be refined here. We have raw product and it should be used. 0027-2

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. 0027-3

Sincerely,

Lawrence Corcoran
201 Spruce St
Bakersfield, CA 93304

0027-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment letter submitted indicates support of the project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0027-2

See comment 1, above.

0027-3

See comment 1, above.

28 Ken Gabbani

0028

From: "Ken Gabbani" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county. 0028-1

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. 0028-2

To me it only makes total sense to have an industry locally that would provides jobs for Kern County residents. 0028-3

If the product is available locally go after it and reduce the import of foreign oil 0028-4

Sincerely,

Ken Gabbani
2163 Harris Ave
Rosamond, CA 93560
inabbag1@yahoo.com

0028-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0028-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0028-3

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0028-4

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

29 Charles Jones

0029

From: "Charles Jones" <jonesfamily314@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county. 0029-1

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. 0029-2

The oil industry is one of the most regulated industries in the country and I believe that each participant in the industry take every precaution to operate in safe and environmental prudent manner. It can be a potentially dangerous business but in Kern County there have been relatively few incidents that might cause concern. 0029-3

Anyone proposing to shut down or significantly reduce the oil production in this country must be clearly misinformed about how the oil industry contributes to the economy through employment, taxes (property and income), petroleum products, charitable contributions and community involvement, etc. 0029-4

Despite the the advances in alternate energy sources, nothing comes close to fossil fuels for running our country. Until alternate resources replace fossil fuels as the major source of energy, good or bad, I believe we must continue to pursue hydrocarbons in Kern County and elsewhere in America. If we don't, I suppose we can go back to living like that in the early 1900's. Even environmentalist might find that kind of living difficult, distasteful, and even unacceptable. 0029-5

Sincerely,

Charles Jones
9414 Val Di Chiana Dr
Bakersfield, CA 93314

0029-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0029-2

The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0029-3

The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0029-4

The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0029-5

The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

30 Bob Shore

July 30, 2015

Kern County Planning and Community Development Department
Attention: Christopher B. Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301

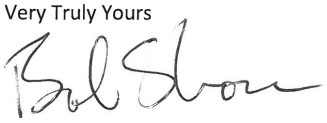
Ladies and Gentlemen:

0030-1

The attached comments are supplement to my verbal comments at the July 27, 2015 Joint Workshop in Bakersfield. They are a little different than my initial intent and the 2-minute verbal presentation however more clearly represent my comments.

If there any questions I can answer or areas I can assist please let me know at the contacts below.

Very Truly Yours



Bob Shore
Consultant
805-400-5311
AR4wine@aol.com

cc: Blair Knox, CIPA

Comments @ July 27, 2015 Joint workshop with Kern County Board of Supervisors & Planning Commission – Bakersfield , CA

Good Afternoon

Chairman Couch, Chairman Sprague, Members of the Kern County Board of Supervisors & Planning Commission and Lorilei & staff.

My name is Bob Shore. I am a consultant in the oil and gas industry.
I was born and raised in Kern County as was my wife, son and daughter.
My parents came to Kern County over 100 years ago.

I've worked in the oil and gas industry all over the U.S. but 95% of my effort has been in Kern County. I've worked as a roustabout, well puller, engineer, financial planner, Vice President, Owner, Director, President and consultant in our industry. I've worked for contractors, major oil companies and independents. The projects I've actively worked on in Kern County have produced over 3 billion barrels of oil and will produce over 1 billion barrels in the future. I've also coached or refereed AYSO soccer for 15 years, been an EB Kiwanian, lived in and been proud of our community.

Thank you for the opportunity to present my comments today regarding the EIR to meet the California Environmental Quality Act(CEQA) and other compliance requirements.

Fortunately, this EIR is a fact of life of the oil & gas operations in Kern County and CA. More so than anywhere else in the world. Kern County has also been recognized for sometime as one of the world centers for thermal enhanced oil recovery(TEOR) technology – not only to produce significant amounts of domestic oil from old oilfields but also developing the techniques to operate cleaner and more efficient.

One thing I've learned in 50 years working in the Kern County Oil & Gas industry is that you need to spend extra effort in the initial planning designing and permitting for a good project.
I believe this EIR can be a very important part and improvement in the process.

However, this is a critical, financially devastating, time in our industry. Oil prices have dropped approximately 60% and thousands of people have lost their jobs. Companies are going out of business and people are losing their homes. The new fee structure could cost $25 million to $75 million per year and over 20 years 1 billion dollars. I think reduced fee levels and tax incentives need to be explored.

There are 3 areas of concern I would like to focus my comments today. They are:

TAXES, AIR & WATER.

Comments @ July 27, 2015 Joint workshop with Kern County Board of Supervisors & Planning Commission – Bakersfield , CA

TAXES are a very significant consideration in our industries sustainability and should be considered in your plan.

Let's talk of the taxes paid in Kern County due to the oil & gas industry. I know you understand the significance and the turnout at today's workshop is a good representation.The property tax bills on the oil & gas operations approach 40% of the county total. The property tax bills of the peoples homes in the industry are significant. The property tax bills homes and businesses of the people who indirectly benefit from this industry are significant. I can site many other jobs and businesses that would be different if the Kern County oil & gas industry could not drill wells to develop the remaining reserves.

It is important to note that this CEQA EIR is about the effect of drilling new wells in Kern County and without the drilling activity the employment in our industry would be 80 to 90% less. This would have a devastating consequence on the tax sources in Kern County.

> So my first recommendation to maintain sustainability in our Kern County industry and the Kern County tax revenues, is to implement a tax credit applied to property tax bills of 10% of the first 12-months gross revenue not to exceed the permitting fee. The County would benefit from the tax on the new developed resource but the permitting fee would be offset with the tax credit and be revenue neutral. The County would still receive the taxes on the future value.

I would like to extend that thought into my next comments regarding AIR.
Because Kern County's oil production is very dependent on thermal enhanced oil recovery projects the protection of our air quality while generating steam needs has always been important. In the 1960's, the first thermal projects burned 1/3 of the oil produced to generate steam and wells produced into open sumps. Very quickly scrubber technology was designed and developed to remove sulphur and particulate emissions from the steam generators and enclosed automatic well test units and casing vent recovery systems were developed to control emissions from wells. In the 1970's, lower-cost natural gas became the fuel of choice and combustion technology has been developed to control NOx emissions. With other technology, dust control and Green House Gas offsets the Kern County oil and gas industry's influence on air quality has been minimized. The resultant Kern County oil industry is a proud example of the combination of best technology for oilfield development and environmental control

Our County's major issue with air quality is the transportation contribution mainly from cars and trucks outside or passing through Kern County.

So my second recommendation is to provide a $2,500 grant and /or tax incentive to homeowners and companies for purchasing or converting a vehicle to CNG, LNG or electricity and a $20,000 grant or tax incentive to install multi-customer natural gas fueling stations that are sorely needed. If we can't come up with a solution to this problem nobody will. Maybe some day we'll have more clear days and we can see Bear Mtn. more often.

I would now like to address my last comments to - WATER.
A very valuable commodity in Kern County and CA. Because of solar cycles that average every 11 years we have many years, like now, that we experience below average rainfall, or droughts. Before it rains a lot this coming winter and we forget. We all need to work towards efforts to provide an adequate system to use every source of water available, before the next drought cycle.

Most of our industry produces over 10 barrels of water for every 1 barrel of oil produced. A large portion of this water is recycled as steam and injected into the oil sands to produce more oil. Most of the excess water has less than 10,000 ppm of total dissolved solids(TDS) which now requires a permitted aquifer exemption for disposal or an approved beneficial use, such as agriculture. In the last 40 years, over 5 billion barrels(or approximately 1 million acre-feet) of water produced with oil has been cleaned and delivered for beneficial use in agriculture at a low cost. If it is forced to be injected into deeper high salt zones by the current change in permitting requirements it will be lost for beneficial use forever.

However the cost to clean and transport the excess produced water for agriculture use is prohibitive in most cases especially at the current low oil prices.

My third recommendation is to provide a grant or property tax incentive of $100 per acre-foot for the first 2 years of operation to provide the economic incentive to achieve the goal of 33,000 new acre-feet each year of beneficial use of oilfield produced water.

In summary, please consider reducing the fee structure and providing grants and tax credits to insure the financial burden is balanced between accomplishing the environmental goals and not becoming a burden on the sustainability of the Kern County oil and gas industry.

Thank you for the major efforts so far. I hope that this EIR process can proceed timely so that future requirements can be clearly defined before year-end 2015. At these times of financial stress in our industry, indecision on future development at year end can have severe consequences on a company's financial well being.



0030-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment letter indicates support of the proposed project. The comment letter does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment letter provides a general description of the history of Kern County's oil & gas industry and, in the commenter's view, the industry's improved environmental record over time. The comment also makes general recommendations regarding certain economic policies the County might pursue that, in the commenter's view, would further improve the Kern County environment. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

31 Lee Meyer

0031

From: "Lee Meyer" <lee.meyer@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/31/15 11:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county. 0031-1

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. 0031-2

Too many times we have special interest groups finding fault or objecting to how agriculture is wasting water or the oil industry is polluting our water. Usually it is done with little or misunderstood facts. Any group that has an objection, should provide a solution that encompasses all aspects of the problem and the well being of our community. Let's be constructive not destructive. 0031-3

Sincerely,

Lee Meyer
13404 Michaelangelo Dr
Bakersfield, CA 93314

0031-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0031-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0031-3

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

32 D.S. Schroeder OST

0032

From: "David Schroeder" <mom@heidischroeder.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/1/15 12:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

0032-1

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

0032-2

I have worked in the oil and gas industry for over thirty years, twenty of witch have been in Kern County. One of my sons Rick Schroeder became a Geologist, receiving his PHD in Calgary Canada. Now working for Conoco Philips. My son and I are only two people working in oil and gas. Kern County needs to keep oil and gas production going for every one.

0032-3

One important thing the oil industry needs to do, is be a good Stewart to the earth and take care or the environment. I have seen a lot of SHADY work being performed, harming the environment that could have been prevented, if procedure would have been followed.

Sincerely,

D.S. Schroeder OST
11911 Sandy River Ct
Bakersfield, CA 93311

0032-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment letter submitted indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0032-2

Thank you for your comment and participation in the public review of the project and environmental document. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. The commenter works in the industry and cites personal observations of unspecified "shady" activities in the oil field, including the disregard of proper procedure. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration. Please see Global Response 19, Enforcement of Mitigation Measures and Ordinance.

0032-3

Thank you for your comment and participation in the public review of the project and environmental document. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. The commenter works in the industry and cites personal observations of unspecified "shady" activities in the oil field, including the disregard of proper procedure. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration. Please see Global Response 19, Enforcement of Mitigation Measures and Ordinance.

33 Holly A. King

See Response 25.

See Comment Response 25 Holly A. King

34 Chris Romanini

0034

From: Lorelei H. Oviatt <loreleio@co.kern.ca.us>
To: MynkC@co.kern.ca.us
Date: 8/11/15 6:49 AM
Subject: Fwd: Idle Wells on Romanini property

Sent from my iPhone

Begin forwarded message:

> From: "chris ROMANINI" <romaninichris2@gmail.com>
> Date: August 10, 2015 at 10:38:57 PM PDT
> To: "Lorelei H. Oviatt" <LORELEIO@co.kern.ca.us>
> Subject: Idle Wells on Romanini property
>
> Thank you for hearing my concerns today. Maybe there is little possibility for idle legacy wells and tanks such as mine to ever be restored to the landowners. Unfortunately, mine is now a beer party destination, and there is danger with people climbing the cat walks, drinking. My hope is that you will establish policy within this new code that will limit the time wells may remain idle before they must be abandoned. Kern needs to be protected from idle wells littering our county indefinitely into the future. 0034-1
>
> Address you requested is on a dirty road between Rudd and Heath, 1/4 mile south of Reina. APN 463 050-69 with last known lease owner being Sunray Petroleum, Inc. (DOGGR uses different identification…API 02965225). 0034-2
>
> Thank you for your concern...
>
> Chris Romanini

0034-1

The commenter's email followed up on a conversation with the Kern County Planning Department regarding idle wells, including nuisance conditions for idle wells. The Project includes future permitting activities rather than addressing legacy conditions, but in response to this and similar comments the County has added a new provision to the Revised Proposed Ordinance that allows members of the public to report suspected idle or abandoned wells to the County, that requires the County to report this information to DOGGR and to track DOGGR's responses, and to deny new permits to Applicants that DOGGR has determined to be in violation of applicable idle well regulations. (See Section 7.1.3) Commenter's concerns about idle wells are also noted for the record for consideration by the Planning Commission and Board of Supervisors.

0034-2

Commenter's report of an idle well, including address and DOGGR identification number, is noted for the record for consideration by the Planning Commission and Board of Supervisors.

35 Leland Bell Farms Inc.

Leland Bell Farms Inc.
1499 East Los Angeles St.
Shafter, CA 93263

August 11, 2015

Kern County Planning and Community Development Dept.
Attn: Christopher B. Mynk, AICP
2700 M St., Suite 100
Bakersfield, CA 93301

RE: Comment on EIR on oil/gas well permitting.

Dear Mr. Mynk,

I am writing you to support the new report on oil and gas well permitting in Kern county. It is important to have local control over this process. We have a small farm on both north and south side of Shafter. We have a great working relationship with all the oil companies that operate in the area. We grow almonds and have found that energy companies are very responsive to our wishes. Since we need high paying jobs that stay local, we support the energy industry. They drilled the first well around us in 1995 and since then all concerns we have had for land use and water issues have been addressed in a timely and professional manner. I'm certain that will continue. As a small farm, we need to maximize our business; which includes oil products at competitive prices. Fertilizers and other chemicals we rely on are oil based. The energy industry supports many other industries in Kern county. We must keep it strong and viable.

0035-1

Thank you for your time and consideration.

David Bell,
President, Leland Bell Farms Inc.

0035-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment letter submitted indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

36 Jack Patterson

0036

Chris Mynk - FW: oil and gas

From: jack patterson <tognot1@yahoo.com>
To: Chris Mynk <mynkc@co.kern.ca.us>
Date: 8/21/15 11:30 AM
Subject: FW: oil and gas

Sent from Yahoo Mail for iPad

Subject: oil and gas
Kern County Planning and Community Development Department
Attention: Christopher B. Mynk, AICP
2700 "M" Street, Suite 100 Bakersfield, CA 93301

Here are my comments related to the Oil and Gas Development Plan in Kern County: 0036-1

I am only commenting on two issues that I have personal experience with, which I believe are discussed infrequently. I feel the County's Plan is overdue and is a good idea to implement rules and guidelines.

1) Noise. As a layperson, I have found noise levels are relative and to assign a DB rating as "acceptable" does not fit all situations. Any mechanical or electrical device which creates - for example- 75DB, might not be noticeable when situated on a street corner within the city limits. Most oil production does not take place here (on a street corner) but rather out in the rural areas of our county. My research shows typical DB readings outside city limits to be around 35 to 40 DB. To most of us this is "quiet". No planes, no air conditioners, no cars. 0036-2

Now place a pumping unit about a quarter mile away, with a noise level of 75 db. That pumping unit noise now becomes the dominant noise in your previously "quiet" environment. Add 10 or 20 more pumping units, and you are effectively now living in an industrial zone. Most people can't understand that in a rural setting you can hear a converstation a quarter mile away depending on weather, wind and temperature. 0036-3

My property is zoned Agriculture, with one single family home permitted. Homes and oil production are not compatible without restrictions on noise - just like any other industry. What other industry is allowed to make ANY amount of noise, 24 hours a day, 364 days a year without restriction ? (Christmas) 0036-4

I have contacted the lease developer in this case. I can't say they have ignored me, but the problem increases as the number of wells are drilled. They have made it clear they will not install any sound proofing or change their practices, which are completey legal in Kern County. 0036-5

2) Dust. Simply stated, why does "Oil" have a free pass on dust mitigation compared to the 0036-6

rest of construction industries in the county ? Miles of top soil is removed and no treatment or mitigation for the resulting dust is employed. I have experienced (literally) severe dust storms on Highway 65 after top soil was scrapped off. It seems ludicrous that across town a home developer must water the construction site to minimize dust, which is literally a fraction of that created in oil production.

Thank you

Jack Patterson
381 Owl Road
Bakersfield, CA 93308

0036-7

I appreciate that my situation is unique relative to the general population and therefore will likely carry little weight in drafting a plan.

0036-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0036-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. For information regarding the basis for the EIRs thresholds of significance for noise impacts, please see DEIR pages 4.12-15 through 4.12-18.

0036-3

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. For information regarding the basis for the EIR's thresholds of significance for noise impacts, please see DEIR pages 4.12-15 through 4.12-18.

0036-4

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. For information regarding the basis for the EIR's thresholds of significance for noise impacts, please see DEIR pages 4.12-15 through 4.12-18. For more information regarding County noise regulations, please see DEIR pages 4.12-8 through 4.12-14.

0036-5

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comments observations regarding existing oil and gas activities are noted and will be considered.

0036-6

Thank you for your comment and participation in the public review of the Project and the environmental document. The oil and gas industry does not get a "free pass" with respect to dust and is subject to numerous air pollution control laws, including those mandating fugitive dust control measures, as described in DEIR section 4.3-1, Air Quality. Indeed, this EIR recommends measures to mitigate the Project's potential dust impacts, including the requirement that all permit applicants develop and implement a detailed dust control plan, as described in mitigation measures MM 4.3-2.

0036-7

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

37 Holly A. King

See Response 25.

See Comment Response 25 Holly A. King

38 Howard E. Caywood

SEPTEMBER 1, 2015'

4th DISTRICT SUPERVISOR
MR. DAVID COUCH
1115 TRUXTUN AVENUE
BAKERSFIELD, CALIRORNIA 93301

SUBJECT: KERN COUNTY ENVIRONMENTAL IMPACT REPORT

DEAR MR COUCH:

THESE NEW REGULATIONS WOULD DO AWAY WITH ALL UN-RESTRICTED DRILLING AND OTHER OPERATIONAL OIL FIELD MAINTERANCE WORK TO A MISERABLE PERMIT SYSTEM. THE PERMIT SYSTEM COMES WITH THE EXORIABANT PERMIT FEES, AND EXTRACTION OF MORE TAXES OF THE OIL INVESTORS MONEY. THE APPETITE FOR THE NEVER ENDING TAXES OR FEE OR JUST MONEY. 0038-1

THE GOVERNOR GETS HIS STATES FAIR SHARE OF PROFIT TAX. UNCLE SAM GETS HIS FAIR SHARE OF PROFIT TAXES. KERN COUNTY GET ITS FAIR SHARE OF PROPERTY TAXES, KERN COUNTY HEALTH DEPARTMENT GETS ITS FAIR SHARE OF FEES. S J A P C D GETS ITS FAIR SHARE OF AIR CONTROL FEES. THE STATE, KERN COUNTY, AND CITY GET THEIR FAIR SHARE OF SALES TAXES ON MAINTANCE OF EQUIPMENT. CAP AND TRADE, ANOTHER TAX, NEW EMPLOYEE BENEFITS AND RETIREMENT LIABILITY FOR NEW CONTROLS OF KERN COUNTY E I R. ALL OF THIS FOR THE C E A. THE ENVIROMENTLIST DREAM COMES TRUE. LOOK AT KERN COUNTY AIR POLLUTION: MOST OF IT COMES FROM CHINA, SACRAMENTO, AND OTHER NORTHERN CITIES. KERN COUNTY WILL NEVER BE IN COMPLIANCE WITH TODAYS STANDARDS., AND YOU KNOW THE FACTS OF THIS, BUT GOVERNMENT STILL GAUGES THE KERN COUNTY PEOPLE; SO HOW WILL THIS E I R WORK ? ON AIR? 0038-2

NOW, THAT GOVERNMENT WANTS CONTROL OF WATER AND ITS USE, (GOVERNMENT BUYING WATER RIGHTS, WHICH BELONGS TO THE PROPERY). THESE WATER RIGHTS ARE ILLEGALLY MOVED OFF ITS NATURAL WATER WAY TO THE BEST MARKET; SO HOW DOES CEQA AND KERN COUNTY BENEFIT ITS OWN GOVERNMENT REGULATION? 0038-3

NO, GOVERNMENT DOES NOT MAKE IT BETTER; SO I BELIEVE WE DO NOT NEED KERN COUNTYS E I R, BUT, IF THIS E I R MAKES CLEANER AIR, CLEANER WATER, AND CLEANER ENVIROMENT, PLEASE EXPLAIN TO ME HOW? 0038-4

SINCERELY,

Howard E Caywood

HOWARD E. CAYWOOD
500 HILLARD STREET
TAFT, CALIFORNIA 93268-2647

0038-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0038-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0038-3

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0038-4

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

39 Tim and Jenny Holtermann

September 11, 2015

Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 M Street
Bakersfield, CA 93301
E-Mail:

Re: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) Focused on Oil and Gas Local Permitting

Dear Mr. Mynk:

We are farmers in Kern County with almond orchards located near Wasco. Our farm is on split estate lands with no oil wells on our property at this time. However, our larger family, and properties we manage, have split estate lands with eight oil wells located on the properties at this time. These oil wells and well pads take land out of production from the farm. We have already faced numerous impacts to the farm from these existing wells on the property such as reestablishment of irrigation systems, returning surface back to original condition, and overspray of crude oil onto agriculture property and crops. 0039-1

We are not opposed to oil and gas development in Kern County, but we are concerned that oil companies will drill new wells on our property and neighboring properties without sufficient protections for our crops, home, and workers. Kern County has an opportunity to ensure that new oil and gas wells will not endanger our health, quality of life, or the economic prosperity of Kern's agricultural industry. We do not believe the County's draft revisions to the zoning ordinance, or the mitigation measures in the Draft Environmental Impact Report (DEIR), go far enough in protecting our surface owner rights and well being of our property. In addition, the DEIR for this project seriously understates the project's impacts—especially to the agricultural community. 0039-2

Please consider the following comments and revise the DEIR to accurately reflect the project's impacts and identify additional mitigation measures. As the DEIR stands now, we don't believe it complies with the County's responsibility to inform the public and surface owner about the project's significant impacts and mitigate those impacts to the extent feasible as required under the California Environmental Quality Act. Surface owner notification and approval shall occur anytime the surface is being converted, accessed or altered from its agriculture condition before and during any oil or gas development. 0039-3

Aesthetic Impacts: 0039-4

- The DEIR concludes that the proposed Project would have significant unavoidable impacts to the County's rural character but it ignores mitigation such as limiting the number of drilling operations at any one time in scenic rural areas and requiring larger setbacks (e.g., 1,000 feet).
- To comply with Irrigated Lands Programs, surface owners shall be provided soil testing to ensure soil is restored to original condition upon removal of earthen sumps.

Landowner shall also be notified when earthen sump is to be constructed and upon filling in.

- Upon the construction or establishment of any shrubs, fence, permanent lighting, power lines or other non oil production infrastructure the surface owner shall be notified and approval granted prior to the construction. The use of existing infrastructure shall be used when possible.

0039-4 Continued

Agricultural Impacts:

- The DEIR underestimates the amount of farmland that will be converted to non-agricultural use because it does not consider that land in between or near oil and gas facilities cannot be farmed. When converting farmland to non agriculture the use of gross loss of land shall be considered as well, including all roads and disruption due to power lines and other infrastructure.
- The DEIR must identify mitigation measures requiring oil and gas facilities to be clustered together, instead of being spread out across contiguous parcels of land.
- The DEIR must discuss the problem of long-term idle wells and out of service facilities taking farmland out of production for longer than necessary. The DEIR's mitigation measures should require that unnecessary idle wells be abandoned and out of service equipment be removed before allowing other types of mitigation that do not restore farmland.
    - The formation of a conservation bank should allow agriculture and other industries to contribute when converting agriculture land. Surface owners whose loss of land is contributing to this bank shall receive priority when wells are being removed.
- Rangeland is an important part of Kern County and its agricultural economy. The DEIR must analyze the project's impacts to rangeland and fully mitigate for the loss of rangeland to oil and gas uses.

0039-5

Air Quality Impacts:

- The project will lead to even higher ozone levels in Kern County and negatively impact human health and agricultural yields. The DEIR must consider additional air quality mitigation measures.
- Oil and gas development must comply with all San Joaquin Valley Air Pollution Control Board regulatory standards for agriculture zoned areas. Surface owner must approve of the means to which the standards will be achieved.
- Air quality mitigation fees shall first look for compliance mitigation within the surface owner impacted by the specific project.

0039-6

Water Supply Impacts:

- The DEIR assumes there is more water available that is suitable for municipal and agricultural uses than there actually is. Farmers are finding salt levels in groundwater are increasing to the point where they are harming crops.
- DEIR doesn't identify which aquifers will be impacted the most by oil and gas development. The DEIR concludes that the project will cause water shortages in Kern County without discussing what the impacts of those shortages will be.
- The DEIR should identify additional mitigation measures to reduce the project's impact on water supplies. For instance, the DEIR should require oil and gas operations to treat and reuse more of the produced water from their wells.

0039-7

Land Use Impacts:

- The DEIR concludes that there will be significant land use conflicts between oil and gas operations and surface uses, such as agricultural operations. But nothing in the proposed zoning ordinance will reduce these conflicts and the mitigation measures proposed don't address many of the types of conflicts that can occur.
- The County should require surface owner sign-off for drilling on split estate lands to allow these conflicts to be worked out at the site-specific level. Other attorneys agree that the County has the authority to require sign-off without exposing the County to liability from mineral rights owners.
- If surface owner sign-off is not required, the County should require a conditional use permit for development on split estate lands to enable the County to consult with surface owners and address site-specific conflicts. The County does not expect a significant number of permits on split estate lands and regardless the County can charge applicants for the costs to process these permits, including hiring additional staff if necessary.
    - The notification requirements for conformity review are not sufficient enough at 30 days. A 60 day period would allow the surface owner ample time to review surface impacts.
    - Without required surface owner signature, each 30 day phase should be mandatory allowing a full 120 day period until approval. An educational meeting with surface owner feedback shall be called at each phase.

0039-8

Noise Impacts:

- The DEIR does not consider increased noise from actual conditions as they currently exist on the ground. It therefore vastly underestimates the Project's noise impacts in rural areas of the County.
- The DEIR's mitigation for noise impacts, including a trivial 190-foot setback requirement, will not go far enough to reduce those impacts to a less than significant level. The DEIR should include more realistic and effective setback requirements. All setbacks and noise buffers must be approved by surface owner.

0039-9

Traffic Impacts:

- The DEIR underestimates the amount of traffic that the proposed Project will generate and does not analyze hazardous conditions that could be caused by truck traffic. The DEIR must include additional mitigation for traffic safety impacts and emergency access.

0039-10

Project Description:

- The DEIR underestimates the number of new wells that could be drilled under the project, especially on agricultural lands. There has been an increase in drilling on agricultural lands over the last 10 years and it is unreasonable to assume that only 6% of future drilling will occur on agricultural lands going forward.

0039-11

Alternatives:

- The DEIR must consider the Conditional Use Permit (CUP) alternative in detail. Under the CUP alternative, the County can impose industry-wide mitigation while preserving its ability to consider the environmental effects of each permit on a case-by-case basis.

0039-12

Sincerely,

Tim Holtermann and Jenny Holtermann

0039-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This introductory comment is noted and will be considered by County decision makers.

0039-2

Thank you for your comment and participation in the public review of the Project and the environmental document. Please see Global Response 4, Surface Owners and Agriculture.

0039-3

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. However, commenter's general opinion of the EIR is noted and will be considered by County decision makers.

0039-4

Please see Responses 43-200 to 43-211.

0039-4 cont'd

0039-5

Please see Global Response 4, Surface Owners and Agriculture, Global Response 7, Baseline Legacy Conditions, Global Response Haz 2, Idle Wells, Global Response Ag 1, Agricultural Impacts and Farmland Mitigation Program, and Global Response Water 5, Water Supply and Demand Update. Please also see Responses 43-78 to 43-199 and 43-200 to 43-211.

0039-6

Please see Response 43-244. See also Global Responses to Air-1 to Air-12.

0039-7

Please see Global Response Water 8, Produced Water Irrigation. Please also see Responses 43-163 to 43-168, and Responses 43-171 to 199.

0039-8

Please see Response to comments 43-149 through 43-162. Please also see Global Response 4, Surface Owners and Agriculture.

0039-9

Please see Responses 43-212 to 43-220.

0039-10

Please see Responses 43-221 to 43-233.

0039-11

Please see Global Response 4, Surface Owners and Agriculture, and Global Response 8, Future Well Projections. Please also see Response 43-37 to 43-70.

0039-12

Please see Global Response Alt-2.

40 Lucy Clark

0040

From: Lucy Clark <lucyg391@gmail.com>
To: <MynkC@co.kern.ca.us>
Date: 9/8/15 5:04 PM
Subject: DEIR Oil and Gas Development

Kern County Planning Department
2700 'M' Street
Bakersfield, CA 93301

Thank you for the opportunity to comment on the Draft Environmental Impact Report for oil and gas development activities for the next 25 years in Kern County. I am concerned about the following issues: 0040-1

1. The KCPD cannot possibly know all of the issues that may arise that far into the future, which will affect the oil industry. It seems ridiculous to me to give permission to the industry to continue into the future practices that may be cutting edge in 2015, but that may be very backward and considered harmful, but cheaper, in 2040. I would hope that there would be included the right by the County to require safety, pollution control, water conservation, etc. upgrades when they are available to the industry.

We also do not know the needs of the Earth, as far as climate change issues, that might require a cessation of the use of oil.

2. The residents of Kern County have a right to know about the wells in their areas. A requirement of disclosure of locations, chemicals and amount of water used for each well, depth of wells, etc. will be absolutely necessary on a public website that the KCPD runs. 0040-2

3. There must be monitoring and enforcement included, and the money to provide this must be provided by the industry. County residents should not have to tax themselves for this, nor should we be asked to trust the oil companies' self-certification. 0040-3

4. The Biological Resources, Air Pollution, and Greenhouse Gas studies must be included, as they are in every other DEIR required by Kern County. The public needs to read these to see if they are being interpreted correctly. 0040-4

5. The issue of Environmental Justice must also be included in the DEIR. 0040-5

This DEIR appears to be written without concern for those residents not employed in the oil business. 0040-6

Sincerely,

Lucy G. Clark
HC3 Box 88
Bakersfield, CA 93308-9124

661-391-9302

0040-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. The commenter is correct that County cannot possible know all of the issues that might arise far into the future. Thus, the EIR does not engage in such speculation, in accordance with CEQA. All future oil and gas activities permitted will be subject to safety, pollution control, water conservation law and regulations in effect and applicable at the time of permitting.

0040-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. The EIR includes mitigation measures requiring all well operators to comply with all applicable federal, state and local laws and regulations. The location of every new well permitted by the County under Project-conditions will be a matter of public record. Please also see DEIR section 4.9 for a description of state laws regulating the disclosure of information regarding well chemical use, well depths and oil and gas water use.

0040-3

The EIR includes mitigation measures requiring all well operators to comply with all applicable federal, state and local laws and regulations, including those regarding monitoring. The Revised Zoning Amendment has been revised to require the County inspector or third-party expert retained by the County to confirm that permitted structures are constructed in compliance with the Revised Amended Ordinance and the Project mitigation measures at the permit applicant's expense.

0040-4

The EIR does include air quality and greenhouse gas studies. Please see DEIR sections 4.3 and 4.7, DEIR Appendix I, and DEIR Appendix J. Please also see Global Responses Air 1 and Air 4.

0040-5

Please see all responses to the DEIR comment letter received from the Center on Race, Poverty & the Environment (i.e., Letter 45).

0040-6

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

41 Kirk Blair

0041

Chris Mynk - Drilling & oilwells in Residential Areas(noise)

From: Kirk Blair <westen96@hotmail.com>
To: "mynkc@co.kern.ca.us" <mynkc@co.kern.ca.us>
Date: 7/9/15 5:53 PM
Subject: Drilling & oilwells in Residential Areas(noise)
Attachments: Oilwell letter to owners.doc; oilwell 005.jpg; oilwell 003.jpg; oilwell 001.jpg; oilwell 002.jpg

Hi Mr. Mynk,
I've lived next to an oilwell, in a residential neighborhood for 20yrs. And in that time, the owners have continued to purchase agricultural type motors to run the well. These motors have no insulation for noise. Current rules allow 65 decibels, this is like having a diesel truck parked 100ft from your home running at a fast idle. The sound should be more like 45 decibels as the noise ordinance shows for other noises. Attached are some pics that are typical around here (I think the City makes them go electric). Perhaps going through process might shed some light on this.
There's no excuse nowadays to have archaic machinery in residential neighborhoods. The updated ordinance should require the same sound controls you find at places like the Kern County Fair regarding generators. In fact, you can't rent a generator that doesn't come with sound insulation anymore. These motors on oil wells should be the same as well.
I appreciate giving me the chance to have input in this process.
Thanks,

0041-1

Kirk Blair
15301 Mabel Ct
Bakersfield, Ca 93314
661-496-1669




0041


0041
LUFKIN



0041-1

Thank you for your comment and participation in the public review of the project and environmental document. The EIR and the Revised Amended Zoning Ordinance contain detailed measures, including setbacks from sensitive receptors. See Mitigation Measures 4.12-1 and 4.12-2.

This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

42 Peter Decker, Five America North Combustion

Maine, Michelle L (SFR - X56907)

From: Peter Decker <Peter.Decker@fivesgroup.com>
Sent: Wednesday, September 09, 2015 3:28 PM
To: MynkC@co.kern.ca.us
Subject: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance - Question

Hi Christopher,

In reviewing the Draft EIR I noticed six alternatives up for consideration that could "substantially lessen any of the significant effects of the Project and that would feasibly attain most of the basic Project objectives." 0042-1

- Alternative 1 keeps the status quo. 0042-2
- Alternative 2 creates more restrictions on new drilling activity by requiring conditional use permits. 0042-3
- Alternative 3 limits ground disturbance by requiring the clustering of new wells in locations immediately adjacent to existing wells. 0042-4
- Alternative 4 outlaws the highly effective and vital, but politically charged technology of hydraulic fracturing. 0042-5
- Alternative 5 mandates the use of CLIR's Duplex (or equivalent) technology. 0042-6
- Alternative 6 would require operators to recycle an equivalent amount of municipal and industrial (M&I) water used in their operations via underground injection. 0042-7

It seems that only one of the alternatives actually lessens the "significant effects" and attains all of the project objectives which the KCP identified as the superior alternative to the Project. And that's Alternative 5, which would require Clearsign's Duplex or equivalent be installed on every new OTSG and retrofitted on every existing OTSG within five years. 0042-8

It is interesting the Clearsign's technology is specifically called out in the draft EIR considering there are existing commercially available low emission steam generator technology in the market. And Clearsign's has not proven it can provide their equipment on a commercial basis. Can you tell why Clearsign was specifically called out in Alternative 5? Can you provide more information on what could be considered it's equivalent? 0042-9

Peter Decker
Manager of Sales/Engineer Oil Fields - **Combustion**
Fives North American Combustion, Inc.
T: +1 888.209.2751
C: +1 661.412.1087
www.fivesgroup.com

0042-1

Please see Response 0080-9.

0042-2

Please see Response 0080-9.

0042-3

Please see Response 0080-9.

0042-4

Please see Response 0080-9.

0042-5

Please see Response 0080-9.

0042-6

Please see Response 0080-9.

0042-7

Please see Response 0080-9.

0042-8

Please see Response 0080-9.

0042-9

The commenter is correct that the Draft EIR fully evaluated the six project alternatives identified in this comment letter. The commenter is also correct that the Draft EIR identified Alternative 5, the Low-Emission Enhanced Oil Recovery (EOR) Technology Alternative as the environmentally superior alternative. As explained on Draft EIR pages 6-24 through 6-25, Alternative 5 is identical to the Project, excepted that it would require oil and gas well permit applicants to implement low-emission EOR technology as a condition of approval or new and replacement steam generators, and to replace existing steam generators constructed prior to 1990 within five years of enactment of the amended Ordinance.

If the Board votes to approve Alternative 5, then lower-emission technology would be required under circumstances to be specified by the Board. In no event, however, would an Alternative require use of any particular technology made by any particular manufacturer. Identification of the Clearsign Duplex Tile combustion technology in the Draft EIR was intended to be one illustrative example of the types of technologies that may be available and/or suitable. This comments claim regarding the current commercial availability of Clearsign's technology is noted, as are its comments regarding the current commercial availability of other unspecified low emission steam generator technology.

It is further noted that MM 4.3-8, described in the Draft EIR at page 4.3-100, incentivizes permit applicants to use lower-emission technology. Per MM 4.3-8, permit applicants are required to completely offset their emission of designated criteria pollutants by paying funding emission reduction projects in the airshed. As an alternative to paying the fee, an applicant may reduce emissions for one or more designated criteria emissions through actual reductions in air emissions from the applicant's other sources, subject to County and the San Joaquin Valley Air Pollution Control District. Such reductions may be achieved by replacing or retrofitting diesel-powered stationary equipment with lower-emission equipment.

Please see Global Response Alt-2.

43 Chris Romanini

Kern Draft EIR for zoning revisions to 2015(C), oil and gas permitting

comments by Chris Romanini Sept 9, 2015

To: Kern County Planning and Community Development Dept.
Attn: Christopher Mynk,

The California Council on Science & Technology released it's Berkeley Lab's Independent Scientific Assessment of Well Stimulation July 15, 2015. It describes needed measures and studies to address threats to the environment from well stimulation, but also from oil and gas production as a whole. Some key comments in the **Executive Summary**:
Conclusion **3.2.** "Operators have unrestricted use of many hazardous and uncharacterized chemicals". "Limit the use of hazardous and poorly understood chemicals" 5.2. "Evaluate the effectiveness of hydraulic fracturing regulations designed to protect groundwater from leakage along existing wells". 7.2 "How does oil and gas production as a whole …affect California's water system?" 7.2 "there were also few investigations designed to look for contamination." 7.2 "How can the public best be protected from air pollution associated with oil and gas production? 7.2. "Future research would fill knowledge gaps. Questions remain at the end of this initial assessment …that can only be answered by new research and data collection."
Kern's EIR can not be adequate until these scientific findings are evaluated and recommendations are applied.

0043-1

Comments on Draft EIR We farm in the Rosedale area with idle oil equipment on our land, some in bankruptcy. This EIR is insufficient as it has not addressed **Idle wells on split estates**, which are a safety, health, and welfare issue. Kern should embrace their existing powers to protect us by **establishing a policy to abandon idle wells.** DEIR should require returning the surface to the surface owner should a well no longer be productive. With currently almost 12,000 idle wells in Kern, after 25 years and no change in county policy, Kern could be littered with unproductive, idle wells and rusting tanks.

0043-1 Continued

California recognizes the need to abandon idle wells. The state has Resource Code 3206.5 which gives the county the pathway to force abandonment through DOGGR. **Kern should develop an idle well list per this statute.** According to our local DOGGR office, they can't recall Kern ever using this statute to abandon any well. Have you considered creating wording to make the state's intent to abandon idle wells workable and required in Kern?

0043-2

EIR 4.3-85 shows 11,827 Idle wells in Kern in 2012. The DEIR provides no proof that the number will stay consistent per their statement…"The number of idle wells is the same for every Project year 2015 – 2035…". What about future impacts? As the price of oil sinks and as more alternative energy comes online, could more oil wells be economically unprofitable, be idled, and go **bankrupt?** Where are the controls to prevent the oil companies from allowing to go idle any number of additional wells? Where are there safeguards to prevent split estates accumulating bankrupt equipment?

0043-3

Establish criteria Idle wells can squat indefinitely on fertile, prime farmland. **Kern should establish a time limit** after which an idle well must be either reactivated, or abandoned. How about 10 year? Or is 15 years more realistic? We have an idle well on our farmland with DOGGR logs showing NO activity for 29 years !! Is forever idle acceptable to Kern? I hope not. Kern's goal should be to **put farmland back into production in a timely manner.**

0043-4

Kern Draft EIR for zoning revisions to 2015(C), oil and gas permitting

comments by Chris Romanini Sept 9, 2015

Kern should require the oil companies to develop an idle well management plan on **EACH** idle well. Oil companies should be required to give yearly updates on their idle wells with goals of reactivation in a limited timeframe, or return the surface to it's owner. 0043-5

MM 4.2-1 Mitigation: **Kern should require abandonment of an idle well for every new permit issued.** Mitigation for a new well on split estates should be to abandon an idle well from Kern's list of idle wells created from the 3206.5 Resource Code. They should take from the list an idle well on the same property or property owned by the same surface owner. If there are no idle facilities that can be abandoned on the surface owner's property, they must then take out an idle well on another surface owner's property within Kern County, abandoning the oldest idle wells on the list first. Only if there are no wells available to abandon would they be allowed to use the ag conservation easement as mitigation. This needs to be studied. 0043-6

Increase fees on idle wells . Currently, idle well fees are so minimal there is no incentive to abandon them. (only $100/year for up to 10 years of idleness, or an escrow account of $5000). Unless an oil company is required to abandon an idle well, they most likely will just pay the tiny fee, forever. **Has the county studied creating a substantial idle well fee that could motivate abandonment and returning the land to the surface owner?** 0043-7

Require a sizable Bond when wells go into production to insure abandonment funds are available for all wells, and **adequate to cover equipment in bankruptcy.** We have idle wells and tanks on our farm land that have been in **bankruptcy** for over 4 years, with no activity and neglected for over 10 years. Those companies do not maintain their stuff. These sites are derelict and dangerous as they attract mischief-makers. We are challenged by people fooling around the tanks, tearing down the fences, and having beer parties on the cat walks. **(examples of bankrupt facilities on page 3)**. The EIR has not addressed this dangerous liability issue. Have you considered a bond adequate enough to cover the cost of eventual abandonment of wells? Have you considered if this bond could be used to maintain facilities in bankruptcy? The bond should remain in place the life of the well until it is properly abandoned. 0043-8

T**he county should Require meaningful inspections and Require penalties for noncompliance.** What new **team** of inspectors will Kern propose that will handle all unforeseen stuff for 25 years?? One man is not enough. Currently, oil companies can be **over- due for years** in doing pressure testing on idle wells. Why? What are the penalties for their tardiness? Are the penalties strong enough to compel action? Or are timely tests just voluntary, with **no penalty at all?** Could old wells have cracks that allow leaks to contaminate groundwater? Could there be a health issue from those idle, decaying tanks with soupy material stagnating on the bottom? Could they leak into irrigation systems? **Is anyone testing wells in bankruptcy?** You need to address this oversight. 0043-9

Protect our farms as we coexist with oil. The EIR is incomplete without a vision of abandoning idle wells on split estates and giving the land back to be productive, again. The EIR needs to address more robust fees and bonds on split estates. It needs to address the poor oversight of current DOGGR inspections and fines. The county needs to develop a new layer of protection. Kern needs to get a policy for bankrupt facilities. The safety**,** health, and welfare issues of idle wells give Kern the power to establish new policy, NOW. 0043-10

Kern Draft EIR for zoning revisions to 2015(C), oil and gas permitting

comments by Chris Romanini Sept 9, 2015

0043-11



Facilities on our ranch
in **Bankruptcy**
for over 4 years

Idle and neglected over
10 years

Is anyone testing or inspecting ?



Posted “NO Trespassing” does not stop beer parties. And what eyesores.



Kern Draft EIR for zoning revisions to 2015(C), oil and gas permitting

comments by Chris Romanini Sept 9, 2015

0043-1

The commenter's opinion that this EIR cannot be adequate until the scientific findings of CCST have been evaluated is noted for the record for consideration by the Planning Commission and Board of Supervisors. As explained in GR 12, Volume I of the CCST report was considered in the Draft EIR and Volumes 2 and 3 have been considered in this Final EIR. Commenter's specific concerns about contamination and air emissions, hazardous chemical use, and the new SB 4 hydraulic fracturing regulations, are also noted and are addressed in the Draft EIR and in response to other comments.

0043-1 cont'd

0043-2

Commenter's concerns about idle wells are noted for the record for consideration by the Planning Commission and Board of Supervisors. Please see response 33-1, GR Haz-1, and Section 2.7.3 which includes a new procedure for addressing idle well concerns.

0043-3

Please see response to 0043-1.

0043-4

Please see response to 0043-1.

0043-5

Please see response to 0043-1.

0043-6

Please see response to 0043-1.

0043-7

Please see response to 0043-1.

0043-8

Commenter's questions about enforcement are noted for the record for consideration by the Planning Commission and Board of Supervisors. The Revised Amended Ordinance clarifies inspection and compliance requirements, and GR 19 explains the enforcement process (and penalties) for ordinance requirements and mitigation measures. Enforcement through the Zoning Ordinance does not include a bonding requirement, but this comment is noted for the record for consideration by the Planning Commission and Board of Supervisors.

0043-9

Please see response to 0043-8.

0043-10

Commenter's request that the EIR require that abandoned wells on split estates to allow agricultural uses is noted for the record for consideration by the Planning Commission and Board of Supervisors. Well abandonment regulations administered by DOGGR govern abandonment requirements, but the EIR recognizes the agricultural mitigation value of removing legacy equipment and this has been included, and prioritized, in MM 4.2-1.

0043-11

Commenter's photographs showing oil equipment that commenter explains has been abandoned by bankrupt operators, which include visible debris and commenter notes is used for beer parties, is noted for the record for consideration by the Planning Commission and Board of Supervisors. The Project includes the future permitting of oil and gas activities under the County Zoning Ordinance, and does not include remediation of past legacy conditions. Please see the Revised Amended Ordinance, pursuant to which the County will help interested parties coordinate with DOGGR regarding enforcement of idle well regulations.

44 Shute, Mihaly & Weinberger LLP

See Response in Volume IV of Chapter 7.

SHUTE, MIHALY & WEINBERGER LLP

396 HAYES STREET, SAN FRANCISCO, CA 94102
T: (415) 552-7272 F: (415) 552-5816
www.smwlaw.com

RACHEL B. HOOPER
Attorney
hooper@smwlaw.com

September 11, 2015

Via E-Mail and U.S. Mail

Kern County
Planning and Community Development
Department
Attn: Christopher Mynk, AICP
2700 M Street
Bakersfield, CA 93301
E-Mail: mynkc@co.kern.ca.us

Re: Comments on Draft Environmental Impact Report for Revisions to Kern County Zoning Ordinance-2015(c) Focused On Oil and Gas Local Permitting

Dear Mr. Mynk:

This firm represents Pacific Ag Management, Inc. in matters relating to the proposed Kern County Zoning Ordinance-2015(c) Focused On Oil and Gas Local Permitting ("Zoning Ordinance" or "Project"). Pacific Ag manages almond and pistachio orchards in Kern County. It is a leader in environmentally sustainable farming practices and is committed to protecting California's precious farmlands and agricultural economies for future generations. Pacific Ag is deeply concerned about the far-ranging environmental impacts the Project may have throughout the County and its particular impacts on agricultural lands and farmworkers. 0044-1

On behalf of Pacific Ag, we respectfully submit these comments to ensure that the County's decision-makers fully comply with the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 *et seq*., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 *et seq*. ("CEQA Guidelines"). After carefully reviewing the Draft Environmental Impact Report ("DEIR") for the Project, we have concluded that the DEIR fails to comply with CEQA in numerous respects. 0044-2

The County is proposing a ministerial permit system that would allow nearly all future oil and gas development in Kern County to occur as of right. There will be no further environmental review or opportunities to refine the DEIR's mitigation measures for as long as the Zoning Ordinance remains in place. With no expiration date or mandate to update the Ordinance at any time, it is critical that the County prepare an adequate EIR. 0044-3

Unfortunately, instead of fully informing the public and the Board of Supervisors about the Project's extensive impacts, the DEIR systematically downplays the amount of oil and gas development that could occur under the Zoning Ordinance and masks the effects of this development with broad generalizations and shoddy analysis. Worse yet, the County's proposed mitigation measures largely consist of vague suggestions; there is little evidence that they will effectively reduce the Project's significant impacts. Our letter focuses on the DEIR's most critical failures in analyzing and mitigating the Project's significant agricultural, land use, water supply, aesthetic, noise, traffic, climate change, growth inducing, and air quality impacts. We also discuss the DEIR's failure to adequately describe the project or consider alternatives. 0044-4 0044-5

The EIR is "the heart of CEQA." *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392. It is "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return. The EIR is also intended 'to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.' Because the EIR must be certified or rejected by public officials, it is a document of accountability." *Id.* (citations omitted). 0044-6

Where, as here, the DEIR fails to fully and accurately inform decision-makers, and the public, of the environmental consequences of proposed actions, it does not satisfy the basic goals of the statute. *See* Pub. Res. Code § 21061 ("The purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project.") 0044-7 0044-8

As a result of the DEIR's numerous and serious inadequacies, there can be no meaningful public review of the proposed Zoning Ordinance. The County must revise and recirculate the DEIR in order to permit an adequate understanding of the environmental issues at stake. 0044-9

I. The DEIR Suffers From Several Overarching Deficiencies.

0044-10

Our review of the DEIR identified several overarching deficiencies including an inadequate level of detail in describing the Project and evaluating its impacts and in identifying feasible mitigation measures.

A. The DEIR Does Not Describe the Project or Evaluate Its Impacts in Sufficient Detail.

0044-11

CEQA sets a high bar for the County's evaluation of this Project and the DEIR does not come close to clearing it. The "fundamental purpose of an EIR is 'to provide public agencies and the public in general with *detailed* information about the effect which a proposed project is likely to have on the environment.'" *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (emphasis added). Where, as here, an agency prepares a project-level EIR, the impact evaluations must "examine in detail site-specific considerations." *In re Bay Delta Programmatic Envtl. Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1169.

0044-12

0044-13

The DEIR, however, does not describe the Project in sufficient detail or conduct site-specific evaluations. For instance, it does not explain the maximum number of wells, roads, and associated infrastructure that could be developed on specific agricultural parcels, scenic vistas, groundwater aquifers, or occupied habitats. Instead, the DEIR is replete with regional characterizations that overlook sensitive local areas. Its impact evaluations are so generic that they fail to inform the public or decision-makers how the Project will impact their local parks, water supplies, farms, schools, and vistas.

0044-14

The DEIR's generic approach prevents the sort of environmental analysis that CEQA envisions. CEQA requires public agencies to evaluate a Project's impacts to the extent "reasonably feasible." CEQA Guidelines § 15151. An EIR must make a "good faith effort at full disclosure." *Id.* This includes summarizing the main points of disagreement among the experts. *Id.* In numerous respects detailed below, the County has failed to make a good faith effort to disclose the Project's impacts in a manner that will allow decision-makers and the public to intelligently take account of the Project's environmental consequences.

0044-15

Courts have noted that the level of specificity required for an EIR is determined by the nature of the project and the 'rule of reason.' *Friends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency* (2000) 82 Cal.App.4th 511, 533. The

0044-15 Continued

County could argue that because this Project stems from a zoning ordinance amendment, it need not analyze site-specific details. But this ignores a key difference between this Project and other planning projects. This Project establishes a *ministerial* permit system for nearly all oil and gas development throughout the County. Zoning Ordinance § 19.98.040 (ministerial permit for Tiers 1, 2, 3, and 5); DEIR Figure 3-3 (Tier map).[1] There will be no other opportunity for site-specific review of the Project's impacts.

0044-16

0044-17

As stated in the leading CEQA treatise: "Once the project has received all necessary discretionary approvals, the CEQA process ends. No further environmental review can be required even though circumstances change significantly or important new information becomes available." Kostka & Zischke, Continuing Education of the Bar, "Practice Under the California Environmental Quality Act" (2015), § 19.22. Even if the project analyzed in an EIR changes significantly, CEQA review will not be reopened by applying for ministerial permits. *Id.* at § 19.32.

0044-18

In short, the Project that the County proposes gives a green light to all future drilling activities regardless whether: (1) future extraction technologies are more harmful and require new mitigation measures or limits, (2) the County's resources become depleted and need extra protection, or (3) future drilling surpasses what was considered in this DEIR.

0044-19

To be sure, the County has the discretion to establish such a ministerial permit process. But if it proposes to do so, CEQA does not permit the type of broad-brush analysis attempted in much of the DEIR. If the County chooses to foreclose the possibility of future environmental review, it must provide site-specific evaluations of the Project now.

B. The DEIR Does Not Adequately Identify Mitigation for the Project's Significant Environmental Impacts.

0044-20

In addition to its failure to describe the Project in sufficient detail or conduct site-specific evaluations, the DEIR's description of the Project's mitigation lacks adequate detail to properly inform decision-makers and the public. CEQA requires that a lead agency adopt all feasible mitigation measures that can substantially lessen a project's

[1] Only 25 of the 2,697 annual new wells projected (less than 1%) are expected to occur within Tier 4 residential areas where a CUP is required. DEIR at 3-32 to 3-34 (well forecast by Tiers). We reserve the right to argue that issuance of any particular Oil and Gas Conformity Review or Minor Activity Review permit is not a ministerial act.

0044-21

significant impacts. Pub. Res. Code § 21002. The agency must ensure that these measures are "fully enforceable" through permit conditions, agreements, or other legally binding instruments. Pub. Res. Code §§ 21002, 21081.6(b); CEQA Guidelines §§ 15002(a)(3), 15126.4(a)(2); *City of Marina v. Bd. of Trustees of the Cal. State Univ.* (2006) 39 Cal.4th 341, 359, 368-69. The requirement for enforceability ensures "that feasible mitigation measures will actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded." *Federation of Hillside & Canyon Ass'ns v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1261 (italics omitted); CEQA Guidelines § 15126.4(a)(2). 0044-21 Continued

To be enforceable, a mitigation measure must be detailed and specific. California courts have clarified that an EIR is inadequate where its proposed mitigation measures are so undefined that it is impossible to evaluate their effectiveness. *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79. In particular, a mitigation measure must include criteria or performance standards against which the mitigation's actual implementation can be measured. *See San Joaquin Raptor Rescue Ctr. v. County of Merced* (2007) 149 Cal.App.4th 645, 670 (*"County of Merced"*). The reader must be able to discern what steps will be taken to mitigate the project's impacts. *Id.* Without such detail, there is no way for decision-makers and the public to weigh whether the proposed measures will sufficiently mitigate a project's impacts, causing the EIR to fail in its core, informational purpose. 0044-22

The DEIR relies on mitigation to reduce no fewer than 62 impacts to less-than-significant levels, and numerous impacts will remain significant. DEIR at 1-9 to -18. Yet the DEIR's proposed mitigation generally fails to satisfy CEQA's mandate because many of the measures are vague, poorly-defined, or unenforceable. Specifically, many measures fail to provide adequate detail regarding how they will be implemented, monitored, and enforced. The DEIR must be revised to identify, at a minimum, the following for each mitigation measure: the purpose for the measure and how that purpose will be accomplished; the event that triggers implementation of the measure; who is responsible for implementing the measure and verifying that it is accomplished; and any other information that may be necessary to ensure the measure is properly carried out and meets its purpose of mitigating the Project's significant impacts. 0044-23 0044-24

Further, the timing of developing mitigation is crucial. As a general rule, CEQA requires that the EIR fully describe a project's proposed mitigation measures. CEQA prohibits deferral of mitigation, except in the following narrow circumstances: (1) there must be practical considerations that preclude development of the measures at 0044-25

the time of project approval, (2) the EIR must contain specific criteria to govern the future actions implementing the mitigation, and (3) the agency must have assurances that the future mitigation will be both "feasible and efficacious." *Californians for Alternatives to Toxics v. Dept. of Food & Agric*. (2005) 136 Cal.App.4th 1, 17.

0044-25 Continued

Conversely, deferral is not permitted "when an EIR puts off analysis or orders a report without either setting standards or demonstrating how the impact can be mitigated in the manner described in the EIR." *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 280-81. For example, an EIR is inadequate if the mitigation of a project's significant effects "largely depend[s] upon management plans that have not yet been formulated, and have not been subject to analysis and review within the EIR." *County of Merced*, 149 Cal.App.4th at 670.

0044-26

Here, the DEIR fails to satisfy CEQA's requirements because it relies on mitigation measures that are improperly deferred. The DEIR neither explains why deferral is necessary nor provides the criteria necessary to ensure that feasible and effective mitigation will be developed in the future. As discussed, the DEIR must contain a high level of detail now, as this EIR is the only opportunity that the County will have to impose mitigation for the Project's severe environmental impacts, which will occur for decades.

0044-27

II. The Project Description Is Inaccurate and Impermissibly Vague.

0044-28

In order for an EIR to adequately evaluate the environmental ramifications of a project, it must first provide a comprehensive description of the project itself. "An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730 (quoting *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193). An accurate project description is "the heart of the EIR process" and "necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." *Sacramento Old City Ass'n. v. City Council* (1991) 229 Cal.App.3d 1011, 1023; *San Joaquin Raptor/Wildlife Rescue Center,* 27 Cal.App.4th at 730. While extensive detail is not necessary, the law requires that EIRs describe proposed projects with sufficient detail and accuracy to permit informed decision-making. *See* CEQA Guidelines § 15124 (project description).

Thus, a vague, inaccurate, or incomplete project description renders the analysis of significant environmental impacts inherently unreliable. Consequently, courts have found that, even if an EIR is adequate in all other respects, the use of a "truncated

0044-29

project concept" mandates the conclusion that the lead agency did not proceed in a manner required by law. *San Joaquin Raptor/Wildlife Rescue Center,* 27 Cal.App.4th at 730. Here, the DEIR does not come close to meeting the established legal standards for an accurate project description.

0044-29 Continued
0044-30

A. The Project Description Does Not Accurately Describe the Zoning Ordinance.

0044-31

The Project consists of an amendment to the County's Oil and Gas Zoning Ordinance and implementation of future oil and gas development undertaken pursuant to the amended ordinance. DEIR at 3-21. Unfortunately, however, the DEIR's project description does not accurately reflect the proposed Zoning Ordinance.

0044-32

To begin with, the DEIR incorrectly assumes that all the mitigation measures identified in the EIR and incorporated in the Zoning Ordinance will be complied with. It states that the new ministerial application review process will "ensure compliance with the updated development and implementation standards and conditions" and "will require consistent, comprehensive mitigation" that is incorporated into those standards and conditions. DEIR at 3-21 to 3-22. These statements are inaccurate.

0044-33

The Zoning Ordinance actually allows applicants for ministerial approvals who are "not . . . able to comply" with the mitigation measures to apply for a Conditional Use Permit ("CUP") instead. Zoning Ordinance § 19.98.50(C). In approving a CUP, the Planning Commission may waive any mitigation condition if it determines the waiver will not result in "material detriment" to the public welfare or nearby property. *Id.* § 19.98.50(A),(B), and (C).[2] The DEIR, however, fails to mention that some development under the Project may occur without complying with the Zoning Code's standards and conditions. Nor does it examine the extent to which this waiver would be applied. This omission undermines all of the conclusions in the DEIR's impact analyses, which assume mitigation measures will be implemented across the board.

0044-34

[2] The Zoning Ordinance does not even assure that ministerial applications will be required to comply with the mitigation measures. The DEIR states that "An application package must be submitted that includes a site plan and written documentation assuring compliance with all applicable Development and Implementation Standards." DEIR at 3-22. Yet, the Zoning Ordinance does not require any such documentation of compliance; it only requires basic site plan and location information. *See Zoning Ordinance* § 19.98.080.

The Project description also overstates the activities that would be regulated by the Zoning Ordinance. The DEIR claims that a Minor Activity Review permit would be required for all minor oil and gas activities. DEIR at 3-22. Yet, the Zoning Ordinance appears to require such a permit only for activities performed in association with a newly drilled well. Zoning Ordinance § 19.98.40(A). Similarly, the DEIR states that a Conformity Review permit is required for "deepening, redrilling, workover, [and] reworking . . ." DEIR at 3-30. Yet the Zoning Ordinance does not define "drilling" to include these activities. DEIR at 11-24. In short, the Project description does not accurately explain the extent to which the Zoning Ordinance's standards and conditions would apply to reworking, well stimulation, maintenance, or new support facilities for wells existing prior to adoption of the ordinance. Considering that hydraulic fracturing and other well stimulation techniques are commonly used on existing wells, this is a significant oversight. 0044-35

Finally, the DEIR's Project description severely overstates the accommodations made for surface owners. For instance, The DEIR claims that when an application is submitted for drilling on split estate lands without a signature by the surface owner, "the review process will take 30-days to allow time for surface owner consultation, with an automatic 30-day second review period." DEIR at 3-22. Yet the Zoning Ordinance requires only one review period if the application is complete. Zoning Ordinance §19.98.100(B),(C). Moreover, both the first and second review periods could be less than 30 days. Thirty days is the *maximum* amount of time that the Zoning Ordinance allows for such reviews. *Id.* The County could just as easily approve the permit in two days. The DEIR further suggests that County staff will "contact the Surface/Landowner and offer an in-person meeting to review the county process, development and implementation standards, Mitigation Monitoring and Reporting Program (MMRP) and answer any questions." DEIR at 3-28 to 3-29. Yet, the Zoning Ordinance itself does not require any such meeting with the surface owner. *See* §19.98.080(H); 19.98.100. These discrepancies are significant given that the DEIR relies on measures to accommodate surface owners to reduce the Project's land use impacts to a less than significant level. DEIR at 4.10-87. 0044-36

B. The Project Description Does Not Analyze the Whole of the Project. 0044-37

Under CEQA, the Project is "*the whole of an action* which has a potential for resulting in either a direct physical change in the environment, or a reasonable foreseeably indirect physical change in the environment . . . ." CEQA Guidelines § 15378 (emphasis added). Under well-established case law, the "whole" of a general plan or zoning amendment is the amendment's maximum development potential. "An evaluation

of a 'first phase-general plan amendment' must necessarily include consideration of the larger project, i.e. the future development *permitted* by the amendment." *City of Redlands v. County of San Bernardino* (2002) 96 Cal.App.4th 398, 409 (emphasis added).

0044-37 Continued

The County, however, fails to describe the Project's maximum development potential. Instead, the DEIR describes a "potential future oil and gas development scenario" that impermissibly truncates the total number of new wells, the geographic extent of their location, and the time period over which they would be drilled.

0044-38

1. The DEIR Does Not Describe the Number of New Exploratory Or Injection Wells.

0044-39

In addition to new producing wells, the Zoning Ordinance would permit new injection wells and new exploratory wells throughout the County. Zoning Ordinance §19.98.40. Yet the DEIR's future oil and gas development scenario, upon which its impacts analysis is based, only estimates the number of "new producing wells." DEIR at 3-30, 3-32. Drilling new exploratory and injection wells will produce air quality, aesthetic, traffic, biological and agricultural impacts that must be examined in the DEIR. The Project description is incomplete for failing to include this activity in the DEIR's well projections. CEQA Guidelines § 15378.

2. The DEIR Impermissibly Relies On an "Average" Annual Number of Wells, Rather Than the "Maximum" That Could Occur In Any Given Year.

0044-40

The DEIR assumes that the Project will result in 2,697 new producing wells per year and uses this number in all of its impact analyses. DEIR at 3-30. Yet, as the DEIR admits, "[t]he level of well drilling in any given year may be higher or lower than this average . . . ." DEIR at 3-32. In fact, as oil and gas expert David Hughes explains, the number of new wells drilled will greatly exceed—and could even double this average during periods of high-oil prices, which are expected to occur regularly in the future. Letter from David Hughes to Heather Minner, September 9, 2015 at 4,6, attached as Exhibit PD 1. The Project's public health, noise, air quality, and traffic impacts, among others, will be much greater—and may even be qualitatively different—in years when closer to 5,000 new wells are drilled in Kern County as compared to the DEIR's estimated 2,697. The DEIR must be revised to reflect these spikes and evaluate the maximum number of new wells that could be drilled in any given year.

0044-41

0044-42

0044-43

0044-44

In *County of Merced*, 149 Cal.App.4th 645, the Court of Appeal confirmed an agency's obligation to analyze the impacts from the whole of the project, and "not some smaller portion of it." *Id*. at 654. The project at issue was a new Conditional Use Permit ("CUP") for an existing aggregate mine and processing operation. The new CUP authorized a maximum production level of 550,000 tons per year, which was an increase over existing levels. However, historic mine production rates indicated that actual production could be less than the theoretical maximum. Based on historic rates and projected future rates, the EIR "estimated average production of about 260,000 tons per year." *Id.* at 655. The court held that the EIR's identification of the estimated average in the project description, rather than the maximum level of production authorized by the CUP, violated CEQA. The court stated: "By giving such conflicting signals to decisionmakers and the public about the nature and scope of the activity being proposed, the Project description was fundamentally inadequate and misleading." *Id.* at 655-56. The DEIR here suffers from the same deficiency as in *County of Merced.* It must be revised to include the Project's maximum number of wells, not a theoretical average.

0044-45

0044-46

3. The DEIR Fails to Describe All Reasonably Expected Future Drilling.

Not only does the DEIR ignore foreseeable spikes in drilling rates, but it also greatly underestimates the total number of future wells. The DEIR's estimates assume that drilling rates will be the same as they have been in the past. Exhibit PD 1 at 4. However, as oil and gas expert David Hughes explains, production at existing oil fields has been declining while the number of wells required to produce this oil has been steadily increasing. *Id.* at 3. In other words, drilling is not occurring at a flat rate now. Further, meeting the project objectives of increased oil production in Kern County will require an additional ramp up in drilling rates. *Id.* at 4. In light of these factors, "the assumed number of future new producing wells should be increased substantially from the estimate in the DEIR." *Id.* at 6.

0044-47

Further, the oil and gas industry is actively engaged in research to develop new technologies that will allow it to access the vast amount of oil currently locked in the Monterey Shale formation. *Id.* at 8 If it succeeds in "cracking the code" within the next 25 years, the number of new producing wells will greatly exceed those estimated in the DEIR." *Id.* This is not mere speculation. The industry's track record in developing hydraulic fracturing methods to extract oil and gas from other shale formations across the nation, and its concentrated efforts to develop technology for the Monterey Shale formation, make the DEIR's reliance on past drilling levels to project the future naively unrealistic. *Id.* at 5-6, 8. Courts have consistently held that an EIR must examine a

project's *potential* to impact the environment, even if the development may not ultimately materialize. *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 279, 282. The DEIR must be revised to acknowledge and describe the very real possibility of future technological innovations.

0044-47 Continued

In addition to ignoring that new technology could cause drilling levels to far outpace its estimates, the DEIR impermissibly truncates the number of years the Zoning Ordinance will be in effect. The DEIR only analyzes the impacts of new wells through the year 2040. DEIR at 3-32. Yet the DEIR admits that "[t]here is no scheduled expiration date for a Zoning Ordinance" and nothing requires the County to readopt the Zoning Ordinance after 2040. DEIR at 3-30. Accordingly, the DEIR must consider that future oil and gas development will occur under the Zoning Ordinance well beyond 2040.

0044-48

Without accounting for this extended time period, the DEIR fails to analyze the "whole of the Project" as CEQA requires. *Christward Ministry v. Superior Court* (1986) 184 Cal.App.3d 180, 194–95 ("The fact future development is not certain to occur and the fact the environmental consequences of a general plan amendment changing a land use designation are more amorphous does not lead to the conclusion no EIR is required."); *City of Carmel-by-the-Sea v. Board of Supervisors of Monterey County* (1986) 183 Cal.App.3d 229, 244 ("the rezoning by itself . . . did in fact represent a commitment to expanded use of the property . . . .").

0044-49

4. The County Cannot Cure Its Faulty Estimates With Future Environmental Review.

The DEIR admits that its estimates for the number of new wells could be exceeded. DEIR at 3-30. However, it states that if these levels are exceeded, the County would need to consider whether further environmental review is required under CEQA Section 21166 and CEQA Guidelines Section 15162 (due to new or substantially more severe significant environmental impacts than those considered in the EIR). The DEIR claims that if the extra new wells met this standard, "further review would be required for continued reliance on the Conformity Review Process." This claim is wrong for two reasons.

0044-50

First, "CEQA's demand for meaningful information is not satisfied by simply stating information will be provided in the future." *Vineyard Area Citizens for Responsible Growth,* 40 Cal.4th at 834 (internal quotations omitted). Accordingly, an approving agency may not defer analyzing project details that are available at the time of the approval. *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48

0044-51

Cal.App.4th 182. The County can establish maximum build-out for the Project and it must do so now to evaluate the Project's reasonably foreseeable impacts.

0044-52

Second, the County knows full well that it will never need to conduct supplemental or subsequent environmental review under CEQA section 21166 and CEQA Guidelines section 15162. This is because those sections are triggered only when an agency is considering a *discretionary* action. Pub. Res. Code § 21080(a); CEQA Guidelines §15162(c); *San Diego Navy Broadway Complex Coalition v. City of San Diego* (2010) 185 Cal.App.4th 924, 935. Because ministerial approvals are exempt from CEQA, further CEQA review would not be required if the County permits a greater number of new wells than analyzed in the EIR. *See Health First v. March Joint Powers Authority* (2009) 174 Cal.App.4th 1135, 1143. Accordingly, CEQA demands that this DEIR consider the environmental impacts of the Project's maximum build-out.

0044-53

5. The DEIR Does Not Accurately Describe the Extent of New Wells On Tier 2 (Agricultural) Lands.

The DEIR not only underestimates the total number of wells that could occur annually or over time, but also fails to accurately describe how new wells will be distributed geographically. The DEIR notes that 95% of oil and gas activities in the County have occurred within DOGGR Administrative Boundary areas. DEIR at 3-24. This makes sense, because DOGGR determines the extent of its Administrative Boundaries based on proven oil and gas extraction. *Id.* at 3-23. The DEIR, however, makes the faulty assumption that 95% of all *future* oil and gas drilling will also occur within or adjacent to existing Administrative Boundaries. *Id.* at 3-24. It further assumes that a full 90% of new wells will occur within Tier 1 lands, where oil and gas activity is already the primary land use. *Id.* at 3-32 to 3-34; Exhibit PD 1 at 7. According to the DEIR, just 6% of new wells will occur on the County's vast Tier 2 (agricultural) lands. The evidence is to the contrary.

0044-54

0044-55

As explained by oil and gas expert David Hughes, given that existing fields are largely mature and in decline, "increased oil and gas production in Kern County will require developing new fields outside of Tier 1 lands . . . ." *Id.* at 8. Most of these new fields will be located in Tier 2 lands, given the vast extent of these lands and evidence that recoverable oil is located beneath them. *Id.* at 8-9. "Accordingly, the DEIR greatly underestimates the number of new producing wells that may be drilled on Tier 2 lands. This is true even assuming no technological advancements beyond existing production methods." *Id.* at 8. If the oil industry is successful in its efforts to produce oil directly from the source rocks of the Monterey Shale formation, which is not an unreasonable

0044-56

0044-57

assumption, there will be "still larger numbers of new producing wells on Tier 2 lands, greatly exceeding those estimated in the DEIR" *Id.*

0044-57 Continued

By mistakenly assuming that almost all of the Project's new wells will occur in areas already converted to oil and gas uses, the DEIR's analyses of biological, agricultural, aesthetic, traffic, and other impacts are fatally flawed. The Project's impacts will clearly be much greater than reported in the DEIR because the Project description does not accurately describe the location of new wells throughout the County.

0044-58

6. The DEIR Underestimates the Amount of Hydraulic Fracturing That Will Occur In the Future.

California's Senate Bill 4 (2013) ("SB 4") regulates "well stimulation treatments" which include hydraulic fracturing, acid fracturing and acid matrix stimulation. These oil and gas activities have the potential for more significant environmental impacts than conventional oil and gas extraction methods. But the DEIR assumes that the use of well stimulation treatments will remain the same as during the baseline year for the duration of the project. DEIR at 3-52 ("…levels and distribution of SB4 regulated activity in the County would likely be similar in future years [as in 2012]"). This assumption is unwarranted and results in the DEIR underestimating the Project's impacts.

0044-59

In fact, given the maturity and declining productivity of existing fields, and the need to develop new fields to add production, it is likely that well stimulation treatments will be used at *increasing* levels in the Project area in coming years. Exhibit PD 1 at 9-10. Although stimulation technologies have been used in the oil and gas industry for many decades, advances in hydraulic fracturing technology have allowed access to previously inaccessible shale deposits across the U.S. Using the newest well stimulation technologies often makes otherwise unprofitable wells profitable. Given the increased use of hydraulic fracturing and other well stimulation treatment techniques across the Country for the past 20 years, it is unreasonable to assume that these activities will remain at 2012 levels for the lifetime of the Project.

0044-60

These technologies will certainly be used more extensively in Kern County in the future if production is to increase. *Id*. "Cracking the code" on new plays like the Monterey Shale Formation will likely be due to the evolution of contemporary well stimulation treatment techniques, and/or the development of new breakthrough technologies. The EIR must acknowledge both that more wells be drilled in the future in order to meet the applicants' plans for increased oil and gas production, and that a larger

0044-61

proportion of these wells will be stimulated with technologies currently regulated under SB 4. 0044-61 Continued

7. The DEIR Fails to Analyze All Components of the Project.

The DEIR also impermissibly truncates the Project description by refusing to acknowledge that the Project will demand construction of additional infrastructure—infrastructure that itself will have environmental impacts unexamined by the DEIR. For instance, the DEIR admits that "[e]xtending existing high-voltage electric transmission lines (i.e., lines above 50 kV) to provide a permanent supply of electricity to a new well pad or facility may be required." DEIR at 3-40. But instead of analyzing where these extensions would need to occur, the DEIR claims that construction of these new lines "is not within the scope of this EIR" because they are regulated by the California Public Utilities Commission and would require separate "project-level CEQA review." *Id.* To the contrary, CEQA requires the DEIR to evaluate these extensions now. 0044-62

Long-standing CEQA law holds that "when one activity is an integral part of another activity, the combined activities are within the scope of the *same CEQA project*" and must be analyzed together. *Tuolumne County Citizens for Responsible Growth, Inc. v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1229 (emphasis added). For example, when a development is contingent on the construction of new or expanded infrastructure, both the development and the infrastructure are part of the same project and must be analyzed in the same EIR. *Id.*; *San Joaquin Raptor/Wildlife Reserve Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 729-30. It is irrelevant that the infrastructure improvements may require separate approvals. "The Guidelines . . . establish that the need for separate approvals does not sever all of the connections between the two acts." *Tuolumne County Citizens for Responsible Growth, Inc.*, 155 Cal.App.4th at 1228 (citing CEQA Guidelines § 15378(c)). Accordingly, the DEIR must be revised to include a description of the number of new high-voltage electrical transmission lines that the Project will require and where those lines could be located. 0044-63 0044-64 0044-65

The DEIR also attempts to avoid analyzing the construction and operation of new cogeneration facilities that are almost certain to occur as a result of the Project. A cogeneration facility generates both steam for enhanced oil recovery operations and the electricity needed to produce the steam. They are often large, and very polluting facilities. *See, e.g., Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692 (proposed cogeneration plant with capacity for 19.9 megawatts of electricity and 35,000 pounds of steam per hour, emitting particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, nonmethane hydrocarbons, and trace metals). 0044-66

The County argues that it need not analyze cogeneration facilities because it has not approved a cogeneration facility for 10 years and electricity markets now make it "less attractive" to construct the facilities "in many locations." DEIR at 3-44. The County even claims that "any estimate regarding the number or technology for future cogeneration facilities would be entirely speculative." *Id.* 0044-66 Continued

The DEIR's position is untenable, as it is no more speculative to estimate new cogeneration facilities and technology than to estimate new wells and extraction technology. In fact, cogeneration facilities are being proposed elsewhere in California and can similarly be expected in Kern County in the future. For example, a natural gas-fired combined heat and power facility was approved in Stockton on July 30, 2015. *See* San Joaquin Valley Air Pollution Control District, Authority to Construct Application Review – Ingredion Incorporated (July 22, 2015), attached as Exhibit PD 2. As proposed, the facility will generate 7.3 megawatts of electricity and is a Major Source of emissions of nitrogen oxides, carbon monoxide, and volatile organic compounds. *Id.* The DEIR must also account for expansion of existing cogeneration facilities to serve the Project's projected new wells. The EIR claims that any new cogeneration facility will require a CUP and separate CEQA review. But the County may not chop its zoning ordinance into individual projects in this manner. *Bozung,* 13 Cal.3d at 283-84; *San Joaquin Raptor/Wildlife Rescue Center*, 27 Cal.App.4th at 729-30. Further, it is far from clear that a cogeneration facility would require a CUP. The Zoning Ordinance allows steam generators to be approved through Conformity Review, and a cogeneration facility is simply a type of steam generator. Zoning Ordinance §19.98.070. 0044-67 0044-68 0044-69 0044-70

C. The DEIR Must Analyze the Project's Maximum Build-Out or Limit the Development Permitted by the Zoning Ordinance

The DEIR must be revised to describe the Project's maximum build-out. This would describe the maximum density of oil and gas operations that could occur adjacent to different types of land uses (such as schools and parks) as well as the maximum density that could occur on split estate lands, such as farms and ranches. It would also describe the total number of new wells that could be developed over time if future conditions optimized oil and gas development. In other words, the DEIR must describe the outer limit of what experts believe could potentially occur based on the amount of oil and gas reserves in Kern County. 0044-71

The DEIR may also continue to describe a "projected" build-out that the County believes is reasonably foreseeable based on articulated factors. But only by providing the potential full build-out will the public and decision-makers be able to make 0044-72

an intelligent decision about the Project. Decision-makers may choose to bet that approval of the Zoning Ordinance will not result in full build-out and that actual development will be closer to projected levels. But in order to make an informed decision, as CEQA requires, the DEIR must describe what full build-out would be, what its impacts would be, and the factors that will determine whether full build-out or a lesser level of development will occur. Without this evaluation, decision-makers are deprived of the information they need to make an educated decision.

0044-72
Continued

If the County desires to limit its analysis in the DEIR to a predicted number of new wells, within predicted geographic areas, over a limited period of time, and exclude certain types of infrastructure, it must amend the proposed Zoning Ordinance to reflect these restrictions. Only then will the DEIR's current Project Description accurately describe the development permitted by the Zoning Ordinance, as it must. Capping the amount of development permitted within certain zones is a common planning tool, and there is no reason the County could not cap the number of new wells (annually and by 2040) within the various Tiers established here. *See generally* William Fulton and Paul Shigley, Guide to California Planning, 4th ed. (2012), Ch. 11, attached as Exhibit PD 3; *see also Construction Industry Association of Sonoma County v. City of Petaluma* (1975) 522 F.2d 897, 901, 909 (upholding citywide cap of 500 dwelling units per year and requiring building permits to be divided evenly between west and east sections of the city). So, too, could the County prohibit new cogeneration facilities and any new wells located outside of the Project Area.

0044-73

0044-74

0044-75

Without limiting the Zoning Ordinance's permitted development or revising the DEIR to analyze maximum potential build-out, the County fails to accurately describe the whole of the Project, rendering the DEIR fundamentally misleading to the public and decision-makers in violation of CEQA. "[O]nly through an accurate view of the project may the public and interested parties and public agencies balance the proposed project's benefits against its environmental cost, consider appropriate mitigation measures, assess the advantages of terminating the proposal and properly weigh other alternatives." *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1454. Because the DEIR fails to describe the Project properly, it fails to serve its purpose as an informational document. *See County of Merced*, 149 Cal.App.3d at 674.

0044-76

III. The DEIR's Analysis of and Mitigation for the Project's Environmental Impacts Are Inadequate.

A. The DEIR Fails to Disclose the Extent of the Project's Significant Agricultural Impacts or Adopt All Feasible Mitigation Measures.

The California Legislature has repeatedly emphasized that the preservation of agricultural land, including range land, is an important public policy. In adopting the California Land Conservation Act of 1965, Gov. Code section 51200 *et seq*., (unofficially, the "Williamson Act"), the Legislature found that "the preservation of a maximum amount of the limited supply of agricultural land is necessary to the conservation of the state's economic resources, and is necessary not only to the maintenance of the agricultural economy of the state, but also for the assurance of adequate, healthful and nutritious food for future residents of this state and nation." Gov. Code § 51220; *see also* Civ. Code, § 815 ("the preservation of land in its natural, scenic, *agricultural*, historical, forested, or open-space condition is among the most important environmental assets of California") (emphasis added); Pub. Res. Code § 10201 ("These lands contribute to the economic betterment of local areas and the entire state and are an important source of food, fiber, and other agricultural products. . . . The long-term conservation of agricultural land is necessary to safeguard an adequate supply of agricultural land . . . .").

0044-77

The Legislature has also declared that CEQA is intended to effectuate this important public policy. Stats. 1993, ch. 812, § 1, p. 4428 ("Agriculture is the state's leading industry . . . . The conversion of agricultural lands to nonagricultural uses threatens the long-term health of the state's agricultural industry. The California Environmental Quality Act plays an important role in the preservation of agricultural lands.").

0044-78

Kern County has also emphasized the importance of agricultural land, adopting numerous General Plan policies and goals to protect and conserve the County's vast agricultural lands. *See* DEIR at 4.2-114.2-14. The County has a long history of agricultural operations and encompasses extensive harvested agricultural land and rangeland. Crops in Kern County accounted for a gross value of $6 billion in 2012, contributing significantly to the economy of the region and the state as a whole. *Id.* at 4.2-1.

0044-79

Farming in Kern County is under considerable pressure, however. The County repeatedly ranks first in the state for nonrenewal of Williamson Act contracts. *Id.*

0044-80

at 4.2-6. According to the DEIR, since 1998 the County has been losing an average of 1,085 acres of farmland each year. *Id.* at 4.2-24. Oil and gas development can be a significant driver of agriculture and range land conversions and fragmentation. *See* Brady Allred *et al*., *Ecosystem Services Lost to Oil and Gas in North America,* 348 Science Magazine No. 6233, pp. 401-02 (April 24, 2015), attached as Exhibit Ag 20; David Jones *et al.*, *Comparing the Ecological Impacts of Wind and Oil & Gas Development: A Landscape Scale Assessment,* Plos One (Nov. 27, 2013), attached as Exhibit Ag 21. Conversions can occur both when oil and gas operations are established on actively farmed lands or when oil companies purchase farmland and cease farming operations entirely. *See* letter from Holly King to Kern County Planning and Community Development Department ("H. King Letter"), forthcoming. 0044-80 Continued

The DEIR, however, gives short shrift to the Project's potential to impact agricultural and rangeland resources. It repeatedly employs methodologies that downplay or ignore the Project's impacts. In doing so it violates CEQA's core informational purpose. *Mira Monte Homeowners Assn. v. County of Ventura* (1985) 165 Cal.App.3d 357, 365 (EIR protects "the right of the public to be informed in such a way that it can intelligently weigh the environmental consequences of a[] contemplated action"). The DEIR does not even evaluate impacts to rangeland. Nor does the DEIR adopt all feasible mitigation measures to reduce the Project's significant impacts on agricultural resources as CEQA requires. Pub. Res. Code § 21002; CEQA Guidelines § 15002. 0044-81 0044-82

1. The DEIR Vastly Underestimates the Extent to Which the Project Will Convert Farmland to Non-Agricultural Use.

Under CEQA, the Project will have a significant impact if it converts Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (collectively "Farmland") to non-agricultural use. DEIR at 4.2-15. In order to assess the Project's potential to convert Farmland, the County calculated the average number of acres converted per well in each of the three Project Subareas and multiplied that number by the DEIR's estimated number of new wells in Tier 2 (agricultural) lands. DEIR at 4.2-17, Appendix F. The County's approach downplayed the Project's conversion potential in a number of respects, however, and the DEIR's conclusions are inaccurate—and highly misleading—as a result. 0044-83

As discussed in detail in Section II.B.5 of this letter, the DEIR unreasonably assumes that only 6% of the new producing wells will occur on Tier 2 lands. In fact, the number of new wells within Tier 2 is likely to be much higher than the 0044-84

DEIR's estimates. This is because Tier 2 makes up 87% of the Project Area and increased oil and gas production in Kern County will require developing new fields outside of the mature and declining Tier 1 fields. New production is most likely to occur on Tier 2 lands, even with existing technology, and if extraction technology continues to advance as it has in the past, the number of new wells could greatly exceed the DEIR's estimates. Unless the DEIR accounts for these factors and revises its "future development scenario" accordingly, the DEIR's analysis of agricultural impacts is useless. 0044-84 Continued

Further, the DEIR based its farmland conversion estimates on the *average* acreage of land disturbance that occurs per producible well in each Subarea. Appendix F at 1. As discussed in Section II.B.2 of this letter, CEQA requires an analysis of the Project's maximum buildout, not a hoped for average. *County of Merced*, 149 Cal.App.4th at 655-56. Moreover, the averages used by the DEIR deviate significantly from the acreage that has actually been converted per well in individual fields. For instance, the DEIR estimates 2.0 acres of disturbance per well in the Western Subarea. Appendix F at 15. But of the 10 fields surveyed, 5 had disturbed more than 2.0 acres per well, with one field disturbing as high as 4.60 acres per well. *Id.* at 13. The DEIR seriously understates the Project's potential to convert Farmland in the Western Subarea by suggesting that future wells will result in 2.0, as opposed to 4.6 acres of lost Farmland. The difference between the average and maximum disturbance in the Central Subarea is even greater, with the DEIR estimating 3.0 acres per well while the ground disturbances are as high as 7.60 acres per well in the surveyed fields. *Id.* at 14-15. 0044-85 0044-86

Even the maximum disturbance acreage surveyed may not accurately reflect the DEIR's potential Farmland conversion. This is because the DEIR surveyed only the 10 *largest* producing fields. *Id.* at 1. But there are certainly economies of scale that occur in high-producing fields where infrastructure can be shared by multiple wells. Much of the oil and gas development on Tier 2 lands is likely to be more dispersed, with the need to duplicate infrastructure that would otherwise be shared in more developed fields. The DEIR must take this difference into account. 0044-87

In addition, the DEIR considered only the acreage that was physically replaced by oil and gas infrastructure, such as well pads and processing tanks. In other words, the infrastructure footprint. The DEIR did not consider the actual acreage taken out of production. Often, oil and gas infrastructure is located in a manner that isolates a piece of land or renders the irrigation system inoperable, making it impossible or uneconomical to farm. For example, DEIR Exhibit G Figure AES-O3 shows future conditions on a farm with existing and new oil and gas infrastructure permitted under the 0044-88

Project. The multiple wells, roads, and other infrastructure dispersed throughout the farm leaves the larger parcel unable to be farmed. H. King Letter. The loss of Farmland is thus larger than the infrastructure footprint and this additional acreage must be accounted for. 0044-89

The DEIR's analysis also fails to account for situations when oil and gas companies buy Farmland and dedicate the entire parcel to oil and gas uses. For instance, one agricultural company in Kern County has sold numerous acres to oil companies because doing so was preferable to continuing to farm with the interference caused by oil and gas operations. *See* H. King Letter. In another example, one family farmer sold his house and farm to an oil company to avoid noxious drilling operations established near his house. *See* H. King Letter. The DEIR must inform the public of the extent to which entire Farmland parcels would be lost due to the sale of surface rights for oil and gas uses. 0044-90

Finally, the DEIR's estimate of potential Farmland conversions did not even consider all Farmland. It considered only Farmland located in Tier 2 lands, reasoning that only Tier 2 lands are currently zoned as agricultural. Appendix H at 12. CEQA, however, requires an analysis of the potential conversion of *all* Farmland based on soil type, not on whether the Farmland is actively farmed or currently zoned for agricultural uses. Pub. Res. Code §21060.1 (definition of agricultural land); CEQA Guidelines Appendix G.II. In sum, the DEIR has seriously underestimated the amount of Farmland that could be converted to non-agricultural uses. 0044-91

Further, even the DEIR's analysis of the underestimated 298 acres that could be converted annually under the Project is not conducted in sufficient detail to inform the public or decision-makers. For instance, the DEIR only describes where these conversion would happen within the three Project Subareas, not at a scale that is meaningful to local residents. 0044-92

2. The DEIR's Farmland Conversion Mitigation Measure Is Inadequate and Does Not Reduce the Project's Significant Farmland Impacts to a Less Than Significant Level.

The DEIR recognizes, as it must, that even its underestimated conversion of 298 acres of Farmland per year is a significant impact under CEQA. *See Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296 (conversion of 40 acres of prime farmland a significant impact). However, the mitigation measure the DEIR 0044-93

identifies, Mitigation Measure MM 4.2-1, is woefully inadequate to effectively reduce this impact. DEIR at 4.2-19. 0044-93 Continued

To begin with, the County is only requiring mitigation at a ratio of 1:1 for conversion of Farmlands "that have been actively farmed 5 years or more out of the last 10 years." *Id.* Yet, as mentioned above, CEQA does not distinguish between actively farmed and idle Farmland. Pub. Res. Code §21060.1; CEQA Guidelines Appendix G.II. The County must mitigate for the loss of *all* Farmland, regardless of whether it has been actively farmed 5 out of the last 10 years. 0044-94

In addition, the County is only applying the 1:1 mitigation requirement to the "actual ground disturbance area for oil and gas activities." DEIR at 4.2-19. But as mentioned above, the Project can convert additional Farmland to non-agricultural use when oil and gas infrastructure is not clustered, isolates parcels too small to farm, or disrupts the parcel in such a way that the entire parcel is not farmable. The DEIR must also identify mitigation for the loss of these Farmlands. 0044-95

Further, Mitigation Measure 4.2-1 allows the applicant to mitigate for the loss of Farmland by conserving equivalent Farmland anywhere in the state "if qualifying lands cannot be found in Kern County." DEIR 4.2-19. The measure contains no standards for how the County is to determine if mitigation lands cannot be found. If the applicant asks a few farmers over the period of two months, can it give up? This vague measure is in effect no limitation at all. Further, the purchase of Farmland in other parts of the state will do nothing to mitigate for the loss of Farmland in Kern County, which is a key part of the County's economy and open space resources. Further, as discussed in more detail below, the loss of Farmland in Kern County can reach a tipping point when the entire industry is affected due to the lack of a critical mass. Preserving Farmland in other counties will only accelerate this risk. 0044-96 0044-97 0044-98

Moreover, the DEIR provides no criteria governing future conservation easements as it must. *Preserve Wild Santee,* 210 Cal.App.4th at 280-81. What types of organizations are qualified to hold the easements? Will an endowment for management be required? What standard terms must be included in the easement? Without specifying these types of criteria for a qualifying easement, there is no assurance that the DEIR's vague requirement will be effective as CEQA requires. *Id.* For instance, the Land Trust Alliance has developed a land trust certification system to ensure easement holders comply with nationally accepted performance standards. Requiring Land Trust Alliance certification avoids the risk that agricultural conservation easements will be held by "rogue" land trusts with no interest in effectively managing or enforcing the easement. 0044-99 0044-100

In addition to relying on purchasing or funding undefined conservation easements, the DEIR anticipates mitigation through purchasing of credits from an established farmland mitigation bank, an equivalent "farmland preservation program," or participating in an "agricultural land mitigation program" adopted by the County. The DEIR does not identify any established farmland mitigation banks, however, and the County has not yet adopted other programs to mitigate for the loss of farmland. 0044-101

The DEIR's Farmland mitigation programs must be developed and established now, through the EIR process, and not delayed to a later date. *California Native Plant Society v. County of El Dorado* (2009) 170 Cal.App.4th 1026 ("to be adequate the payment of fees must be tied to a *functioning* mitigation program"). As the court explained in *South County Citizens for Responsible Growth v. City of Elk Grove,* (Cal. Ct. App., Feb. 5, 2004) 2004 WL 219789, at *8 (unpublished, attached as Exhibit Ag 1), "EIR discussion and public response are necessary to determine how and when the fees should be paid and spent. For example, should the fees be paid up-front upon project approval or should they be paid on a per-acre basis as the property is developed? Should the fees be spent immediately or should they be held and pooled with fees from other developers? What areas or properties should have priority for acquisition? . . . These are matters that can and should be addressed through an EIR with an opportunity for public response." 0044-102 0044-103

Finally, in order to reduce the impact of the loss of Farmland to the extent feasible as required by CEQA, the County must first require replacement of lost Farmland onsite, or offsite, if no opportunities exist onsite. Pub. Res. Code § 21002. This is because the net loss of agricultural land is permanent, and mitigation such as a conservation easement, does not eliminate that significant impact. *Citizens for Open Government,* 205 Cal.App.4th 296 (conversion of 40 acres of prime farmland was a significant impact even after conservation easement mitigation measures). Even at a 1:1 ratio, conservation easements could result in half of the Farmland in the County being lost, since easements are placed over existing Farmland. Accordingly, where opportunities exist to ensure a no-net loss of Farmland, they must be required. 0044-104

Here, the County has identified the possibility of "restoring agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment" as an optional mitigation measure. DEIR at 4.2-19. This mitigation measure should not be one of several options; it must be required first. In addition, the County must establish a program to implement this measure now, rather than rely on the vague description currently appearing in the DEIR. The DEIR's current mitigation will not achieve the no-net loss of Farmland that 0044-105

could occur by requiring restoration. Applicants are unlikely to select the County's optional measure of properly abandoning an idle well, given that purchasing a conservation easement would be much less expensive. *See* Kern County Planning and Community Development Department, Workshop Staff Report (July 27, 2015) at 23. 0044-105 Continued

Despite these grave deficiencies, the DEIR finds that Mitigation Measure 4.2-1 reduces the Project's significant Farmland conversion impacts to a less than significant level. DEIR at 4.2-19. There is no evidence to support this conclusion. The DEIR does not analyze the amount of Farmland that will *not* be mitigated at a 1:1 ratio, nor does it analyze the effectiveness of the 1:1 mitigation measures. Indeed, such an analysis is not even possible given the measure's vague terms and unestablished programs. 0044-106

Given the importance of Farmland to the state and the County, even minor conversions are significant. *See Masonite Corp. v. Cnty. of Mendocino* (2013) 218 Cal.App.4th 230. Furthermore, because the net loss of agricultural land is permanent, the resulting impact would be significant and unavoidable even if other Farmland is permanently protected. *Citizens for Open Government,* 205 Cal.App.4th 296; *South County Citizens for Responsible Growth v. City of Elk Grove,* 2004 WL 219789 at *5 (approving EIR's conclusion that the loss of Farmland of Statewide Importance is a significant impact that cannot be mitigated to a level of less than significant despite proposed mitigation fees), attached as Exhibit Ag 1. The DEIR must be revised to identify the Project's significant and unavoidable Farmland conversion impacts. 0044-107 0044-108 0044-109

3. The County Must Revise the DEIR's Farmland Conversion Mitigation Measure.

The deficiencies in Mitigation Measure MM 4.3-1 should be addressed along the lines as follows, with additional details to be provided by the County—including establishing these mitigation programs before Project approval as required by CEQA: 0044-110

- Every five years the County shall request from the State Oil and Gas Supervisor a list of long-term idle wells pursuant to Public Resources Code Section 3206.5. The County will then use this list ("County List") to identify feasible mitigation projects for Loss of Farmland and Grazing land.

- Using the County List, mitigation for conversion shall first occur on-site or common ownership, by abandoning any idle wells on the County's list, or

removing any out of service facilities, and returning the surface to the surface owner after performing soil tests and remediating any contamination. The property shall be restored to allow for agricultural use. This includes plugging wells to a depth that allows for reasonably foreseeable cultural practices such as deep ripping. No conservation easement is required to mitigate loss of farmland caused by a new well that has been offset by abandoning an idle well at a 1:1 ratio.

0044-110
Continued

- If no idle wells or out of service facilities exist on-site, the Applicant shall offset the conversion of Farmland by abandoning idle wells from the County List or removing out of service facilities on other Farmland within Kern County. Only if such offsets are not available may other mitigation measures as listed below, such as purchasing conservation easements, be employed.

- If the County List is exhausted, other effective means of mitigation may be used subject to the following:

    - Mitigation at the ratio of 1:1 shall be applied to total areas of lost agricultural use for oil and gas activities (inclusive of temporary construction and permanent operational impact areas), but excluding non-farmed existing areas such as roads, and tank and maintenance areas, and lands for which agricultural mitigation has previously been provided at a 1:1 ratio. Mitigation must be provided for the total area of lost agricultural use, not just the ground disturbance footprint area. For example, if the roads and well pads are intermittent across the parcel such that it is no longer economically feasible to plant a row crop or tree crop and large portions of the parcel are not farmable, this surface shall be added to the lost Farmland total.

    - Prior to ground-disturbing activity, the Applicant shall submit to the County written evidence of completion of one or more of the permissible measures to achieve this 1:1 mitigation ratio.

    - Mitigation shall be provided for conversion of all lands designated Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, regardless of whether the lands have been actively farmed 5 years or more out of the last 10 years.

- Mitigation shall be provided for conversion of lands designated as Grazing Land.

- Mitigation lands shall meet the definition of Prime Farmland, Farmland of Statewide Importance, Grazing Land and/or Unique Farmland, and be of similar or higher agricultural quality as the lost lands, as established by the California Department of Conservation. Completion of the selected measure or, with the Kern County Planning and Community Development Director's approval, a combination of measures, are to occur on qualifying land in Kern County.

- Other types of vehicles for mitigation include:

  a. Funding and/or purchasing agricultural conservation easements.

  b. Purchasing of credits for conservation of agricultural lands from an established agricultural farmland mitigation bank.

0044-110
Continued

In addition to revising Mitigation Measure MM 4.3-1 , the County should adopt the following measures regarding agricultural conservation easements:

- Agricultural conservation easements shall be located within Kern County or, if no such easements are available, within 10 miles of County borders.

- Agricultural conservation easements shall be held by a land trust accredited by the Land Trust Alliance. (The DEIR should list standard terms for such easements.)

- Any County farmland preservation or mitigation program must be established in advance of approving the proposed Zoning Ordinance. A farmland preservation or mitigation program may also be established by a land trust accredited by the Land Trust Alliance or other public agency dedicated to open space or agricultural conservation.

4. The DEIR Does Not Adequately Evaluate How the Project Will Lead to Additional Farmland Conversions.

0044-111

In addition to analyzing a Project's direct conversion of Farmland, CEQA requires a lead agency to evaluate whether a project would "involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use . . . ." CEQA Guidelines Appendix G.II(e). The DEIR includes a cursory discussion of some of the ways that oil and gas operations can indirectly convert Farmland, including fragmentation into smaller field sizes, disruption of irrigation systems, dust generation, soil compaction, and risk of exposure to hazardous chemicals. DEIR at 4.2-21 to 4.2-22. However, the DEIR's discussion fails to inform the reader of the details or extent of these problems. It also ignores other ways in which oil and gas operations can lead to the conversion of Farmland.

a. Loss of Farmland Due to Parcelization and Fragmentation.

Many studies have documented the impacts of fragmentation or parcelization on farm productivity. As explained in one article:

> This parcelization of farmlands leads to a 'checkerboard distribution of farmlands, i.e. many noncontiguous fields. Farming such scattered plots is problematic. For example, field surveillance to monitor crop growth and pest populations is difficult, as is the movement of farm equipment because of transportation problems. Under these conditions consolidation of landholdings to achieve efficient scales of operation is nearly impossible.

Brabec & Smith, *Agricultural land fragmentation: the spatial effects of three land protection strategies in the eastern United States*, 58 Landscape and Urban Planning 255, 256 (2002), attached as Exhibit Ag 2.

In particular, the physical presence of well pads and roads can make it uneconomical to farm sections of Farmland. *See* James William Gibson, *Bombing North Dakota*, Earth Island Journal (Winter 2013) (7-acre well pad precluding farming 20-acre field), attached as Exhibit Ag 3; Mike Soraghan, *Drilling regulators pull double duty as industry promoters*, E&E News (Nov. 30, 2011) (documenting other instances when oil and gas operations precluded farming an entire field), attached as Exhibit Ag 4. As

0044-111
Continued

discussed above, such fragmentation impacts are already occurring in Kern County, causing farmers to reduce or abandon farming operations. *See* H. King Letter. The DEIR must evaluate how the location of oil and gas infrastructure can lead to uneconomical farms or unreachable field islands, and identify mitigation measures to reduce this impact.

In addition to physical fragmentation within individual farms, "there is the issue of regional fragmentation: the erosion of the farmland base leading to a loss of sufficient farm support operations and facilities, which raise operating costs." Exhibit Ag 2 at 256. It has been well documented that fragmentation of the regional farming landscape exacerbates the demise of surrounding farmland. *See* P.J. Drohan, *et al.*, *Early Trends in Landcover Change and Forest Fragmentation Due to Shale-Gas Development in Pennsylvania: A Potential Outcome for the Northcentral Appalachians*, 49 Environmental Management 1061, 1071 (2012) ("the development of agricultural landscapes for urban sprawl puts pressure on remaining farmland . . . and can result in the loss of more farmland due to indirect effects of farmland conversion"), attached as Exhibit Ag 5; JunJie Wu, *Land Use Changes, Economic, Social, and Environmental Impacts*, AAEA (2008), attached as Exhibit Ag 6. The DEIR must address the Project's potential to cause these regional conversion impacts.

b. Loss of Farmland Due to Water Shortages and Contamination.

0044-112

Oil and gas operations can compete with agricultural production for already limited water supplies. The DEIR's own water supply analysis finds that there is no surplus water available in Kern County and the Project's water demands will result in water shortages in every water year scenario considered by the DEIR. *Id*. at 4.17-51 to 4.17-53. The DEIR's agricultural impacts analysis never mentions these conclusions, however, despite the fact that water shortages often result in the loss of Farmland. For instance, a UC Davis report estimates that in 2015, an additional 540,000 acres of land will go fallow due to the current drought. Richard Howitt et al, *Economic Analysis of the 2015 Drought For California Agriculture*, UC Davis Center for Watershed Sciences (August 17, 2015) at ES-1, attached as Exhibit Ag 7. One study found that during times of water shortages in Kern County, farming operations are cut back, while oil and gas operations continue their water use. Jeremy Miller, *California Drought is No Problem for Kern County Oil Producers*, Circle of Blue Water News, (August 24, 2010) attached as Exhibit Ag 8. The DEIR must analyze how the Project's water supply impacts could lead to the loss of Farmland.

0044-113

In addition, Farmland can be lost due to oil and gas spills or other accidents that lead to contamination. *See, e.g.*, Jeremy Miller, *Oil and Water Don't Mix with California Agriculture*, High Country News (Dec. 15, 2010) (irrigation water contamination in Kern County), attached as Exhibit Ag 9; Nicholas Kusnetz, *North Dakota's Oil Boom Brings Damage Along with Prosperity*, ProPublica (June 7, 2012), attached as Exhibit Ag 10 (oil spills and wastewater dumping impacting agriculture in North Dakota). Accidents and equipment failures do happen. And while the DEIR is right to include best management practices to avoid them, it cannot assume that the potential for water and soil contamination will disappear. *Center for Biological Diversity v. San Benito County* (Monterey Superior Court Case No. M123956), July 21 2014 decision, at 14-17, attached as Exhibit Ag 19.

c. Loss of Farmland Due to Soil Compaction.

0044-114

The DEIR mentions soil compaction in passing, but it provides no mitigation measures for this impact and does not even discuss the extent of the problem. DEIR at 4.2-22.

0044-115

Soil compaction is "virtually permanent," lowering soil productivity and increasing surface runoff. Sjoerd W. Duiker, *Effects of Compaction on Crop Yields*, Penn State Extension 1 (2004), attached as Exhibit Ag 11. Cropland is particularly susceptible to compaction when oil and gas operations are present because oil and gas trucks and production machinery are much heavier than most farm equipment. Marcellus Education Fact Sheet, *Avoiding and Mitigating Soil Compaction Associated with Natural Gas Development,* Penn State Extension 1 (2009), attached as Exhibit Ag 12. The DEIR must be revised to analyze this problem and identify appropriate mitigation.

d. Loss of Farmland Due to the Failure to Timely Abandon Idle Wells.

0044-116

There are thousands of idle wells in Kern County and many of these are located on agricultural lands. State laws allow oil and gas companies to keep wells in an idle state for a small fee. Pub. Res. Code § 3206. Due to the much higher cost to properly abandon a well, there is a perverse incentive to keep wells idle for long past their useful lifespan. One farmer reports that a well on his fields has been out of operation for 29 years. *See* H. King Letter. Other farmers report similar problems. *Id.* These idle wells keep Farmland and Grazing Land out of production and create all of the same fragmentation impacts discussed above. *Id.*

The DEIR implicitly recognizes that the failure to restore agricultural lands to productive use by promptly removing unneeded oil and gas equipment and abandoning long-term idle wells contributes to the loss of Farmland in the County. DEIR at 4.2-19. Yet, the DEIR provides no meaningful discussion or analysis of this problem. The DEIR must be revised to show the location of idle and long-term idle wells on Farmland and Grazing Land within the Project Area. 0044-117

The DEIR may not cure its failure to *analyze* these impacts by rotely acknowledging the impacts' significance. As the Court of Appeal explained, "this acknowledgement is inadequate. 'An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enable them to make a decision which intelligent takes account of environmental consequences.'" *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1123 (quoting CEQA Guidelines § 15151). 0044-118

5. The DEIR's Mitigation Measure To Protect Crops Adjacent to Oil and Gas Activities Is Insufficient to Reduce the Project's Indirect Conversion Impacts to a Less Than Significant Level.

The DEIR concludes that the Project's significant impacts due to indirect Farmland conversions would be reduced to a less than significant level. It bases this conclusion on Mitigation Measure 4.2-2, which is purportedly designed"[t]o protect crops and structures adjacent to oil and gas activities on active agricultural lands." DEIR at 4.2-22 to 4.2-23. But MM 4.2-2 is far too vague to afford any meaningful protection. In fact, the DEIR fails to provide *any* mitigation measures for many of these indirect impacts and there is no evidence to support its finding that Farmland conversions would not be significant. 0044-119

For example, the DEIR does not include any measures to avoid or reduce the effects of soil compaction, despite the availability of many potential solutions. These include restoration of soil surface to original contours; limiting drilling activities to periods of drier soil conditions; alleviating severe compaction by subsoiling; limiting axle load weights and altering truck design; implementing strategies to decrease traffic; increasing organic matter in the soil; and more. *See* Exhibit Ag 12 at 2; Exhibit Ag 11 at 12. 0044-120

Further, as discussed in Section III.C.3 of this letter, the DEIR does not include sufficient mitigation to offset the Project's water shortage impacts. Nor does it provide any measures to avoid the impacts of Farmland parcelization and fragmentation 0044-121

by requiring clustered oil and gas operations, as discussed in Section III.B.2.b of this letter. Finally, it does not effectively address the problem of long-term idle wells that should be abandoned. Additional, feasible mitigation measures are available to address this problem. A County staff report regarding the DEIR stated that "mitigation measures will require abandoned wells and existing operations that are not maintained to be brought up to standards before a permit is issued, as well as provide an option for obtaining mitigation credit for Legacy equipment removal." See Kern County Planning and Community Development Department, Workshop Staff Report (July 27, 2015) at 16. However, the DEIR does not include such measures, or any explanation why the County is rejecting staff's advice on this subject. 0044-121 Continued 0044-122

Without mitigation measures to reduce these impacts, the DEIR's indirect Farmland conversion impacts remain significant. 0044-123

Finally, some of the DEIR's proposed mitigation measures will themselves adversely impact agricultural operations and Farmland and create land use conflicts. These should be revised to reduce those impacts as shown on the attached Exhibit Ag 13, "Revised and Additional Feasible Mitigation Measures to Reduce Agricultural Impacts and Land Use Conflicts." For example, many measures require access to Farmland but such access can be disruptive or dangerous at times. To give just one example, farmers occasionally apply restricted materials that prohibit anyone from safely entering the property during these times. To avoid such potential conflicts, the mitigation measures must require access permission from the surface owner. Exhibit Ag 13 also shows additional, feasible modifications to the DEIR's mitigation measures that could further protect Farmland, and therefore must be adopted under CEQA. 0044-124 0044-125 0044-126

6. The DEIR's Cumulative Agricultural Impacts Analysis Is Insufficient.

As with other sections of the DEIR, the DEIR's analysis of cumulative agricultural impacts is woefully deficient. It simply states that the underestimated 298 acres of converted Farmland per year "could combine with other losses through the County to result in a significant cumulative impact on agriculture." DEIR at 4.2-24. It notes that the average annual conversion rate from 1998 to 2013 has been 1,085 acres, but provides no indication if this rate has been increasing in recent years or where these conversions have occurred. *Id.* Similarly, the DEIR notes that the Kern COG Regional Transportation Plan (RTC)/Sustainably Communities Strategy (SCS) forecasts the conversion of 24 square miles (15,360 acres) of Farmland, but it gives no indication of whether that is annually, or over a period of time. *Id.* at 4.2-25. The same omissions 0044-127

occur for the 80,854 acres of Prime and Important Farmland and 55,000 acres of grazing lands forecast to be lost under the Kern County General Plan. The DEIR does not even disclose where these conversions would occur within the three Project Subareas, much less at a level meaningful to local communities. 0044-128

In addition, as discussed in III.D.4 of this letter regarding the Project's aesthetic impacts, the DEIR fails to consider other relevant plans and projects. For example, it omits any reference to the Tier 5 specific plans, which allow oil and gas development that is not regulated under the project (DEIR at 4.2-14), or to the potential for future wind and solar development. 0044-129

Nor does the DEIR consider cumulative impacts that will result from the reactivation of idle wells located on Tier 2 lands throughout the County. The DEIR must develop a map showing the location of idle and long-term idle wells and consider the potential reactivation of these wells and construction of associated infrastructure. 0044-130

Finally, the DEIR must evaluate the tipping point for local agricultural economies and determine whether the projected Farmland conversions will result in a cascading decline of Kern's agricultural economy and a corresponding increase in the conversion of Farmland. 0044-131

8. The DEIR Fails to Analyze or Mitigate Impacts to Rangeland.

The Project Area contains 982,166 acres of Grazing Land, even more than the 880,326 acres of Farmland within the Project Area. DEIR at 4.2-4. These rangelands are significant contributors to the local economy. Milk was the County's third highest valued agricultural commodity and cattle and calves were the sixth. DEIR at 4.2-2; *see also* Department of Agriculture and Measurement Standards*, 2014 Kern County Agricultural Crop Report* (2015), attached as Exhibit Ag 14 (milk and cattle products together accounting for over $1.3 billion in 2014 crop receipts). 0044-132

Not only is rangeland of special value to Kern County, but California's Legislature has also signaled its broad importance to the state. For example, the Legislature enacted the California Rangeland, Grazing Land, and Grassland Protection Program, whose purpose is to "prevent the conversion of rangeland . . . to nonagricultural uses" and to "protect the long-term sustainability of livestock grazing" through the use of conservation easements. Pub. Res. Code § 10331. In addition to providing water and wildlife benefits, rangeland produces food, medicine and other products, and provides energy savings by producing food and fiber with little expenditure of fossil fuel. U.S. 0044-133

Department of Agriculture, *RCA Issue Brief #6* (Nov. 1995), attached here as Exhibit Ag 15. It also provides important social and economic benefits. William Wetzel et. al. *Analysis reveals potential rangeland impacts if Williamson Act eliminated,* University of California, 66 California Agriculture 131 (Oct.-Dec. 2012), attached as Exhibit Ag 16.

0044-133
Continued

Remarkably, the DEIR provides no analysis of the Project's potential impact to this important environmental resource. Further, while the DEIR requires a 1:1 mitigation for loss of active Farmlands, it provides no mitigation whatsoever for impacts to rangeland or grazing operations.

a. Rangeland Is an Environmental Resource Under CEQA.

Under CEQA, an EIR must "identify the significant effects on the environment of a project." Pub. Res. Code § 21002.1(a). CEQA defines "environment" broadly to include "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance." Pub. Res. Code § 21060.5. Rangeland and grazing cattle are, of course, lands and fauna within this definition.

0044-134

The County, however, has suggested at public workshops on the DEIR that impacts to rangeland need not be analyzed or mitigated as impacts to agriculture. To be sure, the Legislature placed a special importance on the analysis of agricultural lands when it amended CEQA to ensure that agricultural land conversions are considered in a quantitative manner. Pub. Res. Code §§ 21060.1, 21095. However, there is no evidence that the Legislature intended EIRs to ignore impacts to other agricultural or environmental resources. In fact, CEQA Guidelines Appendix G recognizes that rangelands are important environmental resources by requiring an analysis of whether a project would "conflict with existing zoning for agricultural use, or a Williamson Act contract." Grazing is an agricultural use and one that the Williamson Act seeks to protect.

Indeed, the courts have specifically recognized that EIRs must independently analyze and mitigate for the loss of rangeland and grazing when a project could impact this resource. In *Save Panoche Valley v. San Benito County*, a solar power project was proposed on a 4,885 acre site that was primarily used for cattle grazing. (2013) 217 Cal.App.4th 503, 509. The EIR's agricultural impact analysis for the project calculated the number of grazing animals per acre that the land could support as well as the number of animal unit months (AUM) that the land could support with and without the project. *Id*. at 509, 528-29. It also included mitigation measures to place

0044-135

conservation easements on offsite rangeland and to introduce seasonal sheep grazing on project lands that previously supported cattle grazing. The court held that these mitigation measures "adequately addressed the potential impacts on agricultural resources, *including the impact on grazing land*." *Id*. at 529 (emphasis added). Accordingly, impacts to loss of rangeland and grazing must be analyzed and mitigated under CEQA and in this DEIR.

b. The Project's Impacts to Rangeland and Grazing Are Significant.

0044-136

Although the DEIR fails to analyze impacts to rangelands, a comparison of the Project Area's rangelands with the Core Areas for future drilling demonstrates that a significant number of new wells will convert rangeland to oil and gas uses. *See* DEIR Figure 4.2-1. These conversions are especially significant given that California is losing rangeland at an alarming rate. Every year, 20,000 acres of rangeland in California are converted to other uses. Pelayo Alvarez, *Conserving and Managing Prairie, Grassland, and Vernal Pool Landscapes Through Collaboration*, 39 Fremontia 49, 51 (2011), attached as Exhibit Ag 17.

Kern County is likely also losing significant amounts of rangeland given the high number of Williamson Act contract cancellations in the County. DEIR at 4.2-6; Exhibit Ag 16. Further, researchers have concluded that as ranchers exit the business, those that remain are negatively impacted because auction yards, where most cattle are sold, require a large volume of activity to operate efficiently. Matt Andersen, *California's cattle and beef industry at the crossroads,* 56 California Agriculture 156 (Sept. – Oct. 2002), attached as Exhibit Ag 18. In addition, the location of these rangelands in Kern County is especially important given their relatively close proximity to California's limited number of slaughter facilities. *Id.* at 153. Their location near significant amount of feed grains also makes these rangelands and especially valuable resource for grazing. *Id*. at 156; DEIR at 4.2-2. Given the importance of rangeland in the region, the DEIR must be revised to disclose and mitigate the Project's significant impact on this environmental resource.

B. The DEIR's Analysis of Land Use Impacts Is Inadequate.

1. The DEIR's Description of the Environmental Setting for Land Use Is Inadequate.

0044-137

The DEIR must accurately depict the existing environmental setting of land uses and land use planning in Kern County in sufficient detail to allow an analysis of the Project's land use impacts. CEQA Guidelines § 15125. As with other sections of the DEIR, however, the document falls short in this regard.

0044-138

The DEIR's environmental setting for land use does not have a sufficiently detailed description of the existing land uses that occur within the Project Area. For instance, it does not provide a map of existing land uses. The DEIR must be revised to show the extent of existing land uses and their geographic locations within the Project Area. This should include a summary table of existing land uses and gross acreage and maps that show the existing land use patterns, locations of the existing communities, and overall circulation system within the project area. Without this information, there is no clear land use baseline for the analysis of the land use impacts of the proposed project. For instance, the DEIR's analysis of whether the Project would physically divide an established community is inadequate because it does not include an evaluation of the existing established communities and where oil and gas infrastructure would be located under the Project's full buildout.

2. The DEIR Fails to Disclose or Mitigate the Project's Significant Land Use Impacts and Project Approval Would Violate State Planning and Zoning Law.

0044-139

A project's impacts on land use will be significant and must be disclosed when the project conflicts with existing land use plans. The conflict itself is a significant impact under CEQA. *Endangered Habitats League v. County of Orange* (2005) 131 Cal.App.4th 777; *The Pocket Protectors v. City of Sacramento* (2005) 124 Cal.App.4th 903, 928. The DEIR, however, employs tortured logic in an attempt to find that the Project's clear conflicts with governing land use plans are avoidable and therefore insignificant.

0044-140

Further, approval of the Project would violate State Planning and Zoning Law because of these inconsistencies. State Planning and Zoning Law requires zoning ordinances to be consistent with the general plan. Gov. Code § 65860; *Neighborhood Action Group v. County of Calaveras* (1984) 156 Cal.App.3d 1176, 1182-86. A project

cannot be found consistent with a general plan if it conflicts with a plan policy that is fundamental, mandatory, and clear, regardless of whether the project is consistent with other general plan policies. *Families Unafraid to Uphold Rural El Dorado County v. El Dorado County* (1998) 62 Cal.App.4th 1332,1341-42. Even in the absence of a direct conflict, a local agency may not approve a project if it frustrates the general plan's policies and objectives. *Napa Citizens for Honest Gov. v. Napa County* (2001) 91 Cal.App.4th 342, 378-79.

0044-140
Continued

The Project would allow oil and gas development on lands governed by the Kern County General Plan and the Metropolitan Bakersfield General Plan. These Plans include key policies to ensure that (1) new development will not conflict with existing land uses, (2) there will be adequate water supplies to serve new development, and (3) industrial developments are clustered in order to minimize the extent of their impacts. The Project clearly conflicts with these three objectives.

0044-141

a. The Project Would Result in Significant Land Use Conflicts Between Oil and Gas and Agricultural Operations and Is Inconsistent With General Plan Policies to Avoid These Conflicts.

One of the core purposes of land use planning is to reduce conflicts between different types of uses. *Euclid v. Ambler Realty Co.* (1926) 272 U.S. 365, 394. The Kern County General Plan and the Metropolitan Bakersfield General Plan contain the following policies prohibiting the County from approving projects that would result in incompatible land uses.

0044-142

Kern County General Plan:

- Chapter 1.9 (Industrial) Goal 3. Ensure compatibility with land use designations such as residential, commercial, or other land uses that may be affected by such activities.
- Chapter 1.9 (Resources) Goal 3. Ensure the development of resource areas minimize effects on neighboring resource lands.
- Chapter 1.9 (Resources) Policy 7. Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible

residential, commercial, and industrial subdivision and development activities.

0044-142
Continued

Metropolitan Bakersfield General Plan:

- Land Use Element, Goal 3. Accommodate new development which is compatible with and complements existing land uses.

- Conservation Element (B. Mineral Resource) Policy 10. Implement, as appropriate, the California Environmental Quality Act to minimize land use conflicts and reduce environmental impacts of all proposed resource extraction operations (I-2).

The DEIR admits, as it must, that under the Project "land use conflicts between surface owners, such as agricultural producers, and subsurface mineral rights owners, such as oil and gas developers, would result in a significant impact." DEIR at 4.10-87. Yet the DEIR fails to describe the nature and extent of this impact, contrary to CEQA's mandate. Pub. Res. Code § 21002.1(d), (e); CEQA Guidelines §15151. There is substantial evidence of numerous land use conflicts that can occur between oil and gas and agricultural operations, and these conflicts are already occurring with growing frequency in Kern County.

i. Co-locating Oil and Gas and Agricultural Operations Can Create Significant Land Use Conflicts.

Agriculture has a long history in Kern County and over a third of the Project Area is actively farmed agricultural land. DEIR at 4.2-3 to 4.2-4. Additional lands are used as active rangelands. *Id*. The mineral rights on many of these lands are severed from the surface ownership, meaning oil and gas operators can use farmlands to develop mineral rights. DEIR at 3-17. *See* H. King Letter. Oil and gas production on active farmlands is occurring with increasing frequency in Kern County. According to County staff, "over the last 10 years, new discoveries, technology and market forces have moved [oil and gas] production into areas that are used for agriculture and ranching." Kern County Planning and Community Development Department Workshop Staff Report (July 27, 2015) ("Workshop Staff Report"), at 11. These encroachments into actively farmed agricultural lands will continue to expand under the Project. See Section II.B.5, above, discussing the DEIR's Project Description.

0044-143

Co-location of oil and gas and farming operations can lead to numerous land use conflicts, which are becoming increasingly common in Kern County. Workshop Staff Report at 12. As the County admits, when mineral rights owners establish oil and gas operations on active farmland "the reality of negotiations and real world implementation have created instances of conflicts and disputes." *Id.* at 11-12. While the DEIR is silent on these land use conflicts, the County has elsewhere reported the following examples (Staff Report at 12): 0044-144

- Creating new access roads and pipelines diagonally across parcels that take out crops.
- Installation of new electric lines that interfere with tree growth.
- Dispersing well pads and tanks throughout fields, preventing or impeding agricultural operations on more land than necessary.
- Insufficient protections for water sources and residences located on farmland.
- Allowing equipment and materials storage and traffic to disrupt agricultural operations.
- Failing to maintain oil and gas facilities, including broken fencing and lack of weed control.
- Failing to properly abandon wells that are no longer in use.

Examples of these and other land use conflicts between oil and gas and farming operations are well known to local farmers. *See* H. King Letter.

The impediments that oil and gas operations pose to farming operations are often reflected in decreased land values. *See, e.g.,* Jared B. Fish, *The Rise of Hydraulic Fracturing: A Behavioral Analysis of Landowner Decision-Making*, 19 Buffalo Environmental Law Journal 219 (2012) (discussing several case studies where landowners have lost value), attached as Exhibit LU 1; John S. Baen, *The Impact of Mineral Rights and Oil and Gas Activities on Agricultural Land Values*, The Appraisal Journal 74 (Jan. 1996) ("Oil and gas activities are a major disruption of the surface and have significant value implications for surface estate owners"), attached as Exhibit LU 2; *Drilling vs. the American Dream: Fracking impacts on property rights and home values*, 0044-145

Resource Media (March 14, 2014), attached as Exhibit LU 3 (discussing instances of loss of farmland values due to surface and mineral rights conflicts).

0044-145
Continued

The DEIR must be revised to discuss the types of land use conflicts that occur between oil and gas and agricultural operations. Doing so will clearly show that the Project does not come close to reducing this land use impact to a less than significant level.

ii. The Zoning Ordinance and Mitigation Measures Do Not Reduce Land Use Conflicts to a Less Than Significant Level.

0044-146

While the DEIR admits that land use conflicts between oil and gas and agricultural operations "would result in a significant impact," it concludes that "[r]evisions to the Zoning Ordinance would reduce these impacts to less than significant" and therefore no additional mitigation measures are required. DEIR at 4.10-87 to 4.10-88; *see also id.* at 4.10-97 (concluding the Project is consistent with Kern County General Plan Chapter 1.9, Goal 3 because "development standards are intended to provide greater environmental protection"); *id.* at 4.10-140 (concluding the Project is consistent with the Metropolitan Bakersfield General Plan Land Use Goal 3 because new development standards would ensure that oil and gas development is compatible with existing land uses); *id.* at 4.10-148 (concluding the Project is consistent with Bakersfield Mineral Resource Policy 10 because the "proposed development standards are intended to minimize land use conflicts" and the proposed Zoning Ordinance[3] "would implement a new Oil and Gas Conformity Review Process, which includes a system of surface owner sign off and notification in order to reduce land use conflicts"). The proposed Zoning Ordinance will do nothing to reduce the instances of land use conflicts, however.

0044-147

Requiring surface owner sign off on site plans for new oil and gas development on split estate lands would minimize this impact to a less than significant level, because it would ensure that development is designed to be compatible with site-specific surface operations. The Zoning Ordinance, however, does not actually require surface owner sign off. Instead, it allows oil and gas operators to receive a Conformity Review permit without a surface owner signature and creates a second review process that is purportedly more streamlined for applications with a surface owner signature.

[3] The DEIR incorrectly states that the Oil and Gas Conformity Review process is established in Mitigation Measure 4.10-1.

The County claims that the second process incentivizes oil and gas operators to contact the surface owner and negotiate issues because an application without a surface owner's signature will take longer to process and cost more. Staff Report at 13-14. But this claim is not supported by the plain language of the Zoning Ordinance itself. *See* Comparison of County Claims re Zoning Ordinance Process and Plain Text of the Zoning Ordinance, attached as Exhibit LU 4. 0044-148

In fact, there is no meaningful difference between the two pathways. Under the Zoning Ordinance, the County must determine, within 10 days, whether an application with a surface owner signature is complete and meets the development standards. Zoning Ordinance § 19.98.090. After construction, an applicant with a surface owner signature may self-certify compliance. *Id.* § 19.98.130. For an application without a surface owner signature, the County must determine whether it is complete and meets development standards within 30 days, but the County could approve the permit sooner than that. *Id.* § 19.98.100. And, while the applicant without a surface owner signature must have an inspector present during construction, *id.* § 19.98.140, nothing requires the applicant to pay for this inspector. *Id.;* Staff Report at 23. 0044-149

The assurance of having an application processed a few days sooner and avoiding the presence of an inspector to ensure compliance with laws that must be followed anyway is not sufficient incentive to cause oil and gas operators to avoid the land use conflicts identified above. Even if the County were to modify the proposed Zoning Ordinance to do everything it claims, Staff Report at 13-14, a six-month review period and the cost of paying for one additional on-site employee is unlikely to incentivize resolution of the most acute land use conflicts. *See* H. King Letter. Moreover, the Zoning Ordinance does not even create a separate review process for Minor Activity Review permits without landowner sign off. 0044-150

The mitigation measures identified in the DEIR similarly fail to adequately remedy land use conflicts between oil and gas and agricultural operations. Many of the measures simply require compliance with existing laws, which is already required as a matter of course. And, the DEIR does not include any measures to avoid many of the land use conflicts discussed above. Most importantly, there are no measures that require wells and facilities to be clustered to avoid unnecessary disruptions of agricultural activities. 0044-151

Finally, neither the Zoning Ordinance nor the mitigation measures provide any opportunity for the surface owner to identify the extent and nature of potentially impacted agricultural operations. Only by developing a process for landowners to share 0044-152

this information and address potential conflicts on a site-specific basis can the County ensure that oil and gas activities avoid interfering with surface uses to the extent feasible. 0044-153

The DEIR's other reasons for claiming the Project is consistent with general plan policies designed to ensure compatible land uses defy common sense. The DEIR suggests that Kern County General Plan Chapter 1.9, Goal 3 was only intended to analyze impacts on resource lands located outside of the County, when the Goal obviously refers to impacts on resource lands that neighbor the proposed development. DEIR at 4.10-100. The DEIR also concludes that the Project is consistent with Chapter 1.9, Goal 7, requiring the County to protect agricultural lands from incompatible development, because the County's zoning ordinance regarding Williamson Act contracts identifies oil and gas as a compatible land use. But simply stating the two uses are generally compatible does not make it so, especially on a site-specific basis. The County cannot square this logic with the DEIR's finding on page 4.10-87 that the Project could result in land use conflicts that create a significant land use impact. 0044-154

In short, the County has not produced any evidence, much less substantial evidence, that the significant land use conflicts between oil and gas and agriculture—conflicts that will only increase with the Project—would be reduced to a less than significant level under the Zoning Ordinance. 0044-155

iii. There Are Additional, Feasible Mitigation Measures to Reduce the Project's Significant Land Use Impacts.

Because the Project would result in significant land use impacts, as the DEIR admits, the DEIR must be revised to identify all feasible mitigation measures to reduce those impacts. Pub. Res. Code § 21002.1(b); CEQA Guidelines § 15126.4. This would include, at minimum, the following measures: 0044-156

- Require landowner sign off as follows: Applications for Oil and Gas Conformity Review and Minor Activity Review permits must include the signature of the Land/Surface Owner agreeing to the site plan.

- Require a Conditional Use Permit on split estates as follows: No well for use as an injection well and no well for the exploration for or development or production of oil, gas, or other hydrocarbon substances may be drilled, and no related accessory equipment, structure, or facility, on property where the Land/Surface Owners are different from the Mineral Rights

Owners, may be installed in any zoning district in which such uses are permitted until an application for a conditional use permit, which includes the information specified in Section 19.98.080, has been submitted to and approved by the Planning Commission as consistent with the standards set out in Section 19.98.060 and in accordance with the standards and procedures set out in Sections 19.102.130 through 19.102.180 and Chapter 19.98 of the Zoning Ordinance. 0044-158

- The location of drill pads, roads, improvements, and other infrastructure must avoid irrigation systems or the applicant must arrange to have them rerouted at the Applicant's expense to allow continued agricultural use of the entire remaining property.

- The Applicant shall maintain the surface free of debris, weeds, graffiti and equipment in disrepair. These conditions are a nuisance and will be subject to abatement by the County with costs paid by the mineral rights owner.

- On properties with split estates, the Application shall comply with any applicable deed restriction in the mineral estate severance deed.

- The location of all wells and improvements shall be clustered to the extent feasible and shall not disturb more surface area than is reasonable and necessary. If a well on the property is designated as active or inactive, but has not produced for two years, the well may remain but the Applicant shall restore the well pad area no longer being used and return it to the surface owner. Remediation will include testing of the soils to ensure that the quality of the soil is equivalent to the baseline quality of soil established prior to drilling being initiated.

- Locations for wells, roads, pipelines, overhead electrical lines, and other production facilities, and the means of operation shall prevent or reduce impacts of the oil and gas operation on the surface use to the extent feasible. The County will consult with the surface owner regarding current surface operations in considering whether this requirement has been met.

- The following language should be added to mitigation measure MM 4.1-2 re removing equipment after drilling: "The Applicant shall perform soil testing and if contaminants are found, those must be removed/remediated and the soil character returned to a baseline sample taken prior to the

commencement of drilling. The Applicant shall reduce the size of the drill pads to the extent feasible after drilling is complete. Oil pads shall be no larger than necessary."

0044-158
Continued

- Require additional information on the site plan provided to the Surface/Land owner as shown on the attached Exhibit LU 5 (Modifications to Site Plan Requirements in Draft Zoning Ordinance).

- Abandon wells that are removed shall be capped in the DOGGR required range of 5 to 10 feet, but also at a level agreed to by the surface owner based on the crop they are growing. Soils will be tested and remediated to allow replanting and growing of a crop. All pipelines and other infrastructure connected to or associated with the abandoned well shall be removed when the well is plugged and capped.

- Well pads will be constructed such that they will prevent erosion, leakage, drainage in to the surrounding agricultural land.

- Surface and mineral owner/operator shall provide advance notification of chemical applications in accordance with provisions of their surface access agreements for split estate properties.

- Within one year of a production facility being marked "out of service", the facility is to be removed and the surface returned to the landowner following the soil tests and contamination remediation protocols discussed above.

The DEIR must be revised to include these and other mitigation measures that would effectively reduce land use conflicts between oil and gas and agricultural operations on split estates.

b. The Project Conflicts with General Plan Policies Requiring Industrial Uses to be Clustered.

Another way the Kern County and Metropolitan Bakersfield General Plans attempt to reduce land use conflicts is by requiring the most impactful type of development—industrial development—to be clustered next to existing industrial uses, rather than dispersed throughout the County or a particular site. These policies include the following:

0044-159

0044-159
Continued

Kern County General Plan:

- Chapter 1.9 (Industrial) Policy 5: Provide for the clustering of new industrial development adjacent to existing industrial uses and along major transportation corridors.

Metropolitan Bakersfield General Plan:

- Policy 34. Provide for the clustering of new industrial development adjacent to existing industrial uses and along major transportation corridors (I-1).

The DEIR concludes that the Project is consistent with these policies because the DEIR's future development scenario assumes that 90% of new wells will be located in Tier 1 areas, where oil and gas is already the dominant use. DEIR at 4.10-98. Yet, nothing in the Zoning Ordinance *requires* new oil and gas development to be located in Tier 1 areas. In fact, as oil and gas expert David Hughes explains, most of the Project's new wells will be dispersed outside of Tier 1 areas. Exhibit PD 1 at 8. Further, nothing in the Zoning Ordinance requires new drilling to occur adjacent to existing wells when oil and gas development already occurs on split estate lands or in residential neighborhoods. Without such provisions, there is no basis for the DEIR to conclude that the Project is consistent with General Plan policies to cluster industrial developments.

c. The Project Conflicts with General Plan Policies Requiring Adequate Water Supply.

0044-160

Given the severe water supply constraints in this arid County, it is not surprising that the Kern County General Plan and the Metropolitan Bakersfield General Plan contain several policies to ensure that new development will not create water shortages for existing uses. These policies include the following:

Kern County General Plan:

- Chapter 1.4 (Public Facilities and Services) Goal 5. Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

- Chapter 1.10.6 (Surface Water and Groundwater) Policy 41. Review development proposals to ensure adequate water is available to accommodate projected growth.

- Chapter 1.10.6 (Surface Water and Groundwater) Policy 45. New high consumptive water uses, such as lakes and golf courses, should require evidence of additional verified sources of water other than local groundwater. Other sources may include recycled stormwater or wastewater.

0044-160
Continued

Metropolitan Bakersfield General Plan:

0044-161

- Conservation Element (D. Water Resources) Goal 2. Assure that adequate groundwater resources remain available to the Planning Area.
- Conservation Element (D. Water Resources) Goal 3. Assure that adequate surface water supplies remain available to the Planning Area.
- Public Services and Facilities Management Element (B. Water Distribution) Policy 3. Require that all new development proposals have an adequate water supply available.

0044-162

The DEIR's own water supply analysis demonstrates that the Project is in direct conflict with these General Plan goals and policies. It notes that the Project's water demand will come from "M&I" quality water, that is, water that is clean enough for municipal and industrial uses. DEIR at 4.17-50. The water supply analysis finds that there is no surplus M&I quality water available in Kern County. *Id.* As a result, the Project's water demands will result in water shortages in every water year scenario considered by the DEIR—average, single dry year, and multiple dry years. *Id.* at 4.17-51 to 4.17-53. Consequently, "existing entitlements and resources are insufficient to meet current and projected future M&I water demand in the Project Area" and the Project will result in significant and unavoidable water supply impacts. *Id.* at 4.17-57, 4.17-60.

0044-163

The DEIR's land use analysis never mentions these conclusions. Instead, it attempts to dodge the Project's unmet water demands by suggesting that mitigation measures, which were already considered in the water supply analysis, would "reduce" dependency on municipal water supplies, and that the Project's impacts on surface and groundwater resources would be "reduced." *Id.* at 4.10-111 to 4.10-112, 4.10-151. But the General Plan policies cited above do not require the County to "reduce" a project's unmet water demands; they require the County to ensure that there will be no unmet water demands.

The County's General Plan is especially protective of groundwater, requiring high consumptive water uses, such as lakes and golf courses, to demonstrate additional verified sources of water other than groundwater. Chapter 1.10.6, Policy 45. The DEIR again employs tortured logic in an attempt to find the Project is consistent with this policy. It argues that the Project is consistent because "treated oil and gas process water is not used for lakes and golf courses" and because oil and gas developers will implement the DEIR's water quality and water supply mitigation measures. DEIR at 4.10-112. But Policy 45 does not apply to projects that supply water to manmade lakes and golf courses; it applies to projects that consume significant amounts of water, such as the types of oil and gas operations permitted by the Zoning Ordinance. Further, as discussed above, the water supply analysis already concluded that the Project will result in water shortages, even with the mitigation measures identified in the DEIR. 0044-164

The DEIR must be revised to identify the Project's inconsistency with General Plan policies that protect existing land uses from water shortages, dispersed industrial operations, and incompatible land uses. These conflicts constitute significant land use impacts under CEQA that must be disclosed in the DEIR. *Endangered Habitats League,* 131 Cal.App.4th 777. Further, until the Project is made consistent with all General Plan policies, the County's approval would violate State Planning and Zoning Law. *See* Gov't Code § 65860. 0044-165

3. The DEIR Fails to Analyze the Project's Inconsistency With All Applicable Land Use Plans.

Finally, the DEIR does not discuss whether the Project is consistent with applicable specific plans or regional plans, such as the Sustainable Communities Strategy ("SCS") and habitat conservation plans, as CEQA requires. CEQA Guidelines §15125(d). The DEIR briefly mentions these plans, but does not provide sufficient information to determine whether the Project is consistent with them. Nor does it make any consistency determinations. 0044-166

For instance, the DEIR states that "[o]il and gas resources, as well as other land uses, are components of the SCS." DEIR at 4.10-14. Yet there is no follow-up discussion of the specific policies or implementation strategies in the SCS that are applicable to the Project. This is particularly problematic in the discussion of cumulative impacts, where the DEIR states: "the proposed Project would be consistent with planning efforts within the Project Area, such as . . . RTP/SCS . . . ." *Id.* at 4.10-90. There is no evidence to substantiate this conclusion. The DEIR must be revised to include the SCS policies and implementation strategies that are applicable to the Project and an analysis 0044-167

whether there are any inconsistencies with these provisions. CEQA Guidelines §15125 (d).

0044-167 Continued

C. The DEIR's Analysis of Impacts on Water Supply Resources Is Inadequate.

Kern County faces some of the most grave water-supply constraints in the State. The County is naturally arid, enjoying little rain even in non-drought years. Yet the County must support the extensive water demands of its resident and industries. These conditions, now combined with an ongoing drought of historic proportions, have led to severe overdraft of the County's aquifers, resulting in plummeting groundwater levels and unprecedented land subsidence.

0044-168

In light of these concerns, the DEIR's water-supply analysis is one of the most critical topics for evaluating the impacts of the Project on the environment. Water is a basic necessity for all of the County's residents, farmers, industry, habitat, and wildlife. In particular, the County ranks second in the State for agricultural production. Accordingly, the DEIR must carefully analyze the Project's impacts on the County's essential water resources, to ensure it fulfills its "fundamental purpose" of "provid[ing] public agencies and the public in general with detailed information about the effect which the proposed project is likely to have on the environment." *Vineyard Area Citizens for Responsible Growth, Inc.,* 40 Cal.4th AT 428 (quoting Pub. Res. Code § 21061).

0044-169

Unfortunately, the DEIR fails in its task. It provides a grossly insufficient description of the current groundwater resources in the County, not even bothering to differentiate among the County's many aquifers or account for the ongoing drought. Then, the DEIR fails to describe any impacts of the Project on specific groundwater sources, instead providing a simplistic comparison of all water supply in the Project Area to all water demand in the Area. Finally, the DEIR declines to suggest feasible—and, frankly, obvious—mitigation measures that would lessen the Project's significant impacts on water supply. The DEIR must be revised to correct these unlawful shortcomings.

0044-170

1. The DEIR Fails to Accurately Describe the Project's Existing Groundwater Setting.

It is essential that an EIR accurately and fully describe a project's environmental setting because this description forms the baseline for evaluating the project's environmental impacts. *See* CEQA Guidelines § 15125(a). This requirement is crucial to a valid EIR: "[k]nowledge of the regional setting is critical to the assessment

0044-171

of environmental impacts . . . . The EIR must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered *in the full environmental context*." CEQA Guidelines § 15125(c) (emphasis added). In other words, it is impossible for an EIR to fulfill its informational purpose when it does not adequately describe the existing environment that may be impacted by a project.

0044-171
Continued

Here, the DEIR's description of the Project Area's groundwater as a single, undifferentiated mass of underground water utterly distorts reality. In fact, the massive Project Area, which covers 3,700 square miles, contains numerous aquifers, each unique. The DEIR's approach of ignoring these individual aquifers undermines the usefulness of its analysis. To describe the Project's impacts on water supply in the proposed area of oil and gas development, the DEIR should have first provided a complete description of the existing groundwater resources. This description must include, at a minimum, specific information about each aquifer, including its location, the amount of water it is estimated to contain, its depth, its water quality, its rate of recharge, uses that currently rely on its water, and other sources of water in the area. Without this information, the DEIR cannot analyze the Project's real, on-the-ground impacts.

0044-172

There are several problems with the DEIR's consideration of the Project Area's groundwater resources as a single mass. To begin with, the DEIR fails to differentiate between groundwater suitable for human and agricultural use and groundwater that is too saline or otherwise of too low a quality to be used for drinking or irrigation. Instead, it assumes that *all* of the water is usable for all purposes. But not all accessible groundwater in the Project Area is of the same quality. The DEIR itself recognizes that the quality of water available is important to determining whether it can be used for agricultural purposes. For example, water with Total Dissolved Solids ("TDS"), which is higher in water with increased salinity, above 1,000 mg/L can degrade agricultural soil and damage crops. *See* DEIR at 4.9-22. Oil and gas production also requires a certain amount of high-quality, clean ("municipal and industrial" or "M&I") water for certain activities, such as well drilling and maintenance, well stimulation, and supplemental steam generation. *See* DEIR at 4.17-21. Yet, the DEIR fails to provide any information about existing groundwater quality in the Project Area, and instead relies on the faulty assumption that all groundwater is usable for all purposes. Because the DEIR thus overestimates available water supplies, it underestimates the Project's water-supply impacts.

0044-173

Indeed, there is substantial evidence that underground injection disposal of oil and gas produced wastewater, which contains high levels of TDS, has already

0044-174

contaminated groundwater aquifers in the Project Area, in some cases leading to significant crop damage. Most notably, DOGGR has allowed injection of produced oil and gas water into aquifers that are in the Project Area that are protected by the federal Safe Water Drinking Act as sources of fresh water. *See* Letter from DOGGR to U.S. EPA (May 15, 2015), attached as Exhibit Wat 1. State Water Board staff has determined that, of the underground disposal wells injecting into the cleanest aquifers, "53 of the 155 injection wells are potentially impacting water supplies." *Id.* And between 2009 and 2012, the U.S. Environmental Protection Agency ("EPA") received twenty-four allegations of groundwater contamination from underground injection wells in California. U.S. Gov. Accountability Office, Drinking Water: EPA Program to Protect Underground Sources from Injection of Fluids Associated with Oil and Gas Production Needs Improvement, at 33 (June 2014), attached as Exhibit Wat 2. In its water-quality analysis, the DEIR acknowledges the ongoing investigation into DOGGR's underground injection disposal program, *see* DEIR at 4.9-74-75, but the DEIR omits any mention of it when discussing water-supply, even though the issue is highly relevant. Nor does the DEIR identify the aquifers likely to have been impacted by this contamination—an inexplicable omission, as the information is available. *See* DOGGR, Preliminary Assessment of 11 Aquifers Historically Treated as Exempt (July 15, 2015), attached as Exhibit Wat 3.

0044-174
Continued

Also, surface disposal of produced water by an oilfield wastewater management facility has polluted groundwater near Bakersfield. *See* John Cox, Facility Operator Wins Time, But Appeal Awaits, *The Bakersfield Californian* (Sept. 6, 2015), attached as Exhibit Wat 4. The facility has been disposing of oilfield produced water for over fifty years by spraying it across ground populated with non-native plants that are tolerant of high-saline water. *Id.* Now, the groundwater beneath the disposal fields is contaminated with chloride, boron, and TDS at levels seven to nineteen times the allowable limits—and the pollution plume is spreading at the rate of 100 feet per year. *Id.* The DEIR does not acknowledge this contamination—or any other similar surface-disposal groundwater contamination—and it must.

0044-175

In addition, different aquifers across the Project Area have naturally varying water quality. For example, groundwater in the Western subarea tends to be highly saline, potentially limiting its uses. *See* DEIR at 4.9-5. The DEIR must detail these natural water quality variations, and identify, on a site-by-site basis, how much groundwater is actually suitable for municipal, industrial, and agricultural uses. Without this information, the DEIR is useless for determining whether there is sufficient groundwater available to actually meet the County's needs. Again, because the DEIR treats available groundwater as one undifferentiated mass, all of which is high-quality,

0044-176

readers are left in the dark as to the amount and location of usable water—and the Project's effect on that supply.

0044-176 Continued

The DEIR's description of Project setting suffers not only from its failure to consider specific aquifers within the Project Area, but also from its underestimation of the effect of the current drought and climate change on water availability. In its various drought scenarios, the DEIR bases its assumptions about future water supply on *past* conditions, generally occurring before 2011. It does not discuss—or even acknowledge—that past conditions are unlikely to accurately reflect water supply in the face of California's ongoing, historic drought and global climate change. Even though there have been multi-year droughts in the past, none approach the magnitude of California's current mega-drought, which was induced by climate change and is likely to extend into the future. *See* P. Martineau, California Water Year 2014 Among Driest Years on Record, Association of California Water Agencies (Sept. 30, 2014), attached as Exhibit Wat 5; T.R. Ault, et al., Assessing the Risk of Persistent Drought Using Climate Model Simulations and Paleoclimate Data, at 7545 (Oct. 15, 2014), attached as Exhibit Wat 6 . A recent study of droughts in California concluded that anthropogenic climate change will continue to cause the co-occurrence of warm and dry periods in California, which in turn will exacerbate water shortages and groundwater overdraft. *See* N.S. Diffenbaugh, et al., Anthropogenic Warming Has Increased Drought Risk in California, at 3935 (Mar. 31, 2015), attached as Exhibit Wat 7. Indeed, scientists have determined that climate change has likely intensified the current drought by 15 to 20 percent, and droughts are almost certain to keep getting worse. *See* A. Park Williams, et al., Contribution of Anthropogenic Warming to California Drought During 2012-2014, at 8 (Aug. 31, 2015), attached as Exhibit Wat 8; *see also* Justin Gillis, California Drought Is Made Worse by Global Warming, Scientists Say, *N.Y. Times* (Aug. 20, 2015), attached as Exhibit Wat 9. In light of this mounting evidence, the DEIR's drought scenarios used to analyze the Project's impacts are almost certainly underestimated.

0044-177

It is especially important that the DEIR take into account long-term climate and drought conditions because the Project includes oil and gas development in Kern County for decades to come. Also, the current drought, like the most recent previous drought (2007-2009), has had a particularly harmful effect in the San Joaquin Valley, impacting the same extremely limited water supply on which this Project plans to rely. *See* Cal. Dept. of Water Res., California's Most Significant Droughts: Comparing Historical and Recent Conditions, at 59-60 (Feb. 2015), attached as Exhibit Wat 10. Specifically, the California Department of Water Resources identified the San Joaquin Valley as one of the worst-affected groundwater basins in the state, as groundwater levels

0044-178

in the Valley have plummeted to more than 100 feet below previous historical lows. Cal. Dept. of Water Res., Public Update for Drought Response, Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring, at 2 (April 30, 2014), attached as Exhibit Wat 11.

0044-178 Continued

The County must revise and recirculate the DEIR to provide adequate information about the environmental setting, including a complete description of the affected aquifers and a realistic assessment of the drought's effect on water supplies in the Project Area. Without this information, it is impossible for the document to provide an accurate analysis of the Project's water supply impacts.

0044-179

2. The DEIR Fails to Disclose the Project's Potential Impacts on Water Supply.

The DEIR fails to properly analyze the Project's significant impacts on area water supplies. In *Vineyard Area Citizens for Responsible Growth, Inc.,* 40 Cal.4th at 431-432, the Supreme Court imposed four primary obligations on an EIR's water-supply analysis:

0044-180

- The EIR must identify and analyze the water supply for the project. "CEQA's informational purposes are not satisfied by an EIR that simply ignores or assumes a solution to the problem of supplying water to a proposed land use project." *Id.* at 431. This analysis must include consideration of the environmental impacts of tapping that supply.

- The EIR must consider the water demands of the entire project, through all phases of development. "An EIR evaluating a planned land use project must assume that all phases of the project will eventually be built and will need water, and must analyze, to the extent reasonably possible, the impacts of providing water to the entire proposed project." *Id.*

- "[T]he future water supplies identified and analyzed must bear a likelihood of actually proving available; speculative sources and unrealistic allocations ('paper water') are insufficient bases for decision-making under CEQA." *Id.* at 432. The EIR's determination concerning the likelihood of the availability of these supplies must be supported by substantial evidence.

0044-180
Continued

- "Finally, where, despite a full discussion, it is impossible to confidently determine that anticipated future water sources will be available, CEQA requires some discussion of possible replacement sources or alternatives to use of the anticipated water, and of the environmental consequences of those contingencies." *Id.*

0044-181

The DEIR fails to meet the minimum standards set forth in *Vineyard Area Citizens for Responsible Growth, Inc*. The DEIR's entire analysis is to acknowledge that the Project will have unavoidable significant impacts on the area's water supplies because "surplus M&I-quality [ground]water is not available in the Project Area. Any new use reduces the availability of M&I-quality water to another Project Area user, or increases the regional groundwater overdraft if supply shortfalls are addressed by increased groundwater extraction." DEIR at 4.17-50. This abbreviated analysis is deficient for three reasons.

0044-182

First, the DEIR does not adequately analyze water supply for the Project. *Vineyard,* 40 Cal.4th at 431. The DEIR's water supply analysis is on so broad a scale that it provides no useful information regarding the Project's actual, specific impacts on the environment. Like its description of the environmental setting, the DEIR looks at all groundwater potentially available in the Project Area as a single, undifferentiated whole. The DEIR presents a string of tables, along with scant narrative, purporting to quantify water supply and demand in the entire Project Area over the next twenty years. *See* DEIR at 4.17-51 to -56. The tables indicate that, overall, there will be more demand than supply in the 3,700 square-mile Project Area. However, the DEIR does not break down its analysis for the numerous separate aquifers in the Area—aquifers that are drawn on for different uses, have different qualities, and will experience wildly different impacts from the Project. Rather, the DEIR considers only three massive "subareas." *See id.*. This "breakdown" is far too generalized to provide meaningful information as to of the Project's actual impacts on the ground and on any local water supply and is unlawful.

0044-183

Because the EIR for this Project is the *only* environmental review for thousands of new oil and gas wells over decades, CEQA requires a full and detailed analysis of the Project's actual impacts. *See, e.g.*, *Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1220 (CEQA violated where agency failed to consider site-specific data about environment prior to approving timber harvest). A broad, hypothetical assessment of whether there is enough water in the whole Project Area to serve all hypothetical demands on the supply is insufficient in these circumstances. To satisfy CEQA, the EIR must analyze the impacts of the Project on water supply on the scale of individual aquifers. The EIR must identify the users of each aquifer and how much water they use. The EIR must describe whether the aquifer is currently

overdrafted, or if the area has sufficient surface water that groundwater is rarely used. For each aquifer, it must disclose how many new oil and gas wells are expected to be drilled in areas above the aquifer. It must explain what sources of water those wells will rely on and how much water the wells will need from different sources. The EIR must document how produced water will be managed at those wells.

0044-183
Continued

Second, the DEIR fails to analyze the actual impacts of the water-supply deficit it predicts, as CEQA requires. *Vineyard Area Citizens for Responsible Growth, Inc.*, 40 Cal.4th at 431. The DEIR simply observes that there is no surplus groundwater available to meet the Project's needs, and then declares the impact on water supply "significant." But CEQA does not allow an EIR to state that impacts will be significant and end the inquiry there. Instead, the statute requires the document to analyze the full extent of the project's impacts, even if these impacts cannot be avoided despite mitigation. *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 831. Accordingly, the DEIR here must disclose how increased competition for limited groundwater will impact current users, such as municipalities and agriculture. For example, if there is not enough water to go around, how will the shortfall affect crop production? If there is a groundwater deficit, which users will bear the brunt of the deficiency? If the Project results in increased groundwater extraction, how will that activity impact particular aquifers' long-term viability? Will there be land subsidence? And where will the impacts be felt the most?

0044-184

Finally, the DEIR fails to identify the new sources of water that would be necessary to meet the Project's needs. "CEQA's informational purposes are not satisfied by an EIR that simply ignores or assumes a solution to the problem of supplying water to a proposed . . . project." *Vineyard Area Citizens for Responsible Growth, Inc.*, 40 Cal.4th at 430-31. Here, the DEIR identified only part of the water supply for the Project: its reuse of some produced water. But the DEIR acknowledges that this recycled water will not serve all of the Project's needs because some operations at oil and gas wells require high-quality, M&I water. *See* DEIR at 4.9-86, 4.17-57. Because there is only sporadic availability of surface water in the area, the DEIR identifies groundwater as the Project's sole potential source of M&I water. DEIR at 4.17-22. Yet, while the DEIR goes on to admit that there is no groundwater in the area to spare, DEIR at 4.17-57, it fails to disclose where the Project would acquire necessary M&I water. This omission violates CEQA because it denies decision-makers and the public the information necessary to "evaluate the pros and cons of supplying the amount of water that the [project] will need." *Vineyard Area Citizens for Responsible Growth, Inc.*, 40 Cal.4th at 431 (citation omitted; brackets original).

0044-185

Even if it is impossible to identify a sufficient water supply for the Project, "CEQA requires some discussion of possible replacement sources or alternatives to use of the anticipated water, and of the environmental consequences of those contingencies." *Id.* at 432. The DEIR here provides no such discussion, leaving its readers uninformed as to how the Project will acquire the water it needs for its operations. 0044-186

3. The DEIR's Water Supply Mitigation Is Inadequate.

An EIR must describe feasible mitigation measures that would minimize a project's impacts. Pub. Res. Code § 21002; CEQA Guidelines § 15126.4. Even though this Project's water-supply impacts are significant and purportedly unavoidable, CEQA requires that the EIR identify mitigation measures that can lessen the Project's impacts. *See id.* The three mitigation measures described in the DEIR do not fulfill this requirement. Furthermore, the DEIR does not identify all feasible mitigation measures that could reduce the Project's water supply impacts—even those identified elsewhere in the DEIR. 0044-187

First, Mitigation Measure ("MM") 4.17-2 requires that the oil and gas operations increase reuse of produced water and reduce use of M&I water "to the extent feasible." DEIR at 4.17-59. To this end, the measure purports to require the oil and gas trade associates requesting the Project Zoning Ordinance amendments (collectively referred to in the DEIR as "Applicant") to identify the five largest oil-industry water users, who "shall work together to develop and implement a plan identifying new measures to reduce [M&I] water use by 2020." *Id.* The five oil companies are also supposed to work with local agriculture producers and water districts to identify new uses for produced water. *Id.* Instead of identifying concrete ways that the oil and gas operators could increase reuse of water, however, the measure states only that operators should do so "to the extent feasible." This measure is too vague and undefined to be enforceable, and thus is legally inadequate. 0044-188

MM 4.17-2 is inadequate not only because it is vague, but also because it is deferred into the future. Rather than imposing present mitigation, the measure postpones defining specific requirements, standards, or practices that would result in a reduction of M&I water use, relying on large oil companies to "identify[] new measures to reduce [M&I] water use by 2020." DEIR at 4.17-59. CEQA allows deferred mitigation only where: (1) there is an articulated reason or basis for the deferral, and (2) the proposed mitigation measure contains performance standards that will be met by the more specific measures to be developed later. *County of Merced*, 149 Cal.App.4th at 669-71. Here, MM 4.17-2 satisfies neither of these requirements. Further, California courts have made 0044-189

clear that allowing a project applicant to formulate specific mitigation at some later date does not satisfy CEQA's requirements. There is no reason the County could not conduct discussions with the Project Applicant now, to identify specific, new water-saving measures.

0044-189 Continued

MM 4.17-2 also provides no explanation of how the County would enforce this mitigation measure against the Applicant, or how the Applicant could compel five oil-industry giants to collaborate on developing water-saving measures. The DEIR cannot rely on the expectation that oil companies and associations will voluntarily agree to spend uncompensated time developing conservation measures that may be against their financial interest. The Project allows permits to be issued before these measures are developed and there is no consequence if they are never developed. Without assurances that the oil companies can be required to take these measures, the mitigation is unenforceable and speculative and, thus, inadequate.

0044-190

Second, MM 4.17-4 is both vague and deferred, so that it provides no effective mitigation for the Project's impacts. The measure states, in full: "The Applicant shall work with the County on the Groundwater Sustainability Plan to increase Applicant's use of reclaimed water and reduce the Applicant's use of [M&I] quality imported surface water or groundwater." DEIR at 4.17-60. First, the County is not solely responsible for developing the Groundwater Sustainability Plan ("GSP"). In Kern County, the responsible agency is the Kern Groundwater Authority, a joint powers authority, of which the County is but one of twenty member agencies. Accordingly, the County does not have the authority to unilaterally decide the contents of the GSP.

0044-191

And even if the County could dictate the contents of the GSP, MM4.17-4 lacks necessary detail. For example, the measure does not explain what "work with" means. Would the County and the Applicant develop a plan together? Would the County take only suggestions? Further, the measure fails to set any standards for how much increase in use of reclaimed water and decrease in use of high-quality M&I water is necessary to mitigate the Project's impacts. CEQA does not permit such ineffective, deferred mitigation measures. *See Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 95-96.

0044-192

Third, MM 4.17-3 fails to mitigate for the Project's water-supply impacts because it improperly defers development of the actual mitigation measures. The measure merely states that the Applicant will work with the County to develop some best practices for the oil and gas industry that would "encourage the re-use of produced water from oil and gas activities" with the "goal" of reusing 30,000 acre-feet per year. DEIR at

0044-193

4.17-60. The DEIR does not explain why it cannot impose a specific and enforceable water-reuse mitigation measure now. For this reason alone, the mitigation measure is legally inadequate. *See County of Merced*, 149 Cal.App.4th at 669-71.

0044-193
Continued

Finally, the DEIR fails to identify other measures that could reduce the Project's impacts on the water supply. For example, in the DEIR's alternatives section, the DEIR discusses a Project alternative that would *require* oil and gas operations to treat and reuse an amount of produced water at least equivalent to the amount of high-quality M&I water used by the operations. DEIR at 6-26. As the DEIR recognizes, this proposal for treatment and reuse could end up producing more water of a high enough quality for crop irrigation than currently exists, resulting in an environmental benefit. DEIR at 6-27. In other words, this is a proven, feasible mitigation measure that could reduce the Project's significant impact on water supply. Indeed, as the DEIR admits, it could very well mitigate the impacts to a less than significant level:

0044-194

> [P]otential groundwater impacts would be mitigated to less than significant levels if sufficient amounts of produced water otherwise subject to disposal were treated and reused to offset the consumption of M&I water for oil and gas exploration and production.

DEIR at 4.9-154.

0044-195

The DEIR must identify required treatment of produced water for reuse as a feasible mitigation measure for the Project's significant water-supply impacts. Pub. Res. Code § 21002.1(b); CEQA Guidelines § 15126.4. Treatment of produced water clearly falls within CEQA's definition of mitigation, which includes "[c]ompensating for the impact by replacing or providing substitute resources or environments." CEQA Guidelines § 15370. The County may not attempt to avoid adopting this measure by describing it as a project alternative. The California Supreme Court recently emphasized that "CEQA does not authorize an agency to proceed with a project that will have significant, unmitigated effects on the environment, based simply on a weighing of those effects against the project's benefits, unless the measures necessary to mitigate those effects are *truly* infeasible." *City of San Diego v. Bd. of Trustees of California State Univ.* (2015) 61 Cal. 4th 945, 352. As a result, the County must revise the DEIR to include all feasible mitigation measures, including required treatment and reuse of produced water.

Another feasible mitigation measure that the DEIR fails to consider is directly reusing produced water for well stimulation, which can be done without the

0044-196

treatment necessary for produced water to be released into the environment. In its Independent Scientific Assessment of Well Stimulation in California, Volume II, Chapter 2, attached as Exhibit Wat 12, the California Council on Science and Technology ("CCST") suggested this direct reuse of water, observing that "[p]roduced water reuse for well stimulation has been shown to be feasible . . . and is becoming more common across the United States." Exhibit Wat 12 at 146. The DEIR must be revised to include this reasonable and feasible mitigation measure.

0044-196
Continued

D. The DEIR Fails to Adequately Analyze the Project's Visual/Aesthetic Impacts.

Under CEQA, it is the state's policy to "[t]ake all action necessary to provide the people of this state with . . . enjoyment of aesthetic, natural, scenic, and historic environmental qualities." Pub. Res. Code § 21001(b). Thus, courts have recognized that aesthetic issues "are properly studied in an EIR to assess the impacts of a project." *The Pocket Protectors,* 124 Cal.App.4th at 937. To be adequate, an EIR must analyze a project's impacts on "view and other features of beauty." *Ocean View Estates Homeowners Assn., Inc. v. Montecito Water District* (2004) 116 Cal.App.4th 396, 401.

0044-197

Although the DEIR correctly notes that there will be significant and unavoidable impacts to visual and aesthetic resources, the document does not provide the comprehensive analysis necessary to accurately evaluate the severity and extent of the project-specific or cumulative impacts. In particular, the document fails to adequately describe the existing setting, to adequately analyze visual impacts that would be created for certain user groups, to adequately analyze cumulative impacts, or to identify feasible mitigation measures. As a result of these omissions, the DEIR "travel[s] the legally impermissible easy road to CEQA compliance . . . [by] simply labeling the effect 'significant' without accompanying analysis . . . ." *Berkeley Keep Jets Over the Bay Comm. v. Bd. of Port Comm'rs* (2001) 91 Cal.App.4th 1344, 1371.

0044-198

1. Because the DEIR Fails to Describe the Extent and Location of the Project, It Has Not Adequately Analyzed Its Visual Impacts.

Like other sections of the DEIR, the aesthetics section suffers as a result of the essentially programmatic nature of the Project. Because the DEIR does not disclose the extent or location of oil and gas development under the Project, the document fails to properly analyze its visual impacts. The DEIR admits as much, stating that visual impacts in some areas are simply uncertain and that the severity of the Project's aesthetic impacts "would depend not only on the reduction of unity, intactness, and vividness

0044-199

produced by the operation activities, but also on the visibility and proximity of these activities to viewers." DEIR at 4.1-35. Indeed, throughout the DEIR, it is clear that the preparers have given up any attempt to provide an accurate description of the visual impacts of the Project. Instead, the DEIR resorts to vague, hedged statements referring to possible future "scenarios" that "may occur." DEIR at 4.1-27 ("impacts are assessed for likely potential scenarios of oil and gas development that may occur"); DEIR at 4.1-28 (visual simulations "illustrate concepts for likely potential scenarios of oil and gas development that could occur"). 0044-199 Continued

In short, the DEIR acknowledges that, due to the uncertainties inherent in the Project itself, it has not predicted the potential impacts that the proposed oil and gas activities will have on aesthetics. But this cursory, generic approach is unlawful for a project-level EIR. Because there will be no further site-specific review for this 3,700 square-mile development project, discussing a mere handful of visual "concepts" simply does not suffice. CEQA requires "a good faith effort at full disclosure." *Kings County Farm Bureau,* 221 Cal.App.3d at 712. Here, the DEIR must identify *all* scenic landscapes and important user groups, and demonstrate the extent to which views will be impacted by the Project's maximum potential build-out. 0044-200

2. The DEIR Fails to Adequately Describe or Graphically Depict the Existing Aesthetic Setting.

One of the first steps in the process of determining visual impacts is to accurately depict the environmental setting. CEQA Guidelines § 15125. A description of the setting is necessary to determine the baseline against which the EIR must assess the impacts of a project. *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.4th 99, 119. The description of physical environmental conditions must include a local and regional perspective. CEQA Guidelines § 15125. Critically, it must also place special emphasis on environmental resources that are rare or unique to the region and that would be affected by a project. CEQA Guidelines § 15125(a). 0044-201

Here, the proposed Project area encompasses 3,700 square miles and includes most of the San Joaquin Valley floor. DEIR at 4.1-3. The Project encompasses a number of important preserves and open spaces including the Kern River Plan Area; Tule Elk Reserve State Park; portions of the Temblor Mountain Range; Kern National Wildlife Refuge; the southwestern most portion of the Sequoia National Forest; and a number of County parks. Considered some of Kern County's crown jewels, these areas offer spectacular scenery. 0044-202

Remarkably, the DEIR's aesthetics environmental setting discussion, which consists of a single paragraph, ignores these and other important visual resources. Instead, it describes the terrain of most of the Project area generically as "gently rolling with some hilly and steeply rolling terrain near the west, south and east boundaries of the Project area" and "mostly flat" in the central part of the Project area." DEIR at 4.1-4. It also states that "the predominant land uses and associated views are agricultural, oil and gas-related uses, and recreational and other open space. *Id.* While the DEIR acknowledges that there are wetlands and stream corridors, it provides no information regarding their location or visual character. *Id.* As a result, the DEIR's description is so vague as to be meaningless. 0044-203

The DEIR's treatment of the Kern River Plan area, which covers a 14,250-acre area along 35 miles of the river, illustrates the problem. The Kern River Plan describes the area as follows: 0044-204

> "The River has been described as the single most valuable visual resource in the southern San Joaquin Valley. The River provides visual relief to the relative flatness of the Valley. It provides prime habitat for countless forms of wildlife that make up part of the visual scene." Kern River Plan at 2f.
>
> "The Kern River is a landmark resource and is one of the major rivers of California. From its start at Gregory's Monument in Tulare County, and for much of its length, the recreational and scenic values of the River are recognized and protected by National Forests and Parks. Each year, these qualities draw visitors by the thousands to its banks." *Id.* at Chapter II at 1.
>
> "As it enters the dry environment of the southern San Joaquin Valley, the Kern River has inestimable visual and psychological value to the inhabitants of the region." *Id.*at Chapter II at 2.

The DEIR, on the other hand, presents a different view: its discussion of aesthetics environmental setting does not even mention the Kern River and its adjacent open space recreational areas. 0044-205

0044-205
Continued

The DEIR's failure to place any emphasis, much less special emphasis, on environmental resources like the Kern River area, the Tule Elk Reserve State Park, portions of the Temblor Mountain Range, the Kern National Wildlife Refuge, the southwestern most portion of the Sequoia National Forest, and various County and local parks, violates CEQA. *See* CEQA Guidelines § 15125. The DEIR also errs in failing to distinguish between distinctive areas that are visually scenic, such as the County's numerous uninterrupted agricultural and rangeland vistas, and areas that are highly disturbed or urbanized. Indeed, the DEIR's stark misrepresentation of the area's visual setting undermines the integrity of the entire visual impact analysis.

0044-206

3. The DEIR Fails to Analyze Impacts on Views to and from Numerous Public Parks and Scenic Open Spaces.

The proposed Project would result in several significant visual impacts, yet the DEIR analyzes none of them. To be adequate, an EIR must analyze impacts on views from public parks and trails. *See Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1605, 1607 (holding that a housing project could have significant aesthetic impacts if it would block views of the ocean from a public park); *Ocean View Estates Homeowners Assn.,* 116 Cal.App.4th at 402 (an EIR must analyze the project's visibility from public trails). The DEIR completely fails to meet this standard.

The DEIR all but ignores the Project's obstruction of views of the region's scenic and open space areas, as well as views from important recreational areas (e.g., Kern River Parkway, Tule Elk Reserve State Park; portions of the Temblor Mountain Range; the Kern National Wildlife Refuge; and southernmost portions of Sequoia National Forest, a number of County and local parks, and other open spaces). As discussed above, views of open space lands are treasured by area residents and visitors. Any obstruction of these open vistas would clearly constitute a significant impact but, here too, the DEIR provides only a generic discussion of impacts and never bothers to show how views of particular scenic resources would be affected. For example, the DEIR presents only one viewpoint looking towards the Temblor Range and no viewpoints from trails where hikers and equestrians would be looking outward to the valley. *See* Figure AES-C9.

Disregarding the importance of local aesthetics, the DEIR includes only ten key observation points for the entire 3,700 square-mile Project area. Six of these ten views are from roadways. Only three of the key observation points are taken from parks to simulate park users' experience, and one of these depicts views from an active use

0044-206
Continued

park, where enjoyment of scenic views is secondary to the activity. *See* DEIR Figures AES-C6 and AES-010. Figures AES-C1 and AES-C6, taken from Panorama Park and the Spring Wildflowers Trailhead in the Wind Wolves Preserve, are the only photographs that are not taken from a roadway. Yet the vantage point of these photographs is from a considerable distance; drill rigs proposed by the Project can barely be seen in the distant horizon. These photos are misleading to a reader of the DEIR, as they fail to disclose the proposed Project's proposal to allow oil and gas development directly adjacent to many public open space, recreational areas, and parks and the alarming aesthetic impacts such proximity will create. *See* DEIR Figure 4.10-2 (zoning map); Exhibit Aes 1 (depicting examples of existing oil wells near Highway 46). Further, the figures in Appendix G, Visual Resources Technical Report, which are supposed to provide the visual simulations of the proposed Project for this Project EIR, only provide images that are conceptual. For example, the notation on Figure AES-C3 in Appendix G states, "This simulation represents a concept design for potential development of oil and gas facilities based on data provided to the County by the Applicant. Facilities shown are generally to scale and representative of the general types and mix of facilities that could potentially be developed in this area; however, the precise density, locations, heights, colors, and mix of facilities will vary for the actual development." Without the provision of this information in the DEIR, the analysis of the project-specific impacts of the proposed Project related to aesthetics cannot possibly be provided.

With the exception of the two uninformative photos from Panorama Park and Spring Wildflowers Trailhead, the DEIR completely ignores vantage points from other open space lands, recreational areas, and County and local parks. For instance, the document never acknowledges more than a dozen parks that comprise the Kern River Parkway. Nor does it acknowledge County recreational areas such as the Buena Vista Aquatic Recreation Area, Camp Okihi, Stramler Park, Hart Memorial Park and numerous other parks in Kern County.

Although the Project would certainly interfere with the use and enjoyment of the open space, recreational areas, and parks, the DEIR fails to examine how users would be affected by the proposed Project. Attached is a list of some of the parks and recreational areas in the County that stand to be affected by the Project. See Exhibit Aes 2, maps of parks and recreational areas in the County. The DEIR must evaluate views from these and other parks and open space areas that would be impacted. The DEIR must address the following questions, at a minimum:

0044-206
Continued

* What scenic views and vistas are open to the public from the open space areas, recreational areas, and County and local parks in and adjacent to the Project Area?

* How are the scenic views and vistas at these locations being used by the public?

* Where do these scenic views and vistas, including trails, have the most prominent views of the Project Area and the proposed Project?

Only after these questions about the existing environmental setting are answered can the DEIR begin the hard work of actually analyzing the impacts related to visual aesthetics on the public pursuant to CEQA.

In short, given the proximity of the open space, recreational areas, and parks in the Project Area to the proposed areas of oil and gas drilling and production, the public that use these facilities will likely suffer a significant deterioration in their aesthetic experience. The DEIR's failure to identify any of these open space, recreational areas, and parks by name, to analyze their use related to scenic resources, or to provide text or photographs describing the views and scenic vistas of and from these areas, violates CEQA.

4. The DEIR's Mitigation Measures For Visual/Aesthetic Impacts Are Inadequate.

0044-207

CEQA's core mandate is that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." *Berkeley Keep Jets Over the Bay Comm.*, 91 Cal.App.4th at 1354 (quoting Pub. Res. Code § 21002). CEQA requires lead agencies to identify and analyze *all feasible mitigation*, even if this mitigation will not reduce the impact to a level of insignificance. CEQA Guidelines § 15126.4(a)(l)(A).

Here, the DEIR takes the approach of identifying the proposed Project's impacts to aesthetics as significant and identifying very limited mitigation measures that do little to minimize these, leaving the impacts as significant and unavoidable. The DEIR estimates that the Project would allow an average of 2,687 new producing wells to be drilled annually along with the construction of associated ancillary facilities in the Project Area. DEIR at 3-32. It also acknowledges that agricultural and open space areas with

0044-207
Continued

predominantly rural or natural aesthetic character "could be converted to a predominantly industrial developed character . . . ." *Id.* The document goes on to conclude that these impacts are significant. DEIR at 4.1-41.

Yet, the proposed mitigation does little to address the addition of oil and gas facility construction activities and the ongoing operation of production facilities to the rural characteristics of the agricultural and open space lands in the Project Area. For example, Measure MM 4.1-1 requires applicants to use existing roads "whenever possible" and generally calls on the applicant to "minimize the amount of disturbance." This measure, which includes no performance standards, is impermissibly vague. CEQA Guidelines § 15126.4. It must be revised to detail a maximum square footage of new roads per parcel in order for the DEIR to rely on it to reduce the proposed Project's aesthetic impacts.

Measure MM 4.1-2 requires that all equipment be removed from drilling sites within 90 days after completion of work. *Id.* The DEIR, however, describes construction periods that range from several weeks to several years. DEIR at 4.1-30. This measure does little to relieve the burden of visual impacts on area residents and recreational area and park users, as it does nothing to limit the number of operations in any given area or to regulate where they are located. The remaining three measures require only that applicants comply with existing laws. DEIR at 4.1-41. However, complying with existing laws is not mitigation. The DEIR provides no evidentiary support that the proposed measures would effectively reduce impacts to visual character.

Under CEQA, an EIR is inadequate if it fails to identify feasible mitigation measures, or if its proposed mitigation measures are so undefined that it is impossible to evaluate their effectiveness. *San Franciscans for Reasonable Growth,* 151 Cal.App.3d at 79. The County must revise its aesthetic mitigation measures to ensure they are clearly defined, enforceable, and can achieve some effectiveness to reduce the significant and unavoidable impacts to aesthetics.

The County must also identify additional feasible mitigations to reduce the impacts to the extent possible. Additional feasible mitigation measures include the following:

- Limit the number of drilling operations at any one time in the scenic viewsheds of the Project Area's open space, recreational areas, and parks.

0044-207
Continued

- To minimize the significant impacts due to the changes in the visual characteristics in the Project Area, increase the setbacks between oil drilling construction and operations and existing residents to a minimum of 1,000 feet.

- Create setbacks for oil drilling construction and operations from public open space, recreational areas, and parks.

- Limit oil and gas operations to areas outside the sensitive viewsheds open to the public from open space areas, recreational areas, and County parks.

- Cluster drilling operations to minimize obstruction of sensitive viewsheds and reduce the effects of the changes in the visual rural characteristics in the Project Area.

- Enforce height limits for drilling rigs and pumping units and other structures, such as tanks, in sensitive viewsheds.

0044-208

5. The DEIR Fails to Adequately Analyze the Cumulative Visual/Aesthetic Impacts.

Not surprisingly, the DEIR's analysis of cumulative visual/aesthetic impacts is also flawed. Under the CEQA Guidelines, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts" CEQA Guidelines § 15130(a)(1). Because "[c]umulative impacts can result from individually minor but collectively significant projects" (CEQA Guidelines 15355(b)), an impact that appears less than significant (or mitigable to such a level) when only the project is scrutinized may turn out to contribute to a significant cumulative impact. In that case, the EIR must determine whether the project's contribution is "cumulatively considerable," that is, whether its "incremental effects . . . are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." CEQA Guidelines § 15065(a)(3).

Here, the DEIR's analysis of cumulative impacts betrays an essential misunderstanding of the concept of cumulative impacts. First, the DEIR fails to employ either of the methods for conducting such an analysis as required under CEQA. Section 15130(b) of the CEQA Guidelines requires that the discussion of cumulative impacts include either of the following elements:

0044-208
Continued

> (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or
>
> (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

The DEIR claims to have used the plan/projection approach to cumulative analysis, and refers to both the Kern County General Plan and the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) approved in 2014. DEIR at 3-78. Yet, the DEIR fails to summarize any projections that these documents may have made regarding the extent of future industrial development in the County. Nor does the DEIR identify any description or evaluation in these documents of regional development conditions contributing to cumulative aesthetic impacts as CEQA requires. The reader is left completely in the dark as to what these plans might actually say about this crucial subject. *See* DEIR at 3-78, 4.1-50, 4.1-51.

Not only does the DEIR fail to disclose any projections, but the DEIR also conducts no cumulative impacts *analysis* that would inform the public and decision-makers what the addition of 67,425 new wells, in combination with other industrial projects projected for the County, would look like. The DEIR simply states the obvious: the Project, "in combination with the implementation of other reasonably foreseeable plans, will continue to result in visible changes within Kern County . . . and some may view these visual changes as adverse aesthetic impacts." DEIR at 3-30.

The DEIR also fails to include in its cumulative impacts analysis other obvious plans and projects. For instance, it does not consider the County's numerous Specific Plans that allow for oil and gas and industrial development. Nor does it consider any projections for the reactivation of thousands of idle wells throughout the County and the new drilling and pumping equipment associated with those reactivations.

The DEIR also ignores the quickly-expanding number of industrial renewable energy projects in Kern County. Kern County has recently approved or is considering for approval 23,247 acres of industrial solar projects and 4,211 acres of industrial wind projects. *See* Exhibit Aes 3 (Master Kern Solar Project List); Exhibit Aes 4 (Master Kern Wind Project List). In addition, the Desert Renewable Energy

0044-208
Continued

Conservation Plan will streamline renewable energy project development in the eastern portion of Kern County. *See* Exhibit Aes 5 (Draft DRECP Executive Summary, full Plan and DEIR are available at http://www.drecp.org/draftdrecp/). The DEIR must consider how this booming renewable energy development will contribute to the Project's significant degradation of Kern County's scenic landscapes.

The DEIR's failure "to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process." *Kings County Farm Bureau,* 221 Cal.App.3d at 712; *see also* § 21005. In *Kings County Farm Bureau,* the cumulative impacts analysis for a proposed cogeneration facility considered only 30 projects in the mid-San Joaquin Valley area even though the administrative record showed that some 116 projects were planned in the entire San Joaquin Valley. *Id*. at 724. The court held that "[b]ecause the record does not provide information regarding similar energy developments in the San Joaquin Valley air basin, the agency could not, nor can we, determine whether such information would have revealed a more severe impact. Accordingly, the EIR is inadequate. To conclude otherwise would place the burden of producing relevant environmental data on the public rather than the agency and would allow the agency to avoid an attack on the adequacy of the information contained in the report simply by excluding such information." *Id.* The court also found that the EIR's treatment of cumulative impacts on water resources was inadequate because the document contained "no list of the projects considered, no information regarding their expected impacts on groundwater resources and no analysis of the cumulative impacts." *Id*. at 728-29; *see also San Bernardino Valley Audubon Society v. Metropolitan Water Dist. of Southern Cal.* (1999) 71 Cal.App.4th 382, 386, 399 (holding a "summary discussion of cumulative impacts is inadequate"). Similarly here, the DEIR fails to provide sufficient information regarding other projects in the County that degrade aesthetic resources.

Moreover, the DEIR neglects to identify feasible mitigation for the Project's cumulative visual impacts. As noted above, an EIR must propose feasible, effective measures to mitigate every significant impact. *San Franciscans for Reasonable Growth*, 151 Cal. App. 3d at 79. The revised DEIR must include an analysis of, and mitigation for, the Project's cumulative impacts upon visual and aesthetic resources.

E. The DEIR Does Not Adequately Analyze or Mitigate the Project's Noise Impacts.

0044-209

The Project will generate both construction-related and operational noise. DEIR at 4.12-18 to -21. Among other noise-producing activities, the Project will include:

0044-209
Continued

truck traffic; land clearing and grading; access road construction; well drilling, maintenance and repair; well stimulation; and well decommissioning and abandonment activities. DEIR at 4.12-16 to -17. These activities will variously require the use of heavy equipment such as graders, bulldozers, drilling rigs, and truck-mounted pumps, and associated power-generation equipment, all of which will result in noise impacts. *Id.* Moreover, the construction, maintenance, and drilling activities will be anything but temporary. The DEIR admits that "staggered development of multiple wells or other oil and gas facilities within a particular area could occur over the course of *several years*." DEIR at 4.12-17 (emphasis added).

The World Health Organization recognizes noise as a serious public health problem. *See, e.g.,* excerpts from Traffic Noise Reduction in Europe, attached as Exhibit Noise 1. Given the severity and duration of the Project's potential noise impacts, coupled with the public health effects that elevated noise levels have on nearby residents, the DEIR should have rigorously examined this issue. Unfortunately, the document's analysis of noise impacts is replete with errors and critical omissions. The September 9, 2015 Report by Charles M. Salter and Associates, attached as Exhibit Noise 2 ("Salter Report"), provides additional comments on the shortcomings in the DEIR's noise analysis, the most troubling of which are briefly described here.

1. The DEIR Does Not Analyze the Project's Impacts Against the Existing Environmental Setting, as Required by CEQA.

0044-210

Although the DEIR describes existing noise conditions, it does not analyze the Project's impacts against them. Instead, it measures impacts against a regulatory noise standard. This approach has been soundly rejected by Courts. *See, e.g., Environmental Planning & Information Council v. County of El Dorado* (1982) 131 Cal.App.3d 350 (EIR inadequate where the document compared the project's impacts against the existing general plan, rather than the existing environment); *Communities for a Better Environment,* 48 Cal.4th at 320-23.

0044-211

The DEIR purports to evaluate whether the Project will result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project. DEIR at 4.12-25 (Impact 4.12-3). However, its actual analysis does not provide that evaluation. Rather, the DEIR states that "[a] substantial permanent increase in ambient noise levels would occur if noise levels increase in excess of 65 dBA CNEL." *Id.* The DEIR evidently derives the 65 dB CNEL[4] criterion from the

[4] CNEL stands for Community Noise Equivalent Measure.

0044-211
Continued

standards set forth in the County's General Plan, although the DEIR does not specify as much. *See* DEIR at 4.12-11 to -13 (setting forth the goals and policies of the County General Plan's noise element, as background). However, 65 dB CNEL is not a measurement of the "level[] existing without the Project." DEIR at 4.14-25 (initial caps omitted). In other words, the County deftly replaces the actual, measured ambient noise levels with a manufactured baseline of 65 dB. This maneuver dramatically inflates the purported existing ambient level without the Project and thereby results in a failure to identify or analyze significant noise impacts. Exhibit Noise 2 at 2-3. The DEIR then finds that although there is potential for permanent ambient noise levels to increase beyond 65 dB CNEL, the 190-foot setback requirement will mitigate this impact to a less than significant level. DEIR at 4.12-25 (impacts would be less than significant after implementing MM 4.12-1).

As the Salter Report explains, even if the proposed mitigation were to successfully reduce ambient noise levels to 65 dB CNEL (which it will not), the Project would still result in a projected increase of more than 20 dB over existing ambient noise levels in some areas of the County. Exhibit Noise 2 at 3-4. To put this in perspective, a 5dB increase in ambient noise levels is easily perceptible and treated in many jurisdictions as a significant impact. Exhibit Noise 2 at 4; *see also* DEIR at 4.12-12 (City of Bakersfield noise standard states that a 5 dB increase over the existing ambient noise level, where the existing ambient level is less than 60 dB CNEL, is significant). It is therefore inexcusable that the County could ignore this enormous increase in noise. Yet that is exactly what the DEIR's approach achieves. And, while the day-night average noise level may increase by more than 20 dB, the daytime construction hourly noise level and the nighttime hourly noise level may increase even more—by more than 32 and 35 dB, respectively. Exhibit Noise 2 at 3. The County cannot ignore this significant increase permanent increase in ambient noise levels existing without the Project.

Similarly, the DEIR's purported analysis of temporary or periodic increases in ambient noise levels does not measure the Project-related noise level increases against existing ambient noise levels. DEIR at 4.12-26 to -28 (Impact 4.12-4). Again, the DEIR appears to measure this impact against a 65 dB CNEL standard, although even that is unclear. *See* DEIR at 4.12-27 ("sensitive noise receptors could hear construction noise and these noise levels would be in excess of 65 dBA CNEL"). Again, the DEIR manages to find that impacts would be less than significant with mitigation. DEIR at 4.12-28. The DEIR also states that "[o]il well operation for extraction purposes typically would not result in substantial temporary or permanent increases in ambient noise levels," citing

0044-211
Continued

Table 4.12-9.[5] *Id.* But Table 4.12-9 does not address ambient noise levels; it simply estimates the distance from well production noise sources to 50, 55, and 60 dB noise contours. DEIR at 4.12-20. Thus, the County has no basis for determining what this impact is, let alone whether it will be significant.

The County's failure to analyze the Project's noise impacts against a baseline of existing environmental conditions is a glaring violation of CEQA, and undermines the DEIR's entire discussion of noise impacts and mitigation. *Communities for a Better Environment* is instructive. 48 Cal.App.4th 310. In that case, the agency attempted to use the total air emissions a refinery was allowed under an existing permit as the baseline for analyzing the impacts of expanding the refinery' operations, even though the refinery was in fact emitting below permitted levels. The California Supreme Court rejected this approach. Citing the CEQA Guidelines and quoting the extensive caselaw on this issue, the Court held that the baseline of "existing physical conditions in the affected area" meant "real conditions on the ground . . . rather than the level of development or activity that *could* or *should* have been present according to a plan or regulation." *Id.* at 321 (internal quotation marks and citations omitted; emphases in the original). Thus, the County failed to comply with CEQA by considering the Project's impacts only against a 65 dB CNEL standard, and not against existing ambient noise levels in the Project area. *See also Berkeley Keep Jets Over the Bay Com.*, 91 Cal.App.4th at 1381 (EIR's noise analysis was inadequate where the threshold would allow the project to increase noise levels up to 64.9 dB CNEL without necessitating a finding of significant impact).

2. The DEIR Fails to Analyze Single-Event Noise.

0044-212

Another egregious oversight is the DEIR's failure to evaluate single noise events. The DEIR analyzes the Project's potential impacts only in terms of averaging metrics.[6] The Project, however, will result in construction activities and truck passbys that will give rise to intermittent single-event noise. Exhibit Noise 2 at 6. The DEIR should have evaluated the effect that single noise events from traffic, construction, and

[5] In fact, the DEIR cites to Table 4.2-9, but we assume that this is an error and that the DEIR intended to cite to Table 4.12-9. Table 4.2-9 addresses acreage of agricultural land and is unrelated to the noise analysis.

[6] The DEIR variously uses both CNEL and Day-Night Average Noise Level ("DNL"). Both are averaging metrics and the distinctions between CNEL and DNL are minor and not relevant here.

0044-212
Continued

operation activities will have on the communities in the Project area. Yet, rather than analyze how these single-noise events will affect receptors, the DEIR focuses only on average noise.

California courts have rejected using only this "averaging" approach because affected residents do not hear noise averages, but single events. *See Berkeley Keep Jets Over the Bay Com.,* 91 Cal.App.4th at 1382. Single-event noise levels have been shown to result in sleep disruption and speech interference, as well as heightened levels of stress and annoyance. Noting that "sound exposure level [a non-averaging metric] has been found to be the most appropriate and useful descriptor for most types of single event sounds," the court in *Berkeley Keep Jets Over the Bay Com.* held that the EIR was incomplete without a supplementary noise analysis. *Id.* Accordingly, the DEIR must analyze the impacts of single event noise on sleep, speech, stress and annoyance levels, and propose measures to mitigate those impacts.

3. The DEIR Fails to Adequately Analyze Nighttime Noise Impacts.

0044-213

Noise can be far more intrusive during the evening and nighttime hours, when ambient noise levels are at their lowest and when sensitive receptors are sleeping. Since the surrounding area is quieter at these times, the masking effect of other noise does not screen the noise. This phenomenon is especially prevalent in rural areas of Kern County, where the measured nighttime hourly noise level is as low as 25 dB. Exhibit Noise 2 at 3. The DEIR should have taken into account this higher sensitivity to noise and evaluated how the increase in noise from the Project, including truck trips and construction activities, would affect receptors during these sensitive time periods. As the Salter Report explains, even assuming the proposed mitigation is effective, the Project would still result in increases of over 35 dB over existing nighttime hourly ambient noise levels. Exhibit Noise 2 at 3-4. The County must correct this deficiency.

4. The DEIR Fails to Analyze Impacts to Interior Noise Levels.

0044-214

The DEIR also improperly omits analysis of noise impacts on interior noise levels. Although the Kern County General Plan Noise Element establishes an interior noise standard of 45 dB or less for sensitive receptors, DEIR at 4.12-8, -9, -12, the DEIR provides no indication of whether the Project's noise impacts will meet or exceed this standard. This is a key omission. As the Salter Report explains, residential facades with open windows can be expected to reduce sound only by 12 to 15 dB. Exhibit Noise 2 at 6. The County only attempts to mitigate sensitive receptors' exposure to exterior sound

levels above 65 dB. Therefore, interior sound levels may reach up to 50 dB, well in excess of the County's 45 dB interior noise standard. Exhibit Noise 2 at 6. The DEIR must evaluate the Project's effect on interior noise levels and identify appropriate mitigation.

0044-214
Continued

5. The DEIR Ignores Its Own Thresholds of Significance for Vibration Impacts.

0044-215

The DEIR's analysis of vibration impacts is also flawed. The DEIR establishes a threshold of significance for vibration from the Project, but completely ignores this threshold when analyzing the Project's impacts. DEIR at 4.12-23 to -25.

0044-216

The Project will result in groundborne vibration from construction activities and geophysical surveys during oil and gas exploration, which could affect buildings, businesses, or other sensitive receptors. DEIR at 4.12-23. These activities include detonating blast charges underground (the "shothole method") and intentionally generating ground vibration from truck-mounted units ("vibroseis"). *Id*. These latter two activities will result in "typical" vibration levels that will exceed the state guidelines for vibration annoyance and damage potential criteria. *Compare* DEIR at 4.12-24 (Table 4.12-10) *with* DEIR at 4.12-8 (Tables 4.12-5 and 4.12-6). For example, Table 4.12-10 discloses that a 13.2 lb shothole charge will result in groundborne vibration of more than 2.25 PPV at 100 feet, which exceeds the state guidelines' threshold of 2.0 PPV for "severe" annoyance potential and damage to modern industrial/commercial buildings. *Id.* Nonetheless, the DEIR finds, surprisingly, that no mitigation is required, and that impacts will not be significant. DEIR at 4.12-25.

No evidence supports the above conclusion. The DEIR suggests (but does not require) that operators will not set charges less than 300 feet away from structures. DEIR at 4.12-24 (noting that "operators generally follow" U.S. Dep't of Interior's Blasting Guidance Manual, and that "operators generally set charges at least 300 feet from water wells and engineered structures unassociated with oil and gas development.") This suggestion is no substitute for enforceable mitigation, and does nothing to ensure that nearby residents and property owners are actually protected from vibrational effects. *See* Pub. Res. Code § 21081.6(b); CEQA Guidelines § 15126.4(a) ("Mitigation measures must be fully enforceable through permit conditions, agreements, or legally binding instruments."). And, even at 300 feet, some types of shothole blasting would be distinctly perceptible and could cause damage to fragile buildings. *Compare* DEIR at 4.12-24 (Table 4.12-10) *with* DEIR at 4.12-8 (Tables 4.12-5 and 4.12-6); *see* Exhibit Noise 2 at 6.

0044-216
Continued

By ignoring the thresholds of annoyance and damage and dismissively concluding that the Project's vibration impacts will be less than significant without mitigation, the DEIR violates CEQA.

0044-217

6. The DEIR's Proposed Mitigation for Noise Impacts Is Inadequate.

The DEIR provides insufficient evidence to conclude that the mitigation measures proposed for the Project will actually reduce its noise impacts to a less than significant level. Accordingly, sensitive receptors in the County will be exposed to significant noise impacts that could have been avoided or reduced. As explained above, the DEIR uses the incorrect baseline for analyzing the Project's noise impacts. Consequently, the proposed mitigation measures do not even attempt to mitigate for significant impacts to sensitive receptors that nonetheless fall outside the 65 dB CNEL contour. Exhibit Noise 2 at 3-5. Thus, there is no basis for the DEIR to conclude that reliance on these measures will mitigate impacts 4.12-3 and 4.12-4 (permanent or temporary substantial increase in ambient noise levels) to less than significant levels. *Id.*

What's more, the noise consultant hired by the County for the Project determined the "minimum distances between the activity and a noise-sensitive use that must be achieved so that applicable thresholds of significance will not be exceeded." Noise Technical Report at 17. These distances, which are summarized in the Table X of the Noise Technical Report (*id.*), should form the basis for concrete setback requirements included as mitigation in the DEIR. Yet instead of adopting these distances as setbacks, which would ensure that all activities meet the 65 dB CNEL noise standard, the County largely ignores them. The only true setback proposed is 190 feet—far shorter than the distances listed in column 2 of Table X.[7] To satisfy CEQA's requirements, the County must propose concrete, enforceable mitigation, including effective setbacks, to reduce the Project's significant noise impacts.

[7] Only the 55 dB setback distances, identified in column 2 of Table X, can ensure compliance with the 65 CNEL standard. Noise Technical Report at 17 ("The 60 dB contour also correlates to the distance where the activity could exceed the County's 65 dB DNL exterior noise levels standard. It is noted that compliance with the County's 65 DNL threshold of significance is assured only if the hourly thresholds described above (50 dB and 55 dB) are not exceeded.").

Finally, the DEIR proposes that applicants "[a]rrang[e] for the voluntary, temporary relocation of the occupants of the sensitive receptor during the construction period." This proposed mitigation should be removed as it is not feasible to assume that residents within 3,000 feet of a construction site could be relocated from their homes for an undefined length of time, and possibly numerous times over the life of the Project.

0044-217
Continued

F. The DEIR Does Not Adequately Analyze or Mitigate the Project's Transportation and Traffic Impacts.

0044-218

The DEIR's analysis of Project-related traffic impacts contains numerous deficiencies that must be remedied in order for the public and decision-makers to fully understand the Project's impacts. These flaws stem from the DEIR's failure to properly describe the Project or the location of current and projected Project activities. Additionally, the DEIR's analysis of traffic impacts is incomplete and confusing, making it impossible to determine whether the analysis is valid.

0044-219

Specifically, the evaluation of the Project's transportation and traffic impacts: (1) uses a level of service ("LOS") analysis that fails to identify the extent and severity of significant impacts; (2) relies on unsubstantiated assumptions; (3) relies on inappropriate methods and erroneous data; (4) fails to identify and mitigate significant impacts; (5) fails to consider the safety effects of truck traffic; (6) provides a deficient safety analysis; (7) fails to adequately analyze impacts to pedestrians and bicyclists; and (8) provides a deficient analysis of the Project's impacts on emergency access. These issues are discussed in greater detail in the Letter from Neal Liddicoat, MRO Engineers, to Carmen Borg, September 8, 2015 ("MRO Report"), attached as Exhibit Trans 1. Rather than reiterate all of the points in the MRO Report, we summarize the main points below.

0044-220

0044-221

In addition to the above deficiencies, we note a critical, over-arching flaw in the DEIR. The transportation analysis in the DEIR is based on information presented in the March 2015 traffic and transportation impact report prepared by Ruettgers & Schuler Civil Engineers ("R&S Report"), which is provided as DEIR Appendix W. Remarkably, however, the DEIR itself includes very little of the R&S Report's analysis. Additionally, the DEIR's graphs of the traffic volumes evaluated are illegible. Exhibit Trans 1 at 5. The DEIR thus fails to provide sufficient documentation to allow for an independent assessment of its traffic analysis. *See* Exhibit Trans 1.

This confused approach to environmental review does not meet CEQA's minimum requirements. California courts require that an agency's analysis be presented

0044-221
Continued

in the EIR. *See Santa Clarita Organization for Planning the Environment v. County of L.A.* (2003) 106 Cal.App.4th 715, 722 (agency's analysis must be contained in the EIR, not "scattered here and there in EIR appendices"). Decision-makers and the general public should not be forced to sift through obscure minutiae or appendices in order to ferret out the fundamental assumptions that are being used for purposes of the environmental analysis. *County of Merced*, 149 Cal.App.4th at 659; *see also Vineyard Area Citizens for Responsible Growth, Inc.,* 40 Cal.4th at 442 ("The data in an EIR must not only be sufficient in quantity, it must be presented in a manner calculated to adequately inform the public and decision makers, who may not be previously familiar with the details of the project."). Because only select portions of the analysis actually appear in the DEIR, and because the report itself cannot be understood by a layperson and contains errors, the DEIR fails in its role as a public informational document.

0044-222

1. The DEIR's Analysis of Level of Service Fails to Describe the Extent and Severity of Significant Impacts.

The DEIR appears not to have analyzed "existing plus project" traffic conditions. Typically, a traffic analysis provides intersection and roadway segment LOS results for multiple scenarios including: existing conditions; existing plus project conditions; cumulative no project conditions; and cumulative plus project conditions. This information allows the public and decision-makers to understand the magnitude of the project's incremental impact on traffic operations under each condition. But, as the MRO Report explains, the DEIR appears not to have analyzed the "existing plus project" traffic conditions, or to have analyzed them without presenting the data as part of the DEIR. Exhibit Trans 1 at 2-3. Neither the DEIR nor the R&S Report explains what analysis *was* performed. Exhibit Trans 1 at 2.

The DEIR presents tables of intersection and roadway segment impacts and mitigation measures, but these tables do not include "existing plus project conditions." R&S Report at 80-92. Moreover, the DEIR provides limited additional information. For example, the DEIR indicates that impacts at certain intersections and roadway segments would be significant simply by designating the impacts with an "x". But by omitting existing level of service values, the DEIR makes it impossible to gauge the extent and severity of the Project's impacts on intersection and roadway operations. See DEIR Table 4.16-12 at 4.16-46.

The DEIR's analysis of traffic impacts is also inadequate. It indicates that several signal-controlled intersections will have an *improved* LOS after the addition of Project traffic under 2035 conditions. Exhibit Trans 1 at 9; R&S Report Tables 2 and 3 at

4.16-42 to 4.16-45. Although it is occasionally possible for an intersection with no signals to experience reduced delays with additional traffic, the same is not true of signal-controlled intersections. Exhibit Trans 1 at 10. The LOS calculations are therefore erroneous.

0044-222
Continued

The DEIR's failure to provide the detailed delay and LOS results for the key "Existing plus Project" scenario conceals the Project's incremental impact on traffic operations. One of the "basic purposes" of CEQA is to "[i]nform governmental decision makers and the public about the potential, significant environmental effects of proposed activities". CEQA Guidelines § 15002(a)(1). CEQA additionally requires "adequacy, completeness, and a good-faith effort at full disclosure" in an EIR. *Id*. § 15003(i). The DEIR's analysis of the Project's traffic impacts fails to meet these standards.

2. The DEIR's Traffic Analysis Relies on Unsubstantiated Assumptions.

0044-223

The DEIR's traffic analysis is further flawed because it relies on a number of unsubstantiated assumptions. Exhibit Trans 1 at 2-5. The DEIR bases its trip generation estimates on suspect assumptions, calling into question whether they provide a reasonable, conservative estimate of Project-related traffic. Exhibit Trans 1 at 3. For example, in several cases, the DEIR describes a range of potential assumptions associated with a particular activity or operation. In those cases, a conservative estimate would require use of the highest assumption. Instead, the DEIR uses values near the midpoint of the range. Exhibit Trans 1. The County may not cherry-pick its data in this manner. As explained in the MRO Report, because the DEIR provides none of the data used to derive the assumed values used in the analysis, it is impossible to judge whether these values are appropriate. *Id*.

Similarly, the DEIR relies on questionable traffic forecast assumptions. MRO Report at 6. Here too, the DEIR employs the mid-point of the available range of growth-rates of oil and gas activities where it may be inappropriate. The DEIR discloses that actual annual growth rates range from 0.72 percent to 0.81 percent (*id*.), but uses a growth rate of 0.76 percent. Nowhere does the DEIR justify its use of the mid-point range. Again, a conservative analysis would employ a value at or near the top end of the growth factor range.

In another example, the DEIR's estimate of Project trip generation assumes an average vehicle occupancy rate of 1.5 people per vehicle. Exhibit Trans 1 at 5. This rate is not based on any source commonly used for these types of estimates, such as the

0044-223
Continued

Federal Highway Administration, United States Census, or Caltrans. *Id*. These agencies have documented average vehicle occupancy rates ranging from 1.10 to 1.15. In comparison, the DEIR's occupancy rate of 1.5 is 30-35 percent higher than commonly used rates, resulting in estimated trips that are approximately 30 percent lower. The DEIR thus underestimates car and truck trips by thousands of trips. *Id*.

Traffic volumes are the most critical input parameter in evaluating LOS. If the traffic analysis uses inaccurate numbers, it will misrepresent the project impacts. Because the DEIR here uses questionable assumptions that likely underestimate future traffic impacts, it must be revised to either substantiate its assumptions and/or to reflect the corrected analysis. Moreover, as discussed further below, because traffic volumes inform the DEIR's analysis of air quality, noise, and greenhouse gas impacts, those analyses are compromised by the defective traffic analysis and must also be revised.

0044-224

3. The DEIR's Traffic Analysis Employs Inappropriate Methodology and Presents Erroneous Data.

The DEIR employs analytical methods that are unsuitable for a project of this type and scale. Specifically, the DEIR analyzes roadway segment LOS impacts using the volume/capacity ("V/C") ratio. *See* Exhibit Trans 1 at 12-14. This type of V/C analysis is typically used only in the most broad-brush planning analyses. The DEIR should use the more informative, state-of-the-art methodology for two-lane highways documented by the Highway Capacity Manual (Transportation Research Board, 2010). *Id*. The Highway Capacity Manual's prescribed method incorporates input parameters and procedures that reflect the actual physical characteristics of the roadway (e.g., shoulder width, terrain, hourly vehicle volume, etc.). Use of this method, which is industry standard, would yield a more accurate indication of operating conditions on two-lane highways throughout the County. *Id*. Because the County intends not to conduct CEQA review for future Project operations, its use of the overly simplistic V/C analysis is inappropriate.

The DEIR's traffic analysis also presents clearly erroneous information. For example, DEIR Table 4.16-17 presents information on the "Project % Share," which identifies the proportion of the total improvement cost attributed to the Project. Exhibit Trans 1 at 17-18; DEIR at 4.16-53 to 4.16-76. Although the R&S Report clearly indicated how these values are derived, several of the calculations contain errors, such as project-share values that exceed 100 percent.

0044-224
Continued

The Project-share figures also arbitrarily assign a 1.00 percent share to more than half of the roadway segments where the volume of project-related traffic is apparently unknown. Exhibit Trans 1 at 18. This approach is problematic because the non-primary and non-secondary roads to which this default share has been applied are most likely low-volume roads, where even a small volume of project traffic might represent a substantial percentage of the total of volume, in which case, the project's fair share would be significantly higher than 1.00 percent. *Id*. The result is that the DEIR provides misleading information about the magnitude of the project's impacts countywide.

0044-225

4. The DEIR's Traffic Analysis Fails to Identify and Adequately Mitigate Significant Impacts.

The DEIR establishes that the Project would result in a significant impact if Project traffic reduces the LOS to below standard D. DEIR at 4.16-45. The R&S Report reveals that several Project area intersections will meet this significance threshold. Exhibit Trans 1 at 10-11; R&S Report at Tables 2 and 3. Yet the DEIR does not identify these impacts as significant and thus fails to mitigate them.

The County's significance criteria for traffic impacts will allow most roadways in the County to operate at LOS F. DEIR at 4.16-45; Exhibit Trans 1 at 7. As explained in the MRO Report, LOS F is defined as the worst possible roadway system operation, representing a condition under which traffic demand exceeds the capacity of the intersection or roadway. For signal-controlled intersections, LOS F means that the average driver would be delayed for over 80 seconds. At a stop sign, a driver would be delayed for over 50 seconds. *Id*.

Yet, under the County's criteria, no matter how much congestion exists or how much intersection and traffic operations are impacted, they will still be defined as LOS F as there is no lower LOS category. Because it will be impossible to have an impact that is deemed significant, no form of mitigation will be identified and implemented. As a result, this policy will ensure the presence of substantial traffic congestion within the study area and could even result in the creation of hazardous conditions. Exhibit Trans 1 at 7.

Even where the DEIR does disclose significant intersection and roadway LOS impacts, it fails to provide adequate mitigation. Exhibit Trans 1 at 11. While the DEIR identifies "improvements needed" for each affected intersection and roadway (R&S Report at 80-92), the Project's mitigation program does not incorporate any of

0044-225
Continued

these improvements. Exhibit Trans 1 at 11. Consequently, none of the significant impacts on traffic are mitigated and traffic operations in the study area will deteriorate to unacceptable levels. Id. The DEIR must revise the analysis to identify all significant impacts and identify mitigation measures to fully address the impacts. See Pub. Res. Code § 21002 (lead agency must adopt all feasible mitigation measures that can substantially lessen a project's significant impacts).

0044-226

5. The DEIR's Safety Analysis Is Inadequate.

a. Traffic Safety

The DEIR's analysis of traffic safety conditions is inadequate and incomplete. A valid safety analysis must develop and compare accident rates, measured in collisions per million-vehicle-miles, for key roadway segments. The R&S Report discloses that "historical activity indicates that such issues (conflicts and accidents) may arise periodically," but it fails to include a complete assessment. R&S Report at 93. The R&S Report recommends a mitigation measure to address the identified impact, but the DEIR declines to incorporate this recommended mitigation. Exhibit Trans 1 at 18-19. The DEIR must be revised to include a detailed analysis of Project-related safety impacts and to identify and adopt needed mitigation measures.

0044-227

b. Truck Safety

The DEIR indicates that a substantial portion of Project-generated traffic will consist of heavy trucks. R&S Report at 79. Specifically, as much as ten percent of "oil and gas traffic" will consist of heavy trucks and over half of those will be trucks with four or more axles. *Id*. Nonetheless, the DEIR includes no discussion or analysis of auto-truck conflicts and the potential safety issues associated with mixing automobile traffic with a considerable amount of heavy vehicle traffic. This is a substantial deficiency in the DEIR. A revised EIR must correct this deficiency.

0044-228

c. At-Grade Railroad Crossing Safety

The Project area is served by both passenger and freight rail service, but the DEIR does not describe the amount of rail traffic passing through the study area. DEIR at 4.16-24; Exhibit Trans 1 at 19. With mainlines for two railroads passing through the area, it is likely that numerous at-grade crossings of streets and highways exist and each of those represents potentially hazardous conditions. As explained in the MRO Report, Project-generated traffic on area road systems will result in increased conflicts between

cars and trains. Exhibit Trans 1 at 18. The DEIR fails to evaluate the serious safety issues associated with at-grade rail crossings.

0044-228
Continued

0044-229

6. The DEIR Fails to Adequately Analyze Impacts to Pedestrians and Bicyclists.

The DEIR's thresholds of significance for impacts to pedestrian and bicycle facilities address the potential for the Project to "decrease the performance or safety of such facilities." DEIR at 4.16-45. However, the DEIR ignores Project elements that could lead to significant operational and safety-related impacts throughout the County as the Project is implemented. Under these circumstances, pedestrians and bicyclists are more likely to be exposed to unsafe conditions, as frustrated motorists become impatient and make poor decisions. The substantial increase in truck traffic associated with the Project will also increase safety risks for pedestrians and bicyclists. As the MRO Report points out, it is essential that the DEIR include a meaningful analysis of the Project's impacts on alternative modes of transportation. The DEIR contains no such analysis.

0044-230

7. The DEIR Fails to Adequately Analyze the Project's Impacts on Emergency Access.

The DEIR admits that implementing the Project could interfere with emergency access throughout the study area. DEIR at 4.16-80. It then relies on Mitigation Measure MM 4.16-2, which calls for the preparation of a Construction Traffic Control Plan, to reduce emergency access impacts to less than significant levels. *Id*. However, this mitigation measure only applies during the construction process. DEIR at 4.16-77. Consequently, it does not address impacts for the duration of the Project.

The County's significance criteria for traffic impacts will allow most roadways in the County to operate at LOS F. DEIR at 4.16-45; Exhibit Trans 1 at 6. As a result, the County's future roadways will not provide adequate emergency access. Roads operating at LOS F will be clogged with traffic, which will impede all traffic, including emergency vehicles, resulting in delays in emergency response times. Delays in response times can translate directly to patient fatalities. The DEIR ignores this significant impact, in violation of CEQA.

G. The DEIR's Analysis and Mitigation of Climate Change Impacts Are Inadequate.

0044-231

The DEIR's analysis of climate change impacts is seriously flawed. The law is clear that lead agencies must thoroughly evaluate a project's impacts on climate change under CEQA. *See Communities for a Better Env't v. City of Richmond* (2010) 184 Cal.App.4th 70, 89-91. In 2007, the state Legislature passed Senate Bill 97, which required the Governor's Office of Planning and Research to prepare guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions *as required by* [CEQA]. . . ." SB 97 (2007), codified as Public Resources Code § 21083.05 (emphasis added). Consistent with this mandate, the state Natural Resources Agency adopted revisions to the CEQA Guidelines that require lead agencies to determine the significance of a proposed project's greenhouse gas ("GHG") emissions. CEQA Guidelines § 15064.4. If an agency's analysis indicates that a proposed project will have a significant project-specific or cumulative impact on climate change, the agency must identify and adopt feasible mitigation measures to address this impact. CEQA Guidelines § 15126.4(c).

Reducing GHG emissions in order to minimize the harms from climate change is one of the most urgent challenges of our time. In recognition of this urgency, in 2005, Governor Schwarzenegger signed Executive Order S-3-05. The order established a long-term goal of reducing California's emissions to 80 percent below 1990 levels by 2050. The order also directed several state agencies (collectively known as the "Climate Action Team") to carry its goals forward. The following year, the Legislature enacted the Global Warming Solutions Act of 2006 ("AB 32"), codified at Health and Safety Code § 38500, *et seq*. By these authorities, California has committed to reducing emissions to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. Most recently, Governor Brown took further action to meet this challenge by issuing a new executive order, B-30-15. It sets an interim target of 40 percent below 1990 levels by the year 2030. This order, like EO S-3-05, is binding on state agencies.

Despite the scientific consensus, the potentially catastrophic impacts on the State, and California's well-founded commitment to reducing emissions, the DEIR's climate change analysis falls short. The Project will result in massive GHG emissions. The fossil fuel industry is Kern County's largest contributor of GHGs, accounting for 40 percent of the County's GHG emissions in 2012, the baseline year. DEIR 4.7-7 to -8. This represents nearly *two and a half times* the amount of emissions of the next leading

0044-231
Continued

sector. *Id.* As the DEIR acknowledges, the sector emitted over 16 $MMTCO_2e/yr$[8] in 2012. DEIR at 4.7-35. To put that number in perspective, it is the equivalent of the annual emissions from more than 3.5 million passenger cars driving on California's roadways. *See* California Air Resources Board, "Conversion of 1 MMT CO2 to Familiar Equivalents," October 29, 2007, attached as Exhibit GHG 1. By the County's own estimation, the number of operating wells will increase from 43,028 in 2012 to 82,136 in 2035. DEIR at 4.7-30. The DEIR acknowledges that this will result in a near-doubling of annual direct GHG emissions from the Project. *See* DEIR at 4.7-34 to -35 (Table 4.7-9 showing projected increase from 16.95 $MMTCO_2e$ annually in 2012 to 32.40 in 2035).

In spite of this huge increase in GHG emissions, the DEIR downplays the Project's effects. It fails to calculate emissions for the full duration of the Project or to provide an estimate of the Project's aggregate emissions, instead providing only annual emissions for the next 20 years. It then dismisses emissions from the biggest oil and gas GHG emitters who are subject to the Cap-and-Trade program, and fails to provide an accurate estimate of the emissions from other sources related to the Project. Thus, the DEIR fails to satisfy the most basic purpose of an EIR: to disclose to decision-makers and the public a project's significant environmental impacts. *See* Pub. Res. Code § 21061 ("The purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect that a proposed project is likely to have on the environment"). Finally, the DEIR does not identify effective, credible, and enforceable mitigation measures that will actually reduce or avoid the Project's contributions to climate change. As a result of these failings, the DEIR does not comply with CEQA.

1. The DEIR Fails to Account for All of the Project's GHG Emissions.

a. The DEIR Must Calculate Annual Greenhouse Gas Emissions From the Project Through at Least 2050 and It Must Calculate Aggregate Emissions.

The DEIR calculates annual GHG emissions from the Project only to the year 2035. DEIR at 4.7-35 (Table 4.7-9), 4.7-30. As a result, the document considers at

[8] This denotes million metric tons of Carbon Dioxide equivalent per year. Carbon Dioxide equivalent ("CO_2e") provides a universal standard of measurement against which the impacts of releasing different types of GHGs can be evaluated.

0044-231
Continued

most only 20 years' worth of emissions—a small fraction of the realistic lifetime of the Project, which will allow for the construction and operation of petroleum operations that will continue to emit long after 2035. This time horizon fails to provide the public with a meaningful assessment of the Project's long-term impacts. The DEIR should have analyzed GHG emissions at least through the year 2050, in order to determine if the Project is consistent with the long-term emissions reductions targets for climate stabilization articulated in EO S-3-05 and B-30-15. The statewide reduction goals set forth in EO S-3-05 and B-30-15 call for reducing emissions levels to 80 percent below 1990 levels by the year 2050. Accordingly, 2050 is the minimum appropriate planning horizon for analyzing annual emissions of a long-term project such as the proposed Kern rezoning.

The DEIR further understates the Project's GHG emissions because it does not calculate the Project's aggregate emissions. While annual emissions is an important metric, it does not tell the whole story here. This Project is not a single infrastructure or development project with a final construction completion date. Rather, it involves the ongoing issuance of entitlements to build petroleum extraction and refining infrastructure and facilities. These entitlements will be issued throughout the next 20 years. The DEIR states, for example, that it anticipates 4,083 new wells to be constructed in the County in 2035, the final year of the Project. DEIR 4.7-30. But facilities permitted in 2035 will continue to operate in 2036 and beyond. By simply analyzing annual emissions from permitted sources and cutting off its analysis after year 2035, the DEIR fails to capture the full magnitude of emissions from the Project. In other words, under the County's misleading approach, the later a facility is constructed, the smaller the portion of its actual lifetime cumulative emissions the DEIR considers. But the DEIR must reasonably calculate the *total* emissions for the expected life of every source that it anticipates will be built as part of the Project. Failure to do so is a violation of CEQA's mandate to consider all of the Project's potentially significant impacts. *Stanislaus Natural Heritage Project,* 48 Cal.App.4th at 195.

b. The DEIR May Not Dismiss Emissions from Facilities Subject to the Mandatory Reporting Regulation.

Industrial facilities emitting over 25,000 $MTCO_2e$/yr are included under California's AB 32 Cap-and-Trade program and are subject to mandatory reporting regulations ("MRR"). The EIR reasons that because this category of GHG-emitting sources is already "capped," all emissions from these sources are automatically mitigated to less-than-significant levels. DEIR at 4.7-23 ("the Cap-and-Trade program will fully mitigate any project emission increases for emissions included under the cap"). Thus, the

0044-231
Continued

DEIR essentially treats MRR permitted emissions as though they will not occur. This approach violates CEQA.

As a preliminary matter, AB 32's Cap-and-Trade program extends only to 2020; it does not cover emissions occurring later. 17 C.C.R. § 95840 (third and final compliance period ends Dec. 31, 2020). Even if the existence of the Cap-and-Trade program somehow excused mitigation of GHG emissions from MRR permitted sources (and it does not), the EIR utterly fails to analyze or mitigate for the impact of the emissions that will occur annually from 2020 throughout the life of the Project. An EIR must consider the pollution a project will generate over its entire lifespan. *Vineyard Area Citizens for Responsible Growth,* 40 Cal.4th at 431.

Additionally, the DEIR's dismissal of capped emissions cannot be squared with CEQA's requirements or purpose. The emissions generated by the Project's oil and gas facilities will still occur, and these emissions will still contribute to climate change, even if other entities in California reduce their emissions as a result of Cap-and-Trade permits. Consequently, under CEQA, the City must consider all of the Project's GHG emissions in evaluating whether the Project will have a significant effect on the environment. The Cap-and-Trade program created by AB 32 is wide-ranging; most of the state's GHG emissions come within its scope. If a lead agency could complete a CEQA "analysis" of GHG emissions by stating that project emissions are covered by the Cap-and-Trade program, climate change—the single largest environmental threat facing California—would be largely ignored by lead agencies in their CEQA analyses. The state and the public would be deprived of key environmental protections if lead agencies were not required to consider additional mechanisms for mitigating or avoiding GHG emissions.

Moreover, the DEIR's approach to emissions from these sources would render the amendments to the CEQA Guidelines regarding GHG analysis and mitigation (*e.g.*, CEQA Guidelines §§ 15064.4, 15126.4(c)) largely superfluous. Local agencies—arguably the best positioned to address the serious land use decisions necessary to fight climate change—would be excused from conducting any analysis of feasible project alternatives or mitigation measures in approving land use decisions. And future environmental review documents would fail to give decision-makers and the public accurate information about the Project's significant impacts on climate change. By establishing a Cap-and-Trade program, the proponents of AB 32 did not intend thus to eviscerate CEQA's power to require disclosure and mitigation of environmental harms.

0044-231
Continued

Finally, the DEIR's conclusions fail to acknowledge the uncertainties inherent in the Cap-and-Trade program. The DEIR provides no explanation for why compliance with the Cap-and-Trade program by petroleum producers in the County will reduce the Project's capped emissions to a level of insignificance. Instead, it relies for its conclusion on a separate six-page guidance document prepared by the San Joaquin Valley Air Pollution Control District. But that document itself contains little reasoning or analysis, and does not constitute substantial evidence that emissions from sources subject to MMR (which will make up 90 percent of the Project's emissions) are not significant. The DEIR therefore does not adequately support its conclusion that impacts will be mitigated to insignificant levels. It must be revised to include all "capped" emissions as part of its evaluation of the Project's significant environmental impacts.

c. The DEIR's Analysis of Operational Emissions From Sources Not Subject to the Mandatory Reporting Regulations Is Not Supported By Substantial Evidence.

The DEIR's analysis of the operational impacts from facilities not subject to MRR is also flawed. Conclusions regarding environmental impacts under CEQA must be supported by substantial evidence. "Substantial evidence" is evidence "reasonable in nature, credible, and of solid value, evidence that a reasonable mind might accept as adequate to support a conclusion." *American Canyon Community United for Responsible Growth v. City of American Canyon* (2006) 145 Cal.App.4th 1062, 1070. The DEIR's cursory treatment of sources not subject to MMR does not come close to meeting this standard. The document merely states that "GHG emissions from the operations of the Project include . . . an allowance (10%) for emissions from small facilities not subject to MRR. . . ." DEIR at 4.7-33. It then relies on this apparently arbitrary number to calculate the total operational emissions from the Project. *See* DEIR at 4.7-34 (Table 4.7-8). The sole rationale for the DEIR's use of the 10 percent "allowance" is the conclusory statement that "GHG emissions from non-permitted sources and activities are calculated based on emissions within the state." DEIR at 4.7-33. But this is not supporting evidence at all.[9]

[9] As support for its estimation of operational emissions, the County cites an unpublished technical report and an email exchange. DEIR 4.7-34 (Table 4.7-8 citing Vector 2015a and 205b [*sic*].) Neither of these documents appears to have been made available for public review, and they are not included among the DEIR's appendices. *See* DEIR at vol. II, p. ix.

0044-231
Continued

The DEIR contains no further discussion of why this so-called allowance is accurate or is representative of the total emissions from non-MRR facilities at the Project site. In particular, there is no evidence that the number of non-MRR facilities statewide is in any way representative of the number in Kern County. Thus, the DEIR's purported analysis leaves the following questions unanswered, at the least: (1) What is the current ratio of MRR facilities to non-MRR facilities in the County? (2) Will the ratio of MRR facilities to non-MRR facilities remain the same over the lifetime of the Project? (3) Will the ratio of MRR facility emissions to non-MRR facility emissions remain the same over the lifetime of the Project? (4) How many non-MRR facilities does the County anticipate will voluntarily opt in to Cap-and-Trade?

It strains credibility to believe that the County does not have, or could not reasonably collect, information on the number of oil and gas producing facilities within its borders that are not subject to MRR, and that it could not calculate the GHG emissions from these facilities. The number of non-permitted facilities is especially important, given the fact that the DEIR claims it can dismiss all other emissions from permitted facilities as mitigated because they will participate in Cap-and-Trade. Until the County provides actual analysis of the GHG emissions from non-MRR facilities, and supports that analysis with substantial evidence in the record, the DEIR will remain legally deficient.

2. The DEIR Does Not Properly Evaluate the Project's Consistency With State Emissions Reduction Goals.

The DEIR/S fails to analyze adequately the Project's consistency with the state's plans and policies for reducing GHG emissions. It provides little discussion or meaningful analysis of whether the Project is consistent with these policies or will help the State meet the reduction targets that they prescribe. Instead, the DEIR attempts to downplay key state policies, including EO S-3-05 and B-30-15. DEIR at 4.7-44 ("The County does not believe that the 2050 target or the 2035 interim target are appropriate significance criteria for this Project. . . . The County does not believe that the general directives in the EOs to reduce statewide GHG emissions from 1990 levels by 40% in 2030 and 80% in 2050 are legal mandates or required to be included as a significance threshold under CEQA."). But the DEIR's reasons for ignoring state policy miss the point. Even if the County chooses not to use the reduction targets contained in the Executive Orders as significance thresholds under CEQA, it must still evaluate the Project's consistency with them.

0044-232

Under CEQA, the DEIR simply cannot ignore the question of whether the Project's emissions trajectory is consistent with the trajectory set forth in EO S-3-05, EO B-30-15, the AB 32 Scoping Plan, and the First Update to the Scoping Plan. California climate policy, as reflected in EO S-3-05, calls for reducing GHG emissions to 80 percent below 1990 levels by 2050 so as to avoid catastrophic climate impacts. This Executive Order embodies the reductions that climate scientists have concluded are needed to provide a 50-50 chance of limiting global average temperature rise to 2°C above pre-industrial levels. The AB 32 Scoping Plan incorporates this goal, establishing a "trajectory" for reaching it over time. California Air Resources Board, Climate Change Scoping Plan: A Framework for Change (2008) at 15, attached as Exhibit GHG 2.

0044-233

In May 2014, CARB approved an Update to the Scoping Plan that examines California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan. California Air Resources Board, First Update to the Climate Change Scoping Plan: Building on the Framework (2014), attached as Exhibit GHG 3. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use. Subsequently, on April 29, 2015, Governor Brown signed Executive Order B-30-15, which sets an interim target in order to help state agencies achieve California's long-term reductions goals. This interim target calls for reductions in GHG emissions to 40 percent below 1990 levels by the year 2030. EO B-30-15. This newest executive order confirms that GHG emissions reductions are a top state priority and that interim targets are crucial for achieving the 2050 reductions goal of 80 percent below 1990 levels.

0044-234

Critically, meeting the statewide 2050 goals requires continuing and steady annual *reductions* in both total and per capita GHG emissions. Exhibit GHG 2 at ES-1. By contrast, the DEIR reports that the Project will nearly double direct emissions from Project sources over the next two decades. DEIR 4.7-35 (Table 4.7-9). Because state policy aims to steeply reduce GHG emissions over that same time period, it is imperative that the DEIR inform the public and decision-makers that the Project directly conflicts with the state's reduction goals. Of course, as mentioned above, that analysis should include the Project's anticipated emissions out to 2050. As the California Supreme Court has held, an agency "abuses its discretion if it exercises it in a manner that causes an EIR's analysis to be misleading or without informational value." *Neighbors for Smart Rail v. Exposition Metro Line Const. Authority* (2013) 57 Cal.4th 439, 445, 457.

0044-235

The County cannot avoid this critical analysis simply by finding that the Project would have a significant and unavoidable impact with respect to applicable plans,

0044-235
Continued

policies or regulations adopted for the purpose of reducing the emissions of GHG. DEIR 4.7-42. Assessing the full extent and severity of the Project's climate impacts is especially important in this instance, where the Project proposes no specific and credible mitigation to remedy this inconsistency. *See id*. (proposing only to rely on MM 4.7-3—compliance with current and expected future regulations governing the recovery or reuse of methane gas); *see Santiago County Water Dist.,* 118 Cal.App.3d at 831(lead agency must inform public not just *whether* an impact is significant, but *how* significant the impact will be).

As one Court of Appeal reasoned, omitting an analysis of a project's inconsistency with EO S-3-05 demonstrates a lack of a reasonable, good faith effort at full disclosure and is not supported by substantial evidence. *Cleveland National Forest Foundation v. San Diego Association of Governments* (2014) 231 Cal.App.4th 1056, as modified on denial of reh'g (Dec. 16, 2014) *review granted and opinion superseded sub nom. Cleveland Nat. Forest Foundation v. San Diego Assn. of Governments* (Cal. 2015) 184 Cal.Rptr.3d 725. Attached as Exhibit GHG 4. Although the opinion was depublished when the California Supreme Court granted review, the Court of Appeal's reasoning on this issue is instructive.

3. The DEIR Must Identify Significance Thresholds That Do Not Obscure the Project's Impacts.

As a general rule under CEQA, a project's impacts must be compared against the baseline conditions on the project site at the time of the analysis. *Neighbors for Smart Rail,* 57 Cal.4th at 455. The DEIR here does not consider the full impacts of GHG emissions as measured against this baseline, even though it admits they will approximately double. The existing GHG emissions from Project sources are 16.95 $MMTCO_2e/yr$, but will increase to 32.40 $MMTCO_2e/yr$ by 2035, the final Project year. DEIR at 4.7-35. Consequently, it is clear that permitting a massive number of new oil and gas extraction facilities will significantly increase GHG emissions. Yet rather than evaluate the Project's significance by comparing the proposed Project to the existing environmental setting, the County chooses its thresholds of significance in a way that allows it to completely ignore this fundamental CEQA tool. DEIR at 4.7-31 to -32 (establishing thresholds of significance based only on CEQA Guidelines Appendix G, and the Cap-and-Trade program).

The CEQA Guidelines explain that a lead agency should evaluate GHG emissions by: (1) comparing project emissions to the "existing environmental setting"; (2) comparing project emissions to an established threshold of significance; and (3)

0044-235
Continued

assessing project compliance with existing regulations or requirements adopted to implement a statewide, regional, or local plan to combat GHG pollution. CEQA Guidelines § 15064.4. The County's methodology, however, eliminates the first factor. While lead agencies are granted some discretion in selecting thresholds of significance, they are not permitted to choose thresholds that foreclose consideration of other evidence tending to show the environmental effect may be significant. *Protect The Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 ("[T]hreshold[s] of significance cannot be applied in a way that [] foreclose the consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant."). The Project unquestionably increases the County's oil and gas production related GHG emissions by over 90 percent. The County cannot craft its thresholds of significance in a way that glosses over this massive increase.

Compounding the problem, the County also refuses to adopt a "no net increase" threshold—that is, determining that the Project would have a significant impact if emissions from the Project would result in a net increase in emissions from the Project's existing levels. While the DEIR states that "the County has determined to conservatively mitigate project direct GHG emissions to net zero" (DEIR at 4.7-38; *see also id.* at 4.7-39 (mitigation will "assure that [*sic*] no net increase in greenhouse gas emissions from the Project."), this claim cannot be squared with the nearly 90 percent increase in emissions from the Project over the next 20 years. DEIR at 4.7-44 (DEIR declaring "it is anticipated that Project GHG emissions from the oil and gas industry in Kern County will result in additional GHG emissions as set forth in Table 4.7-9"). If the County is truly committed to ensuring no net increase in CO_2 emissions from the Project, it must establish that as a threshold, and measure the Project's impacts against it.

4. The DEIR's Proposed Measures Are Inadequate to Mitigate the Project's Greenhouse Gas Emissions to Less Than Significant Levels.

Unfortunately, the GHG mitigation identified in the DEIR fails to meet CEQA's standards for effective, enforceable mitigation. The proposed measures are vague and ineffective, and the document provides no assurance that they will be enforced, let alone substantial evidence for their efficacy. To the extent that some proposed measures defer mitigation to the future, without any standards, they are also legally deficient.

0044-235
Continued

For example, Mitigation Measure MM 4.7-1 simply requires permitted stationary sources to comply with the Cap-and-Trade regulation and implement the San Joaquin Valley Air Pollution Control District's "Best Performance Standards" ("BPS")[10] for certain types of operations. DEIR at 4.7-39. But these BPS only apply to certain types of facilities. Other operations, such as wells not using thermal enhancement techniques, appear not to be subject to the BPS. And, if they are not subject to Cap-and-Trade, this mitigation measure will not apply to them at all. What's more, the SJVUPCD has expressly provided that its BPS are not mitigation measures.[11]

Mitigation Measures MM 4.7-2 and 4.7-3 are essentially toothless. Measure MM 4.7-2 simply restates the existing requirement that applicants comply with Cap-and-Trade regulations and "other applicable greenhouse gas emission control and reduction regulations" without identifying what those other regulations are or how they might apply to reduce emissions to less-than-significant levels. The measure goes on to require "[c]ompliance with the expected California Air Resources Board methane regulation." DEIR 4.7-39. This is an obvious and impermissible deferral of mitigation. This measure does not satisfy CEQA's requirement that feasible mitigation be identified to mitigate or reduce the impacts of the project under consideration.

Reliance on a future regulation, the specifics of which are unknown, is not permissible mitigation under CEQA. Merely requiring compliance with agency regulations does not conclusively indicate that a proposed project would not have a

[10] These BPS, which are not even attached as an appendix to the document, should be included in the DEIR. *See California Oak Found. v. City of Santa Clarita* (2005) 133 Cal.App.4th 1219, 1239 (relevant information may not be "buried in an appendix"). The public should not have to locate and search through another agency's documents in order to determine what mitigation measures a lead agency is actually proposing for a project.

[11] "Use of BPS is a method of determining significance of project specific GHG emission impacts using established specifications. BPS is not a required mitigation of project related impacts. Use of BPS would streamline the significance determination process by pre-quantifying the emission reductions that would be achieved by a specific GHG emission reduction measure and pre-approving the use of such a measure to reduce project-related GHG emissions." Best Performance Standard Class: Components at Light Crude Oil and Natural Gas Production, Natural Gas Processing Facilities, Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants Light Category: Components Subject or not to District Rules 4409 & 4455 Requirements (July 1, 2010). Attached as Exhibit GHG 5.

0044-235
Continued

significant and adverse impact. In *Kings County Farm Bureau,* 221 Cal.App.3d at 716, for example, the court found that the fact that the EPA and the local air pollution control district had issued the necessary air emission permits for the construction of a coal fired cogeneration plant did not nullify the CEQA requirement that the lead agency analyze the significant air quality impacts of the entire project. This principle holds doubly true where the regulation being relied upon has not yet been finalized or promulgated. Here, there is no guarantee that the new methane regulations will ever be adopted, especially since they are outside the control of the County.

Mitigation Measure MM 4.7-4 also falls short of the minimum requirements CEQA imposes for project mitigation. Under CEQA, proposed mitigation measures must be "fully enforceable" through permit conditions, agreements, or other legally binding instruments. Pub. Res. Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(2). Similarly, any proposed mitigation must provide assurance that such implementation will in fact occur. *Anderson First Coalition v. City of Anderson*, 130 Cal.App.4th 1173, 1186-87 (2005). While MM 4.7-4 purports to require permit applicants to secure carbon offsets for emissions that do not fall within the Cap-and-Trade program, it provides no system to ensure that this measure is properly implemented. For example, it does not describe: (1) how officials will quantify the emissions to be offset for each permit applicant; (2) the process by which the offsets will be purchased (for instance, whether the applicant must provide proof of their purchase as part of the complete permit application); or (3) any enforcement mechanism to ensure that this requirement is actually followed. This measure should be revised to ensure that permits will not be issued and project construction may not begin until the applicant has demonstrated compliance with the mitigation measure.

Equally troubling, Measure MM 4.7-4 allows permittees to purchase offsets from third parties through an "Emission Reduction Agreement." Thus, there is no control or oversight over the offsets allowed to be purchased. In order to be effective, the allowable offsets must be restricted to those purchased from the California Air Pollution Control Officers Association Greenhouse Gas Reduction Exchange register.

The DEIR promises that Measure MM 4.7-4 will "assure that no net increase in greenhouse gas emissions [will result] from the Project." DEIR at 4.7-39. As it stands, however, this measure is aspirational, and contains no enforcement or implementation provisions that would render it adequate under CEQA. As described above, the correct way to ensure that this goal is actually accomplished is to establish "no net increase" in GHG emissions as the threshold of significance, develop an enforceable mitigation requirement (most likely as part of the Project, with the offset requirement as a

0044-235
Continued

component of the new ordinance), and then explain with substantial evidence in the record how the offset requirement and any other mitigation measures will ensure that the Project meets the "no net increase" threshold. If this approach proves difficult, it simply illustrates the challenges associated with trying to issue a project EIR for all oil and gas permitting in the County for the next 20 years.

Finally, the DEIR proposes no serious mitigation for the Project's significant and unavoidable impacts associated with applicable plans, policies or regulations adopted for the purpose of reducing GHG emissions. The document acknowledges that "[mitigation measures] MM 4.7-1 through MM 4.7-3 and the RTP mitigation measures . . . do not provide a mechanism that guarantees GHG emission reductions on a cumulative basis" and on that grounds determines that impacts will be significant and unavoidable. DEIR at 4.7-41 to -42. It proposes no additional mitigation measures, however, stating without elaboration that it will implement mitigation Measure MM 4.7-3 (discussed above). DEIR at 4.7-42. Furthermore, if the DEIR discloses the Project's inconsistency with the EO S-3-10 and B-30-15's goals for emissions reduction—as it must—it should also consider mitigation that would allow the project to avoid or minimize that inconsistency.

5. The DEIR Should Have Considered Feasible, Enforceable Mitigation Measures Beyond Mere Compliance with Other Agencies' Regulations.

By relying primarily on compliance with uncertain regulations by other agencies, the DEIR omits an array of obvious mitigation measures that could actually reduce the Project's GHG emissions. The California Air Resources Board maintains a clearinghouse of mitigation measures and control technologies to reduce non-CO_2 GHG emissions from petroleum production operations. *See* http://www.arb.ca.gov/cc/non-co2-clearinghouse/non-co2-clearinghouse.htm. The DEIR should consider whether any, if not most, of these measures are appropriate for the Project.

Also, the DEIR notably does not even attempt to mitigate the Project's construction-related GHG impacts, focusing only on mitigation for operational impacts. DEIR at 4.7-39. But many construction-related mitigation measures for GHGs exist, and the DEIR must consider them. For example, the California Air Pollution Control Officers Association, CEQA and Climate Change (2008), attached as Exhibit GHG 6, details numerous mitigation measures in its Appendices B and C, and the County must consider all feasible, applicable measures therein, including the following representative sampling of feasible measures:

0044-235
Continued

- Requiring that off-road diesel-powered vehicles used for construction be new low-emission vehicles, or use retrofit emission control devices, such as diesel oxidation catalysts and diesel particulate filters verified by the California Air Resources Board.

- Utilizing the combination of construction materials with the lowest carbon footprint.

Given that this is a project- and not a program-level EIR, the document cannot simply defer the implementation of concrete measures to a later date. Any purported difficulty in proposing concrete, enforceable mitigation measures and control technologies at this time simply illustrates the inadvisability of attempting to conduct a project-level EIR for a permitting regime of this size and scope.

H. The DEIR's Analysis of Growth-Inducing Impacts Is Inadequate.

0044-236

CEQA requires that an EIR include a "detailed statement" setting forth the growth-inducing impacts of a proposed project. Pub. Res. Code § 21100(b)(5); *City of Antioch v. City Council of Pittsburg* (1986) 187 Cal.App.3d 1325, 1337. A proposed project is either directly or indirectly growth-inducing if it: (1) fosters economic or population growth or requires additional housing; (2) removes obstacles to growth; (3) taxes community services or facilities to such an extent that new services or facilities would be necessary; or (4) encourages or facilitates other activities that cause significant environmental effects. CEQA Guidelines § 15126.2(d). The CEQA Guidelines expressly recognize that growth-inducing impacts can occur through extension of infrastructure. CEQA Guidelines App. G, § XIII(a). While the growth-inducing impacts of a project are not necessarily adverse, the secondary impacts (such as loss of open space/habitat/agricultural lands and impacts to air quality and transportation) may be significant and adverse. In such cases, the secondary impacts of growth-inducement must be disclosed as significant secondary or indirect impacts of the project.

The DEIR's treatment of growth-inducing impacts is entirely perfunctory and relies on conclusory statements unsupported by evidence. Its ultimate determination that "any link between the Project and growth in Kern County would be speculative," DEIR at 5-8, is unwarranted and does not excuse the County from conducting a legally sufficient analysis of these impacts. *See Save our Peninsula Committee,* 87 Cal.App.4th at 131 (EIR inadequate where it failed to analyze the growth-inducing effects of proposed offset mitigation).

1. The DEIR's Analysis of Growth-Inducing Impacts Is Too Cursory to Adequately Inform the Public or Decision-makers.

0044-237

The DEIR's analysis of growth-inducing impacts is wholly inadequate and falls far short of the "detailed statement" required by law. Pub. Res. Code § 21100(b)(5). The section is approximately one page and contains five scant paragraphs. Of these, only three paragraphs provide any Project-specific analysis. In fact, the County spends nearly as much space defending its abbreviated approach (including a long-winded review of the facts of an entirely unrelated case) as it does providing actual, Project-specific analysis. This is no substitute for the analysis that CEQA requires.

One factor courts consider in determining the requisite level of detail for an EIR's growth-inducing impacts is the likelihood that future effects will themselves require analysis under CEQA. *Napa Citizens for Honest Government,* 91 Cal.App.4th at 369. Here, the County will not conduct any supplemental or subsequent environmental review under CEQA section 21166 and CEQA Guidelines section 15162 because future oil and gas permit approvals will be ministerial and therefore exempt from CEQA. It is all the more important, then, that the DEIR consider the Project's growth-inducing impacts at this time and make a good faith effort to disclose them before the Project is approved. The document's failure to do so in any detail violates CEQA's basic purpose of fully informing decision-makers and the public of the Project's potential significant environmental effects. CEQA Guidelines § 15002(a).

2. The DEIR Provides No Credible Evidence to Support Its Conclusions Regarding Oil and Gas and Production Levels and Prices.

0044-238

The DEIR attempts to downplay future oil and gas production levels in the County (and thus the associated indirect effects on population, employment, and housing) by distinguishing the region's geology from other states that have undergone "fracking booms." It states that "[i]n the absence of any dramatic technical advances, substantial increases in oil and gas production in the County—and substantial increases in the population and housing activity associated with oil and gas production—are not anticipated to increase appreciably above the baseline 2012 level." DEIR at 4.13-9. But it offers little support for this determination.

Instead, the DEIR points to the Energy Information Administration's ("EIA") 2014 downward revision of the amount of recoverable oil and gas in the

0044-238
Continued

Monterey Shale formation. *Id.* This broad estimate, which covers territory well outside of Kern County, is not necessarily a sound basis for estimating future production levels in the County. Moreover, the evidence contradicts, rather than supports, the DEIR's conclusion. The EIA revision did not downwardly revise its estimate of the actual amount of oil and gas that is contained in the formation. In fact, the revision did not even affect predictions of near-term (2010 to 2040) production—that is, during the Project's lifetime—which is expected to rise. *See* U.S. Energy Information Administration, Assumptions to the Annual Energy Outlook 2014, *Oil and Gas Supply Module* (June 11, 2015), at 116 (estimate for economically recoverable oil from Monterey shale play between 2010 and 2040 rose from 14,000 barrels/day to 57,000 barrels/day), attached as Annex 1 to Exhibit PD 1; *see also* E. McAllister, Reuters, *UPDATE 2-U.S. EIA cuts recoverable Monterey shale oil estimate by 96 pct*, May 21 2014, attached as Exhibit GI 1.

What's more, the EIA's downward revision was based on new estimates of how much oil and gas could be extracted from the formation *given currently available technologies*. *Id*. It is reasonably foreseeable that new technologies will emerge during the twenty-year life of the Project, just as they have over the past twenty years, that will allow for removal of previously unrecoverable deposits. The DEIR must take this potential into consideration if it is to convey a realistic picture of oil and gas production that will occur as a result of the Project. Exhibit PD 1.

The DEIR also cites for support the "dramatic drop in the global price of oil in 2014" DEIR 4.13-9. While it is true that oil and natural gas markets are highly volatile, as evidenced by the recent drop in oil prices, these markets experience corresponding upturns as well, and oil and gas prices can be expected to increase considerably during the life of the Project. *See* Kira Brecht, U.S. News, *Oil Stocks May Have Hit Bottom: Here's What to Expect Next*, July 21, 2015, attached as Exhibit GI 2. The DEIR ignores this fact. Instead, it selects a low-point on the market to use as a "baseline" for its conclusion that economic activity, and therefore growth, will not significantly increase as a result of the Project. DEIR at 4.13-9. But this low point is not the appropriate basis for measuring oil prices in the future or the growth that will result when oil prices rise again, as they inevitably will. *See Communities for a Better Env't,* 48 Cal.4th at 327-28 ("[A] temporary lull or spike in operations that happens to occur at the time environmental review for a new project begins should not depress or elevate the baseline. . . .").

0044-238
Continued

The DEIR's approach of downplaying production estimates appears even less tenable given the document's statement of Project Applicant Objectives, which call for growth of the County's oil and gas industry:

- Provide for economically feasible and environmentally responsible *growth* of the Kern County oil and gas industry.

  . . .

- *Increase oil and gas exploration and production in Kern County* as a means of reducing California's dependence upon foreign sources of energy.

DEIR at 1-6 (emphases added). The DEIR cannot credibly claim that the Project will not meet these Project Applicant Objectives in order to ignore growth-inducing impacts. Especially as the DEIR declines to consider alternatives to the Project on the basis that they will not meet these same Objectives, the County's approach is indefensible. *See* DEIR at 1-21, 6-13 (rejecting an alternative calling for fewer wells as infeasible in part because "it would not achieve the basic Project objectives of the Applicant (i.e., to provide for growth of the Kern County oil and gas industry. . .)").

By relying only on unsupported conclusions about oil and gas production and prices, the DEIR underestimated the growth-related impacts from the Project, in violation of CEQA. *See Ocean Advocates v. U.S. Army Corps of Engineers* (9th Cir. 2005) 402 F.3d 846, 855, 867, 870 (in National Environmental Policy Act case, court found that the agency's environmental review failed to properly analyze the growth-inducing impacts of permitting an oil refinery pier extension).[12]

3. The DEIR Ignores Growth-Inducing Impacts from Building Additional Infrastructure.

0044-239

The DEIR's analysis of growth-inducing impacts relies upon a Project Description that suffers from several fundamental flaws, as described in section II, above. For example, the DEIR does not describe all reasonably expected future drilling,

[12] The National Environmental Policy Act ("NEPA") is CEQA's federal equivalent. California courts have long "[r]ecogniz[ed] that the California act was modeled on the federal statute . . . [and] consistently treated judicial and administrative interpretation of the latter enactment as persuasive authority in interpreting CEQA." *Wildlife Alive v. Chickering* (1976) 18 Cal.3d 190, 201.

0044-239
Continued

all related infrastructure, or the number of exploratory or injection wells that will occur as a result of the Project. These omissions, in turn, cause it to gloss over the potential growth-inducing impacts from new roads, electricity lines, and other oil and gas infrastructure.

For example, while the DEIR admits that the Project will involve the construction of new "temporary and permanent access roads," DEIR at 5-7, it does not provide the public with a clear and full understanding of the projected road construction. The document states simply, "[s]ome roads may be removed and restored after initial construction; some may be reduced in size; and others may be maintained at their constriction size for the life of the associated oil and gas operation." *Id.* at 5-7 to -8. This passage leaves many questions unanswered, including, for instance, how many miles of roadway will be constructed; how the "temporary" roads will be removed, restored, or reduced in size; and which areas of the County the most new roads are likely to be located in. Instead, the DEIR recites that the roads "would provide for access into oil and gas construction and operation areas and would not provide access into other areas thereby promoting growth-inducing development. No other development would be anticipated as a result of these roads, and oil and gas development would tend to preclude other development from happening." DEIR at 5-8. But many of the oil and gas wells projected to be drilled in Kern County will be located on so-called "split estates," where the surface owner retains the surface rights to development of the land. The roads built as part of the Project could lead to increased development in new areas of the County by increasing accessibility to these locations and reducing the barriers to surface development. *See* CEQA Guidelines § 15126.2(d). In the absence of supporting evidence, the County cannot jump immediately to the conclusion that rural road-building will not promote growth in the County.

The DEIR also acknowledges that the Project will involve expanding or creating new infrastructure to transmit electricity. DEIR at 3-40 ("[e]xtending existing high-voltage electric transmission lines (i.e., lines above 50 kV) to provide a permanent supply of electricity to a new well pad or facility may be required.") But it does not analyze where these extensions will occur, claiming that power line construction "is not within the scope of this EIR." *Id.* Without at least a basic explanation of how the Project will affect the power grid in the County, the DEIR cannot possibly conclude, as it does, that the Project will not create any new growth as a result of its contribution to energy supply. DEIR at 5-8. Like roads, increased utility coverage and grid capacity can reduce barriers to development. The DEIR may not sidestep this result by claiming, flatly, and

0044-239
Continued

with no evidentiary support or analysis, that "it is anticipated growth that drives energy-production projects and development, not vice-versa." *Id.*

Finally, the DEIR's paltry analysis of growth-inducing impacts makes no mention of the pipelines, pumps, power stations, and other related infrastructure necessary to transport crude oil from wells to refineries. The document must include a discussion of whether, and how, this additional infrastructure may affect growth in the County and the associated impacts.

0044-240

4. The DEIR Provides No Evidence to Support Its Conclusion That the Project Will Not Result in Employment-Related Growth.

The DEIR notes that the County's civilian labor force grew by 38% between 2000 and 2010. DEIR at 4.13-4. The energy and natural resources industry and the transportation, logistics, and advanced manufacturing industry increased jobs by 16% during that same period. *Id.* And, citing the California Employment Development Department, the DEIR acknowledges that from 2002 to 2012, employment in the oil and gas sector in Kern County almost doubled, from 6,900 to 12,300. DEIR at 4.13-5.

Despite this considerable growth in the industry over the past 12 to 15 years, the DEIR astonishingly declares, without evidence, that no employment-related growth would occur as a result of the Project. The document claims that any new jobs created will be taken by County residents: "Given the history of oil and gas development within Kern County . . . any nominal increase in the oil and gas workforce in the future would likely be comprised of local Kern County residents. As such, the nominal population growth would not stress certain existing public services . . . ." DEIR at 4.14-19. The DEIR provides no evidence for this factual assertion. Instead, it speculates about the nature of the existing workforce: "The pool of experienced oil and gas workers residing in Kern County is sufficient to provide the industry workforce over the lifetime of the Project, and any nominal increase in the oil and gas workforce in the future would likely continue to be comprised of local Kern County residents . . . ." DEIR at 4.13-11.

The DEIR's conclusion is suspect on its face. The DEIR states that the existing "pool" of resident oil and gas workers will supply the workforce over the lifetime of the Project, but the Project's lifetime is twenty years, extending to 2035. The existing pool of experienced workers will diminish over the next two decades as workers age and retire, and new workers will be required to replace them. But the DEIR does not explain whether existing workers will be replaced by Kern County residents or by new

0044-240
Continued

residents with experience. In the latter case, the Project would result in considerable new growth and associated impacts; these are not analyzed in the DEIR.

The DEIR additionally claims that " unemployment in Kern County is approximately 10.4%; therefore, there would be an available labor pool to fill the anticipated nominal growth in employment." DEIR at 4.13-11. But by this logic, all projects located in areas with non-negligible unemployment rate—that is to say, nearly all projects—could be found to have little or no impact on population since employment opportunities created by the project would "absorb" the pool of unemployed residents. This argument is both economically unsound and unsupported by evidence. The DEIR cannot avoid analyzing and disclosing the potential employment-related growth impacts of a project that spans an entire industry simply by pointing to the County's prevailing unemployment rate.

Finally, the DEIR glosses over the fact that increasing economic development is one of the Project's stated objectives. DEIR at 1-5 (Project objective is "Encourage ongoing economic development by the oil and gas industry that creates quality, high paying jobs and promotes capital investment in Kern County. . ."). Indeed, relying on a 2011 economic study that it commissioned, Project Proponent Western States Petroleum Association claims the following:

> [F]or every job created [in California] by an oil company or other business directly associated with petroleum, another 2.5 indirect jobs are created in the economy. This multiplier effect is especially pronounced in the refining and oil production areas. This multiplier effect is especially pronounced in the refining and oil production areas. For every direct refinery job in California, another nine jobs are created. For every job in California's oil and gas production fields, another 5.4 jobs are created.

Western States Petroleum Association, weblog, *Petroleum Industry Creates Jobs for Californians,* accessed Aug. 31, 2015, attached as Exhibit GI 3. The DEIR therefore cannot credibly claim, without providing substantial evidence, that there will be no employment-related growth as a result of the Project. The County's faulty analysis falls short of CEQA's requirements. *See City of Davis v. Coleman* (9th Cir. 1975) 521 F.2d at 674-75 (in CEQA and NEPA case, court rejected agency's argument that growth would occur with or without a new highway interchange project and that the project would simply accommodate this growth).

0044-241

I. The DEIR's Mitigation for the Project's Air Quality Impacts Is Inadequate.

The Project is located within the southern portion of the San Joaquin Valley Air Basin. DEIR at 4.3-1. The Basin has severe air pollution problems, especially with respect to ozone emissions. The American Lung Association ranks Kern County as the *fifth worst county in America* for ozone pollution, and consistently gives the County an "F" grade—the worst—for air quality.[13] Similarly, it rates Bakersfield as the third worst city in the Country for ozone pollution.[14] The direct and indirect air pollutant emissions from oil- and gas-related activities is a major contributor to this poor air quality.

The oil and gas industry is the Country's largest industrial source of emissions of volatile organic compounds (VOCs), a group of chemicals that contribute to the formation of ground-level ozone. U.S. EPA, "Oil and Natural Gas Pollution Standards" attached as Exhibit AQ 5. Exposure to ozone is linked to a wide range of health effects, including aggravated asthma, increased emergency room visits and hospital admissions, and premature death. *Id.* The oil and natural gas industry also is a significant source of air toxics such as benzene, ethylbenzene, and n-hexane, which are known or suspected of causing cancer and other serious health effects. *Id.* Studies suggest that air emissions from the oil and gas industry are linked to poor health outcomes[15] and reduced agricultural yields.[16] Thus, air pollution, especially from ozone emissions, is arguably the biggest impact from oil and gas, especially in the San Joaquin Valley.

---

[13] *See* Courtenay Edelhard, *Kern graded F for air quality despite ozone improvements*, The Bakersfield Californian, Apr. 29, 2015, attached as Exhibit AQ 1.

[14] *See* "State of the Air," American Lung Association, available at: http://www.stateoftheair.org/2014/city-rankings/most-polluted-cities.html, accessed on Sep. 6, 2015.

[15] *See, e.g.,* Lisa M. McKenzie, et al., Human health risk assessment of air emissions from development of unconventional natural gas resources. The Science of the Total Environment (2012) 424:79-87, attached as Exhibit AQ 2; Lisa M. McKenzie, et al., Birth outcomes and maternal residential proximity to natural gas development in rural Colorado. Environmental Health Perspectives (April 2014), 122:412-17, attached as Exhibit AQ 3.

[16] *See* Sally Wilkinson et al., How is ozone pollution reducing our food supply? Journal of Experimental Botany (Oct 20, 2011), attached as Exhibit AQ 4.

0044-241
Continued

Given the existing air pollution in the Project study area, and the Project's potential to significantly contribute to that pollution, one would expect the DEIR to provide a comprehensive program to mitigate these impacts. Yet the DEIR is grossly inadequate in that respect, failing to identify all feasible mitigation to reduce the Project's impacts to air quality to less than significant levels. Instead, in violation of CEQA, the DEIR proposes a narrow range of ineffectual mitigation measures that will not adequately mitigate the Project's air quality impacts.

For example, the DEIR's primary air quality mitigation is MM 4.3-1, which simply requires permit applicants to obtain necessary permits from the San Joaquin Valley Air Pollution Control District. DEIR at 4.3-68. This "mitigation," which adds nothing to the existing regulatory scheme, cannot satisfy CEQA. As the courts explain, merely requiring compliance with existing agency regulations does not conclusively indicate that a proposed project would not have a significant and adverse impact. *See Kings County Farm Bureau,* 221 Cal.App.3d at 716. Compounding the problem, the DEIR elsewhere states that the San Joaquin Valley Air Pollution Control District will itself rely on the certified EIR to satisfy CEQA's environmental review requirements when it is issuing individual permits to oil and gas applicants in the future. DEIR at 1-2. The County cannot use this circular process to avoid fully mitigating air emissions that will result from the Project.

The DEIR's other air quality mitigation measures are generally vague, unenforceable, and/or defer mitigation until an uncertain future date. *See* MM 4.3-2 (applicants must develop future "Fugitive Dust Plan"); MM 4.3-3 (off-road construction vehicles must meet California emissions standards and be properly maintained); MM 4.3-4 (on-road construction vehicles must meet California emissions standards and be properly maintained); MM 4.3-5 (applicants should use (unenforceable) setbacks, or, in the alternative, use suggested "'risk minimization measures' or other such measures that are demonstrated by the Applicant to achieve a level of risk less than the threshold level"); MM 4.3-6 (applicants must distribute information on Valley Fever and offer workers masks); MM 4.3-7 (applicants must submit an undefined "Odor Management Plan"); MM 4.3-8 (for certain emissions, applicants must pay an air quality mitigation fee or fund retrofits). These paltry measures do not meet CEQA's requirements for detailed, specific, and enforceable mitigation. In particular, the DEIR may not delegate to the applicant the responsibility to enforce mitigation. *See California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173, 194.

At the same time, the DEIR fails to include additional concrete measures that *could* effectively reduce the Project's air quality impacts. For example, the DEIR

0044-241
Continued

considered Alternative 5, a Low-Emission Enhanced Oil Recovery ("EOR") Alternative. DEIR at 6-25. This alternative would require oil and gas permit applicants to implement low-emission EOR technology as a condition of permit approval for new and replacement steam generators, and to replace certain inefficient existing steam generators. *Id.* The DEIR admits that this alternative "would have reduced air quality and greenhouse gas impacts, as compared to the Project." *Id.* Thus, this is a proven, feasible mitigation measure that could reduce the Project's significant impacts on air quality. However, the County inexplicably avoided including this requirement as mitigation for the Project. The County must revise the DEIR to include all feasible mitigation measures, including the emissions-reduction strategies set forth as the Low-Emission Enhanced Oil Recovery Alternative. Pub. Res. Code § 21002.1(b); CEQA Guidelines § 15126.4.

Despite the patent deficiency of the DEIR's proposed mitigation, the document concludes that after mitigation there will be *no significant air quality impacts* from the Project, except that the Project would generate a significant and unavoidable level of odors. DEIR at 1-14. This conclusion is wholly unwarranted. The DEIR must be revised to consider additional mitigation for the Project's air quality impacts, including appropriate measures proposed by experts and the public up to the close of the final public hearing on the DEIR.

IV. The DEIR's Analysis of Alternatives Is Inadequate.

0044-242

The DEIR's analysis of alternatives falls short. Under CEQA, a proper analysis of alternatives is essential to comply with the Act's mandate that significant environmental impacts be avoided or substantially lessened where feasible. Pub. Res. Code § 21002; CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15126(d); *Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 443-45. Indeed, the analysis of alternatives lies at the "core of an EIR." *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. As stated in *Laurel Heights Improvement Association*, "[w]ithout meaningful analysis of alternatives in the DEIR, neither the courts nor the public can fulfill their proper roles in the CEQA process . . . . [Courts will not] countenance a result that would require blind trust by the public, especially in light of CEQA's fundamental goal that the public be fully informed as to the consequences of action by their public officials." 47 Cal.3d at 404.

Properly developing, evaluating, and comparing project alternatives are thus key to the environmental review process. However, the DEIR suffers from an inadequate analysis of the Project alternatives as discussed below.

0044-243

A. The DEIR Does Not Provide an Adequate Comparative Analysis of the Impacts of Each Alternative.

The DEIR/S does not contain adequate analysis comparing the alternatives' respective environmental impacts. Under CEQA, the alternatives analysis "must contain sufficient detail to help ensure the integrity of the process of decision-making by precluding stubborn problems or serious criticism from being swept under the rug." *Kings County Farm Bureau,* 221 Cal.App.3d at 733 (citing cases). An EIR that does not produce adequate information regarding alternatives cannot achieve the EIR's dual purposes of enabling the reviewing agency to make an informed decision and ensuring that the decision-maker's reasoning is accessible to the public. *Id.* Readers must be able to "evaluate [alternatives'] comparative merits." *Id.* A thorough comparison of the Project alternatives' impacts is therefore crucial to a successful environmental document. Unfortunately, the DEIR fails to provide this information. It evaluates each alternative only against the proposed Project. Then, instead of supplying an actual qualitative or quantitative comparison of the impacts of each alternative, the document merely summarizes, in abbreviated, tabular form, the significance of each alternative's impacts. *See* DEIR at 6-29 to -30 (Table 6-1).

The DEIR's truncated approach is no substitute for the in-depth comparison of each alternative's impacts that the law and common sense require. Table 6-1 should provide detailed descriptions of the alternatives' impacts, and a means for readers to quickly and easily weigh them. For example, each cell in a row could contain a numeric ranking on a scale of 1 to 5 of the extent of that impact.

The document's current approach also prevents the public from understanding the effect on the environment of each alternative *as a whole* in comparison to each other alternative. Before it discusses the alternatives in any detail, the DEIR merely "summarizes" the Project's impacts for each category of impacts considered. *See* DEIR at 6-2 to -9. This adds nothing to the discussion and does not give readers a clear understanding of the impacts that each alternative will have, respectively, in each category, as compared against one another. In addition to Table 6-1, the DEIR should provide detailed narrative analysis and a comprehensive discussion comparing the extent of the alternatives' impacts to one another, not just to the proposed Project. This discussion should be organized by impact category.

0044-244

B. The County May Not Use Alternatives as a Justification for Failing to Consider Feasible Mitigation for the Project's Significant Impacts.

Under CEQA, the ultimate purpose of alternatives and mitigation is the same: to avoid or substantially lessen a project's significant environmental impacts. Pub. Res. Code § 21002; CEQA Guidelines §§ 15126.4(a)(1), 15126.6(a). Whether this purpose is achieved by selecting an alternative to the proposed project, or by incorporating mitigation measures, or both, is unimportant in light of the alternative's or mitigation measure's ability actually to avoid or reduce environmental impacts. The County turns this logic on its head by crafting project alternatives in order to preclude consideration of key mitigation measures. The DEIR builds mitigation measures into proposed alternatives which are then rejected from consideration in the EIR, or, if they are considered, will likely be rejected in favor of the Project. Then, it reasons that if the measure has been included as part of an alternative, it need not be considered as mitigation for the proposed Project. But the mere fact that an environmentally-protective condition is included as a component of an alternative is no reason for excluding it from consideration as a potential mitigation measure for the proposed project. The DEIR cannot reject feasible mitigation measures for the Project on the sole ground that they are part of Project alternatives.

For example, during the public scoping period the public suggested several mitigation measures pertaining to air quality. DEIR at 4.3-121 to -22. One of these measures proposed requiring oil and gas projects to generate their own clean electricity during production using photovoltaic solar, direct line power, or both, to eliminate all need for operational power diesel generation onsite. DEIR at 4.3-122. The DEIR responds to—and apparently dismisses as infeasible—this suggested measure by stating that "[i]ncreasing use of renewable energy is considered in an Alternative to this EIR." *Id*. The DEIR does not identify which alternative it is referring to. However, it elsewhere states that it eliminated renewable energy alternatives, including solar, from full consideration. DEIR at 6-14 to -17.[17] Thus, the County appears to reason that

[17] The only alternative actually considered that resembles the suggested "clean energy" mitigation measure is the "Low-Emission EOR Technology Alternative," which the DEIR admits would result in reduced air quality and GHG impacts compared to the Project. DEIR at 6-25; *see also id.* at 6-29. But this alternative would only require that all new and replacement steam generators for thermal EOR activities would be required to implement low-emission steam generation technology, such as the ClearSign Duplex

0044-244
Continued

including measures in an alternative—even one that it rejects from full consideration in the EIR—categorically forecloses considering those measures, or any variation or subset thereof, as mitigation for the proposed Project.

This reasoning is predicated on a false dichotomy. CEQA requires that reasonable, feasible mitigation be considered where a project may have significant impacts. Pub. Res. Code §§ 21002, 21002.1(a). The fact that requiring the use of clean electricity during production was included as part of a rejected project alternative does not mean that no such mitigation measures may be proposed for the Project. For instance, the DEIR could easily include mitigation measures for the Project requiring that emitters use clean electricity for a specific percentage of their operational energy needs. These opportunities for mitigation are lost, however, when the entire category of clean electricity generation is taken off the table.

Similarly, the DEIR's "Recycled Water Alternative" would require sources to treat and recycle produced water and put it to an alternative use, such as agriculture. DEIR at 6-26. But in considering mitigation for the Project's impacts to hydrology and water quality, not a single mitigation measure addresses treatment and reuse of produced water, presumably because this is already addressed in the Recycled Water Alternative. *See* DEIR at 4.9-146 to -147 (setting forth mitigation measures MM 4.9-1 through 4.9-6). As it does with clean energy, the DEIR thus appears to take the position that if the measures form the basis of an alternative they must be excluded entirely from consideration as mitigation for the proposed Project. This all-or-nothing approach is untenable. The DEIR may not use measures' inclusion as alternatives as the basis for rejecting them outright as mitigation for the proposed Project.

C. The DEIR's Conclusion That the CUP Alternative Is Environmentally Inferior to the Project Is Unsupported By Substantial Evidence.

0044-245

The DEIR improperly concludes that Alternative 2 (the "CUP Alternative"), is environmentally inferior to the Project. Under that alternative, future oil and gas drilling projects in the County would require a discretionary conditional use permit approval. DEIR at 6-20. The CUP Alternative would amend Zoning Ordinance Chapter 19.98 to establish updated development standards and conditions to address environmental impacts of pre-drilling exploration, well drilling and the operation of wells

---

Tile combustion technology or the equivalent. DEIR at 6-25. The measure says nothing about clean energy, including photovoltaic solar or direct line power.

0044-245
Continued

and other oil and gas production-related equipment and facilities, including exploration, production, completion, stimulation, reworking, injection, monitoring, and plugging and abandonment. *Id.* The DEIR acknowledges that this alternative would allow for the County to consider the potential environmental effects for each permit on a case-by-case basis. *Id.* That is, under this alternative mitigation would be site-specific and tailored to ensure that it addressed the individual impacts from each permit. Yet the DEIR manages to find that the CUP Alternative is inferior to the Project, declaring that "[i]n practice, the Project's ministerial approval procedure would be more protective of the environment overall than would Alternative 2." *Id.*

This conclusion is not credible or supported by substantial evidence. The County bases it on the assumption that the CUP would not include the "comprehensive avoidance and mitigation program specifically designed to reduce the effects of the County's entire oil and gas industry" that the Project offers. *Id.* But there is no reason that this should or need be the case. As explained in the DEIR, the CUP Alternative would amend Zoning Ordinance Chapter 19.98 to establish updated development standards and conditions to address the environmental impacts of oil and gas development. These updated development standards and conditions can and should include feasible industry-wide mitigation measures, including most of those proposed in the DEIR for the Project. In other words, the CUP Alternative offers the opportunity for site-specific impact mitigation of individual *in addition to* industry-wide mitigation, not *instead of* it.

The County additionally argues that the CUP alternative is inferior because it would not address "regional conservation priorities." DEIR at 6-20. But it nowhere explains what these so-called regional conservation priorities are or why site-specific mitigation will not address them. Moreover, as explained above, there are no grounds for asserting that the CUP Alternative cannot not include industry-wide mitigation. Thus, the County has no basis for determining that the CUP Alternative is environmentally inferior to the Project.

V. A Revised DEIR Must Be Recirculated for Public Review and Comment.

0044-246

Because of the inadequacies discussed above, the DEIR cannot form the basis of a final EIR. CEQA requires lead agencies to prepare and recirculate a supplemental draft "[w]hen significant new information is added to an environmental impact report" after public review and comment on the earlier draft EIR. Pub. Res. Code § 21092.1. The opportunity for meaningful public review of significant new information is essential "to test, assess, and evaluate the data and make an informed judgment as to

0044-246
Continued

the validity of the conclusions to be drawn therefrom." *Sutter Sensible Planning, Inc. v. Sutter County Board of Supervisors* (1981) 122 Cal.App.3d 813, 822; *see also City of San Jose v. Great Oaks Water Co.* (1987) 192 Cal.App.3d 1005, 1017. An agency cannot simply release a draft report "that hedges on important environmental issues while deferring a more detailed analysis to the final [EIR] that is insulated from public review." *Mountain Lion Coalition v. California Fish and Game Comm'n* (1989) 214 Cal.App.3d 1043, 1052.

0044-247

In order to cure the egregious flaws in the DEIR identified in this letter, the County must obtain substantial new information to adequately assess the proposed Project's environmental impacts, and to identify effective mitigation and alternatives capable of alleviating the Project's significant impacts. This new information will clearly necessitate recirculation. CEQA requires that the public be given a meaningful opportunity to review and comment upon this significant new information in the form of a recirculated draft EIR.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Rachel B. Hooper

Heather M. Minner

Encl.: Exhibits
All but three exhibits are included on a CD, delivered Sept. 11, 2015 via Fed Ex.
Exhibits AG 20, AG 21, and AQ 5 are attached to the email delivering this letter.

Exhibit List

Project Description Exhibits

Exhibit PD 1	Letter from David Hughes, Global Sustainability Research Inc. to Heather Minner, Shute, Mihaly & Weinberger LLP (Sept. 9, 2015).	0044-248
Exhibit PD 2	San Joaquin Valley Air Pollution Control District, Authority to Construct Application Review – Ingredion Incorporated (July 22, 2015).	0044-249
Exhibit PD 3	William Fulton and Paul Shigley, Guide to California Planning, 4th ed. (2012), Ch. 11.	0044-250

Agricultural Exhibits

Exhibit Ag 1	*South County Citizens for Responsible Growth v. City of Elk Grove* (2004) 2004 WL 219789, unpublished.	0044-251
Exhibit Ag 2	Brabec & Smith, Agricultural land fragmentation: the spatial effects of three land protection strategies in the eastern United States, 58 Landscape and Urban Planning (2002).	0044-252
Exhibit Ag 3	James William Gibson, Bombing North Dakota, Earth Island Journal (Winter 2013).	0044-253
Exhibit Ag 4	Mike Soraghan, Drilling regulators pull double duty as industry promoters, E&E News (Nov. 30, 2011).	0044-254
Exhibit Ag 5	P.J. Drohan, et al., Early Trends in Landcover Change and Forest Fragmentation Due to Shale-Gas Development in Pennsylvania: A Potential Outcome for the Northcentral Appalachians, 49 Environmental Management (2012).	0044-255
Exhibit Ag 6	JunJie Wu, Land Use Changes, Economic, Social, and Environmental Impacts, AAEA (2008)	0044-256

Exhibit Ag 7	Richard Howitt et al, Economic Analysis of the 2015 Drought For California Agriculture, UC Davis Center for Watershed Sciences (Aug. 17, 2015)	0044-257
Exhibit Ag 8	Jeremy Miller, California Drought is No Problem for Kern County Oil Producers, Circle of Blue Water News, (August 24, 2010).	0044-258
Exhibit Ag 9	Jeremy Miller, Oil and Water Don't Mix with California Agriculture, High Country News (Dec. 15, 2010).	0044-259
Exhibit Ag 10	Nicholas Kusnetz, North Dakota's Oil Boom Brings Damage Along with Prosperity, ProPublica (June 7, 2012).	0044-260
Exhibit Ag 11	Sjoerd W. Duiker, Effects of Compaction on Crop Yields, Penn State Extension 1 (2004).	
Exhibit Ag 12	Marcellus Education Fact Sheet, Avoiding and Mitigating Soil Compaction Associated with Natural Gas Development, Penn State Extension 1 (2009).	0044-261
Exhibit Ag 13	Revised and Additional Feasible Mitigation Measures to Reduce Agricultural Impacts and Land Use Conflicts.	0044-262
Exhibit Ag 14	Department of Agriculture and Measurement Standards, 2014 Kern County Agricultural Crop Report (2015).	0044-263
Exhibit Ag 15	U.S. Department of Agriculture, RCA Issue Brief #6 (Nov. 1995).	0044-264
Exhibit Ag 16	William Wetzel et. al. Analysis reveals potential rangeland impacts if Williamson Act eliminated, University of California, 66 California Agriculture (Oct.-Dec. 2012).	0044-265
Exhibit Ag 17	Pelayo Alvarez, Conserving and Managing Prairie, Grassland, and Vernal Pool Landscapes Through Collaboration, 39 Fremontia (2011).	0044-266
Exhibit Ag 18	Matt Andersen, California's cattle and beef industry at the crossroads, 56 California Agriculture (Sept. – Oct. 2002).	0044-267

Exhibit Ag 19	*Center for Biological Diversity v. San Benito County* (Monterey Superior Court Case No. M123956), July 21 2014 decision.	0044-268
Exhibit Ag 20	Brady Allred *et al*., *Ecosystem Services Lost to Oil and Gas in North America,* 348 Science Magazine No. 6233, pp. 401-02 (April 24, 2015).	0044-269
Exhibit Ag 21	David Jones *et al.*, *Comparing the Ecological Impacts of Wind and Oil & Gas Development: A Landscape Scale Assessment,* Plos One (Nov. 27, 2013).	0044-270

Land Use Exhibits

Exhibit LU 1	Jared B. Fish, The Rise of Hydraulic Fracturing: A Behavioral Analysis of Landowner Decision-Making, 19 Buffalo Environmental Law Journal 219 (2012).	0044-271
Exhibit LU 2	John S. Baen, The Impact of Mineral Rights and Oil and Gas Activities on Agricultural Land Values, The Appraisal Journal 74 (Jan. 1996).	0044-272
Exhibit LU 3	Drilling vs. the American Dream: Fracking impacts on property rights and home values, Resource Media (March 14, 2014).	0044-273
Exhibit LU 4	Comparison of County Claims re Zoning Ordinance Process and Plain Text of the Zoning Ordinance.	0044-274
Exhibit LU 5	Modifications to Site Plan Requirements in Draft Zoning Ordinance.	0044-275

Water Supply Exhibits

Exhibit Wat 1	Letter from DOGGR to U.S. EPA (May 15, 2015).	
Exhibit Wat 2	U.S. Gov. Accountability Office, Drinking Water: EPA Program to Protect Underground Sources from Injection of Fluids Associated with Oil and Gas Production Needs Improvement (June 2014).	0044-276 0044-277

Exhibit Wat 3	DOGGR, Preliminary Assessment of Eleven Aquifers Historically Treated as Exempt (July 15, 2015).	0044-278
Exhibit Wat 4	John Cox, Facility Operator Wins Time, But Appeal Awaits, *The Bakersfield Californian* (Sept. 6, 2015).	0044-279
Exhibit Wat 5	P. Martineau, California Water Year 2014 Among Driest Years on Record, Association of California Water Agencies (Sept. 30, 2014).	0044-280
Exhibit Wat 6	T.R. Ault, et al., Assessing the Risk of Persistent Drought Using Climate Model Simulations and Paleoclimate Data (Oct. 15, 2014).	0044-281
Exhibit Wat 7	N.S. Diffenbaugh, et al., Anthropogenic Warming Has Increased Drought Risk in California (Mar. 31, 2015).	0044-282
Exhibit Wat 8	A. Park Williams, et al., Contribution of Anthropogenic Warming to California Drought During 2012-2014 (Aug. 31, 2015).	0044-283
Exhibit Wat 9	Justin Gillis, California Drought Is Made Worse by Global Warming, Scientists Say, *N.Y. Times* (Aug. 20, 2015).	0044-284
Exhibit Wat 10	Cal. Dept. of Water Res., California's Most Significant Droughts: Comparing Historical and Recent Conditions (Feb. 2015).	0044-285
Exhibit Wat 11	Cal. Dept. of Water Res., Public Update for Drought Response, Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring (April 30, 2014).	0044-286
Exhibit Wat 12	Cal. Council on Science & Technology, Independent Scientific Assessment of Well Stimulation in California, Volume II, Chapter 2 (July 2015).	0044-287

Aesthetics Exhibits

Exhibit Aes 1	Photos depicting examples of existing oil wells near Highway 46.	0044-288
Exhibit Aes 2	Maps of parks and recreational areas in the County.	0044-289

Exhibit Aes 3	Master Kern County Solar Project List.	0044-290
Exhibit Aes 4	Master Kern County Wind Project List.	0044-291
Exhibit Aes 5	California Energy Commission, Draft DRECP Executive Summary (September 2014).	0044-292

Noise Exhibits

Exhibit Noise 1	World Health Organization, Traffic Noise Reduction in Europe (2007) (excerpts).	0044-293
Exhibit Noise 2	Letter from Jeremy Decker, Charles M. Salter Associates, to Carmen Borg, Shute, Mihaly & Weinberger LLP (Sept. 9, 2015).	0044-294

Transportation Exhibits

Exhibit Trans 1	Letter from Neal Liddicoat, MRO Engineers, to Carmen Borg, Shute, Mihaly & Weinberger LLP (Sept. 8, 2015).	0044-295

Greenhouse Gas Exhibits

Exhibit GHG 1	California Air Resources Board, "Conversion of 1 MMT CO2 to Familiar Equivalents," October 29, 2007.	0044-296
Exhibit GHG 2	California Air Resources Board, Climate Change Scoping Plan: A Framework for Change (2008).	0044-297
Exhibit GHG 3	California Air Resources Board, First Update to the Climate Change Scoping Plan: Building on the Framework (2014).	0044-298
Exhibit GHG 4	*Cleveland National Forest Foundation v. San Diego Association of Governments* (2014) 231 Cal.App.4th 1056, as modified on denial of reh'g (Dec. 16, 2014) review granted and opinion superseded sub nom. *Cleveland Nat. Forest Foundation v. San Diego Assn. of Governments* (Cal. 2015) 184 Cal.Rptr.3d 725.	0044-299
Exhibit GHG 5	San Joaquin Valley Unified Air Pollution Control District, Best	0044-300

	Performance Standard Class: Components at Light Crude Oil and Natural Gas Production, Natural Gas Processing Facilities, Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants Light Category: Components Subject or not to District Rules 4409 & 4455 Requirements (July 1, 2010).	0044-300 Continued
Exhibit GHG 6	California Air Pollution Control Officers Association, CEQA and Climate Change (2008).	0044-301

Growth-Inducting Impacts Exhibits

Exhibit GI 1	E. McAllister, Reuters, *UPDATE 2-U.S. EIA cuts recoverable Monterey shale oil estimate by 96 pct*, May 21 2014.	0044-302
Exhibit GI 2	Kira Brecht, U.S. News, *Oil Stocks May Have Hit Bottom: Here's What to Expect Next*, July 21, 2015.	0044-303
Exhibit GI 3	Western States Petroleum Association, weblog, *Petroleum Industry Creates Jobs for Californians,* accessed Aug. 31, 2015.	0044-304

Air Quality Exhibits

Exhibit AQ 1	Courtenay Edelhard, Kern Graded F For Air Quality Despite Ozone Improvements, The Bakersfield Californian, Apr. 29, 2015.	0044-305
Exhibit AQ 2	Lisa M. McKenzie, et al., Human Health Risk Assessment Of Air Emissions From Development Of Unconventional Natural Gas Resources. The Science of the Total Environment (2012) 424:79-87.	0044-306
Exhibit AQ 3	Lisa M. McKenzie, et al., Birth Outcomes And Maternal Residential Proximity To Natural Gas Development In Rural Colorado. Environmental Health Perspectives (April 2014), 122:412-17.	0044-307
Exhibit AQ 4	Sally Wilkinson et al., How Is Ozone Pollution Reducing Our Food Supply? Journal of Experimental Botany (Oct 20, 2011).	0044-308
Exhibit AQ 5	U.S. EPA, Oil and Natural Gas Air Pollution Standards, webpage, accessed September 8, 2015.	0044-309

708778.1

0044-1

The comment is a general introduction. No response is necessary and it is noted for the record.

0044-2

The comment is a general introduction. No response is necessary and it is noted for the record.

0044-3

The Revised Amended Ordinance would establish a ministerial permit system. Please see GR-1 regarding the ministerial permitting process. Commenter is legally incorrect in describing a ministerial permit proces as an "as of right" process. Only activities that comply with the scores of substantive and procedural standards imposed by the Ordinance and EIR may be issued a ministerial permit under the Site Conformity Review or Minor Conformity Review process. This comment that the Revised Amended Zoning Ordinance provides no further environmental review is inaccurate. The revised Ordinance includes exclusions (e.g., cogeneration plants, landfills, etc.), oil and gas operations requiring Conditional Use Permits, oil and gas cogeneration plants and landfills, and produced water treatment facilities used for third party use (e.g., agricultural irrigation). The Revised Amended Ordinance has been further revised to include a cap of 3,649 well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with additional CEQA review as described in the Revised Amended Ordinance. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0044-4

The commenters' opinion is noted for the record. The opinion is an unsubstantiated conclusion for which a substantive response is not required by CEQA. Also noted for the record is the fact that the commenter is a longstanding opponent of hydraulic fracturing, among other oil and gas extraction activities, and proponent of municipal regulations that ban oil and gas extraction. See, e.g., http://earthjustice.org/features/using-municipal-zoning-to-limit-or-ban-fracking-in-california-communities and [pdf - provided under separate cover]

0044-5

The opinion of commenter is noted for the record.

0044-6

The comment is noted for record and included in Final EIR.

0044-7

Commenter's opinion noted for record.

0044-8

This accurate statutory quotation is noted for the record and included in the Final EIR.

0044-9

Commenter's opinion is noted for the record.

0044-10

Commenter's opinion is noted for the record.

0044-11

Please see GR 1 and GR 2 regarding the level of detail required in a project EIR.

0044-12

Please see GR-1 regarding the ministerial permit process and GR 2 regarding the approach to County-wide analysis of the Project. As explained in the Project Description and impact analyses, this EIR analyzes the categories of impacts noted by the commenter based on projected levels of oil and gas activity. See also GR-8 for further explanation of the well projections. In addition, the EIR discourages new ground disturbance activities, and anticipates that most oil and gas activities will continue to occur in "Tier 1" areas where oil and gas development is the dominant surface land use.

The surface owner of a "split estate" has property rights to the surface that are subordinate, under applicable constitutional and statutory law, to the rights of the subsurface owner to access and extract oil and gas. As provided by California Civil Code section 3522, one who grants something to another person is presumed to grant whatever is essential to its use. California courts have long held that that the right of entry to the surface is incident to the grant of mineral rights and exists even without an express grant. *Callahan v. Martin* (1935) 3 Cal. 2d 110, 125–26; *Dabney-Johnston Oil Corp. v. Walden* (1935) 4 Cal. 2d 637, 649. If the Revised Amended Ordinance were to infringe on such rights, the County would be subject to claims by the mineral owners for the "taking" of property rights. Land use regulations can constitute improper takings under both the federal and California constitutions if they go too far and impact constitutional rights to property. *See e.g., Lockaway Storage v. Alameda*, 216 Cal. App. 4th 161, 184 (2013). Please see GR 4 regarding surface owner rights.

The EIR and Amended Ordinance impose more than 100 new restrictions and procedural mandates to protect the environment, and to improve the collaboration required between surface and mineral owners within the constraints of the California constitution and statute. Please refer to GR-4 re surface owner rights. Surface spacing of wells is regulated by DOGGR to assure protection of, and maximize extraction from, oil fields. Impacts and mitigation for agricultural parcels, occupied habitat, and groundwater aquifers are discussed in chapters 4.2, 4.4 and 4.9. Impacts to scenic vistas are discussed in chapter 4.1, which concludes that oil and gas extraction and production equipment is visually incompatible with open space and rural agricultural vistas, and hence this impact is considered significant and unavoidable.

0044-13

Commenter's opinion is noted for the record.

0044-14

The commenter's opinion is noted for the record.

0044-15

See GR 1.

0044-15 cont'd

See GR 1.

0044-16

If by "no other opportunity" commenter is referring to a new CEQA document for those activities that do not require a new discretionary permit from the County, commenter is incorrect in that responsible agencies are also subject to CEQA in making their discretionary decisions and if there are significant new or worse impacts than evaluated in this EIR then under Cal Pub Res Code 21166 further CEQA review would be required. Additionally, further CEQA review would be required for oil and gas related activities that require a discretionary approval by the County, or that fall outside the scope of the Amended Ordinance and this EIR.

0044-17

The comment includes a partial quotation from Kostka and Zischke, "Practice Under the Environmental Quality Act", Second Edition, Section 19.22, stating that no further environmental review is required after a project receives all necessary discretionary approvals. As the treatise goes on to state: "Changes to a project that are sufficiently major to require a further discretionary approval, however, will trigger an evaluation of the need for further environmental review." Oil and gas production is subject to other discretionary permit approval requirements from state agencies such as DOGGR, the San Joaquin Valley Air Pollution Control District, the Regional Water Quality Control Board and the California Department

of Fish and Wildlife. In addition, the Revised Amended Ordinance has been further revised to include a cap of 3,649 new well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR, ensuring that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0044-18

CMT 1: The commenter's opinion is incorrect as a matter of law: If future technologies cause new or significantly worse adverse impacts than those impacts forecast by this EIR, then further CEQA review would be required under 21166.

CMT 2: It is not clear to which "resources" the commenter is referring. The Draft EIR for the first requires, for example, that oil and gas activities fully offset air emissions to achieve a "no net increase" standard for non-attainment criteria pollutants to protect air quality. Conservative estimates are provided for new ground disturbance activities, and compensatory mitigation is required in both previously undisturbed areas and agricultural lands for biological resource impacts (even for unoccupied habitat).

CMT 3: This EIR forecasts impacts for the full range of impact categories required to assessed under CEQA, with implementation tracked through the MMRP. As set forth in the Revised Amended Ordinance, no more than 3,649 new well permits can be issued in per year, for example. Please see GR-1 and GR-2, discussing the ministerial permitting process and regarding the approach to County-wide analysis of the Project.

0044-19

See GR 1 and 2.

0044-20

The commenter's opinion is noted for the record.

0044-21

The commenter's "reservation of rights" is noted for the record.

0044-21 cont'd

Commenter's legal citations are noted for the record and included in the FInal EIR.

0044-22

Please see GR 16 regarding CEQA requirements for specificity, enforceability and performance standard in mitigation measures.

0044-23

Commenter's opinion is noted for the record. Please refer to GR 30.

0044-24

Please see GR 16 and also GR 19 regarding CEQA requirements for a mitigation monitoring and reporting program.

0044-25

Please see GR 16 regarding CEQA requirements for mitigation measures.

0044-25 cont'd

Please see GR 16 regarding CEQA requirements for mitigation measures.

0044-26

See GR 30.

0044-27

The commenter's opinion is noted. Please see GR 16, which discusses the approach to mitigation measures. The mitigation measures in this EIR are not improperly deferred and meet the requirements for clarity and specificity under CEQA. The commenter's opinion that the level of detail required in the EIR is "high" is noted. As discussed in GR 1, CEQA applies to the adoption of ordinances and regulations that remain in effect until amended or repealed. Adoption of such ordinances and regulations authorizes certain conduct as lawful without further discretionary agency review. The commenter provides no legal support for the contention that the indefinite term of ordinances and regulations requires an unusually "high" level of detail in the EIR or mitigation measures. In fact, CEQA provides that implementation of the ordinance or regulation itself is a lawful means of assuring ongoing enforcement of requirements to avoid or lessen significant effects on the environment. "A requirement that a project comply with specific laws or regulations may also serve as adequate mitigation of environmental impacts in an appropriate situation." Kostka and Zischke, "Practice Under the Environmental Quality Act", Second Edition, Section 14.15; see *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal. App. 4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance"). Moreover, as explained above, the County will have additional opportunities through the Revised Amended Ordinance to engage in additional review if and when required by CEQA (Pub. Res. Code 21166).

0044-28

Commenter's legal references are noted and included in the Final EIR. Commenter is correct that extensive detail is not necessary in EIR Project Descriptions.

0044-29

Commenter's legal citations are noted and included in the FInal EIR.

0044-29 cont'd

Commenter's legal citations are noted and included in the FInal EIR.

0044-30

Commenter's opinion is noted.

0044-31

The EIR project description incorporates the Revised Amended Ordinance. See EIR, Chapter 3, Project Description, Attachment A, Zoning Ordinance Amendments.

0044-32

The comment is incorrect in stating that the ministerial permit process does not ensure compliance with the mitigation measures. The Revised Amended Ordinance requires the applicant to "demonstrate compliance with all applicable Mitigation Measures as listed in the approved Mitigation Monitoring and Reporting Program (MMRP)." Revised Amended Ordinance, Section 19.98.60.D. The applicant must self-certify its compliance, but if violation of a permit occurs, compliance must be demonstrated to, and certified by, the County Oil and Gas Inspector and self-certification is no longer permitted. Revised Amended Ordinance, Section 19.98.130.

0044-33

Commenter's opinion that the ordinance and mitigation measures will not be complied with is noted. As discussed in GR 19, the County enforces the requirements of its ordinance as well as compliance with mitigation measures. Projects that require a Conditional Use Permit under the Revised Amended Ordinance are required to complete a further CEQA review process, as required under CEQA, including identifying, analyzing, and mitigating to the greatest extent feasible any site-specific impacts that would be caused by the activity for which a CUP

application has been filed. This CUP process does not constitute any "waiver" of an ordinance condition or mitigation requirement.

0044-34

Please see response to 0044-33.

0044-35

As explained in Section 7.1.3, the County received multiple comments on the Amended Ordinance, and after consideration of these sometimes conflicting comments has developed a Revised Amended Ordinance that includes various modifications to administrative procedural issues such as notice requirements, application content requirements, permit processing schedules and procedures, and clarifications of various terms. The physical activities that are regulated by the ordinance, and evaluated in the Draft EIR, have not changed. The Revised Amended Ordinance is included in full in Section 7.1.3.

0044-36

See comment 35.

0044-37

Commenter's legal references are noted and included in Final EIR.

0044-37 cont'd

Commenter's legal references are noted and included in Final EIR.

0044-38

Please see GR-8 explaining the well projections utilized for purposes of impact analysis in the EIR. Lead agencies "are encouraged to make reasonable forecasts in the preparation of the EIR." *San Francisco Ecology Center v. City and County of San Francisco* (1975) 48 Cal.App.3rd 584, 595. As discussed in the EIR, p. 2-22, and in GR 6 and GR 8, data from 1985 through 2012 show wide fluctuations in the number of new well completions per year in response to the price of oil, available technology, available reserves, and changing regulatory requirements. Annual new well completions during this period ranged from a low of 730 in 1992, to a high of 3,005 in 1985. The most recent peak was 2,619 new well completions in 2012. Thus, the assumption that an average of 2,697 new producing wells per year, and 3,649 total new well per year could be drilled over the next 25 years in the Project Area is conservative and does not impermissibly truncate the total number of new wells or the time period in which they would be drilled. In addition, as discussed in the EIR, p. 3-23, the geographic extent of the Project Area represents the portion of the County in which oil and gas development has historically occurred and is reasonably foreseeable to occur in the coming decades. In the unlikely event that oil and gas production activities are proposed outside the Project Area, a Conditional Use Permit and supplemental environmental review under CEQA would be required.

0044-39

The commenter's opinion that the project description is incomplete is noted for the record. Please see GR-8 explaining the well projections utilized for purposes of impact analysis in the EIR. The comment is incorrect in stating that the projections do not include new exploratory or injection wells. The annual forecasts used for purposes of impact analysis are shown in the EIR, Table 3-5, p. 3-32. The table separately lists water disposal, water flood, steam flood, air injection and gas disposal wells, which are included in the total. In addition, the category of "new producing wells" includes exploratory wells. All oil and gas activities are included in the analysis of aesthetic impacts (which are significant and unavoidable); and construction and maintenance of all wells, including injection and exploration wells, are included in the traffic, air quality and GHG analyses. All ground disturbing activities including temporary impacts from exploratory wells and permanent impacts from all producing and injection wells are included in the ground disturbance factors for determining compensatory mitigation, as explained in the the EIR, Appendix F, Land Use Disturbance Report.

0044-40

Please refer to GR 6 (baseline) and GR 8 (well projections). The number of new producing wells per year is only a portion of the total number of

new wells used as the basis for impact analysis. The total number of projected estimated new wells included in the EIR, Table 3-5, is 3,649, which is higher than the 2,697 new producing wells per year. As explained in those Global Responses, data from 1985 through 2012 show wide fluctuations in the number of new well completions per year in response to the price of oil, available technology, available reserves, and changing regulatory requirements. Annual new well completions during this period ranged from a low of 730 in 1992, to a high of 3,005 in 1985. The most recent peak was 2,619 new well completions in 2012. Thus, the assumption that 3,649 total new well per year could be drilled does not represent an average of past data, as suggested by the comment. In addition, the Revised Amended Ordinance has been further revised to include a cap of 3,649 new well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with additional CEQA review as described in the Revised Amended Ordinance. As a result, only the total number of new wells whose impacts were evaluated in the EIR can be drilled in any given year.

0044-41

The EIR, pages 3-15 – 3-16 and 3-32 – 3-34, and the data sets analyzed to develop the projections used as the basis for impact analysis, considered the history of oil and gas production. Please also see GR 6 and GR 8. The commenter's expert opinion states that market conditions in some circumstances may warrant more drilling than forecast. However, the County's experts disagree based on historical and forecast data. Moreover, the cap on annual well permits reflects a conservative analysis that both exceeds the actual well permits issued annually and, for the first time, establishes a cap on annual new well permits issued in the future.

0044-42

The comment that 5,000 wells may be drilled annually is not supported by the County's experts. Moreover, with the inclusion of a cap on annual well permits, drilling 5,000 wells annually would not be lawful under the Revised Amended Ordinance.

0044-43

Please see responses 41 and 42.

0044-44

Commenter's legal references are noted and included in the Final EIR.

0044-45

Please see responses 40, 41 and 42. As described above, the Draft EIR includes an estimated future level of wells based on an expert assessment as described in GR 8. The Revised Amended Ordinance caps the number of well permits that can be issued annually at 3,649 based on forecasts supported by substantial evidence. Thus, the assumption of 3,649 total new wells per year for purposes of impact analysis does represent the Project's maximum number of wells, rather than the "estimated average" annual production faulted by the court in the case cited by the commenter.

0044-46

Please see GR 6, GR 8 and responses 40, 41 and 42. The EIR does not underestimate the total number of future wells. As explained in GR 8, trends in drilling rates were taken into account in developing the well forecasts. The assumption that 3,649 total new well per year could be drilled exceeds the maximum annual number of wells based on past data. While the commenter's expert opinion states that more drilling may occur, the County's experts disagree based on historical and forecast data.

0044-47

As the comment correctly notes, "new technologies" will be necessary to access the Monterey Shale formation. Please see GR 18 regarding geological and technological constraints on extensive development of the Monterey Shale. As the EIR explains, page 5-13, estimates of the amount of recoverable oil in the Monterey Shale formation vary and remain in flux, making it difficult to assess whether and to what extent recovery of those resources would occur. The commenter's expert, Mr. Hughes, bases his opinion in Exhibit PD1, in part, on the assumption that substantial development will occur in the Monterey Shale. However, as explained in detail in GR 18, in another report Mr. Hughes has criticized estimates of Monterey Shale reserves based on comparison to shale oil production in the Bakken and the Eagle Ford Plays of North Dakota/Montana and southern Texas, respectively, because these two plays are geologically very different from the Monterey Shale.

As discussed in the EIR, page 4.13-9, and in GR 18, due to geological and technological constraints, substantial increases in oil and gas production in Kern County, including production from the Monterey Shale, are not expected in the absence of dramatic technical advances. The EIR's conclusions as to the uncertainty about potential future development in the Monterey Shale are supported by the California Council on Science and Technology (CCST) study, *Independent Assessment of Scientific Technical Information on Advance Well Stimulation Technologies in California* , which concluded that "large-scale production from Monterey source rock is unlikely without some as-yet unforeseen technological advance." http://ccst.us/publications/2015/vol-III-chapter-3.pdf, p. 1. CCST further explained that "complexities" in the Monterey Shale formation "result in uncertainty that is not easily reduced" and "make the performance of such long-reach horizontal wells difficult or impossible to predict." CCST also noted that, "at present the quantity, quality, and distribution of potentially recoverable source-rock resources are poorly constrained and it is extremely difficult to set policy or plan for mitigation against possible environmental impacts when we are uncertain if, where, and with what technology source rock would be developed." *Id.* at p. 135–136. CCST's assessment noted that the deep Monterey exploration wells drilled to date (2009 to 2013) have not been particularly successful, causing the U.S. Energy Information Administration to significantly reduce its estimate of potentially recoverable oil reserves for the Monterey play in California from 15 billion barrels to 0.6 billion barrel with a high degree of uncertainty of its future economic feasibility. *Id.*

In the face of such uncertainty, it is not required to include analysis of potential Monterey Shale development in the EIR. *Saltonstall v. Sacramento* (2015) 234 Cal. App. 4th 549, 583 ("CEQA does not demand what is not realistically possible, given the limitation of time, energy and funds. ‘Crystal ball’ inquiry is not required."). CEQA does not require speculation in making those projections. CEQA Guidelines § 15144 ("Drafting an EIR or preparing a negative declaration necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can."). The fact that commenters disagree about the the forecasts in the DEIR does not render them unreasonable. CEQA Guidelines § 15151.

The Revised Amended Ordinance caps the number of new well permits that can be issued annually at 3,649 based on forecasts supported by substantial evidence. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0044-47 cont'd

0044-47 cont'd

0044-48

The comment states that the EIR impermissibly shortens the duration of the Revised Amended Ordinance. EIRs do not have expiration dates; see GR 3 regarding the "shelf life" of this EIR. In *Latinos Unidos de Napa v. City of Napa* (2013) 221 Cal.App.4th 192, the court upheld the City of Napa's reliance on the EIR for its 1998 General Plan to serve as its CEQA review document for its 2009 Housing Element Update Project. The Court held that the age of an EIR is not relevant; supplemental CEQA review is required only where the conditions of Public Resources Code Section 21166 are met, which they were not in that case. *Id*. at 204-205. In this case, as stated in the EIR, p. 3-30, if the annual Project activity level or total projected activity level is exceeded, the County must consider whether the exceedance triggers further review in accordance with the requirements of CEQA (Pub. Res. Code 21166. If the criteria for subsequent or supplemental CEQA review are met, further review would be required for continued reliance on the Conformity Review Process. Thus, the Project has effective temporal limits and the Draft EIR analyzes the "whole of the action" within those limits. CEQA Guidelines § 15378.

0044-49

The comment cites *Christward Ministry v. Superior Court* (1986) 184 Cal.App.3d 180, 190–92, where the court held that the lead agency county could not rely on a previously prepared EIR for a general plan amendment because the general plan amendment changed the circumstances analyzed in the prior EIR (Pub. Res. Code 21166). Consistent with that case, this EIR acknowledges the potential for subsequent environmental review if the criteria under Public Resources Code Section 21166 are met. EIR, pp. 2-23, 3-30. The commenter's citation of *City of Carmel-by-the-Sea v. Board of Supervisors of Monterey County* (1986) 183 Cal.App.3d 229 is inapposite to this Project. In that case, the court rejected a negative declaration for a zoning amendment in anticipation of a major development project, because the development project's

environmental impacts were foreseeable at the time the zoning amendment but CEQA review was deferred to a later EIR. By contrast, this EIR itself evaluates the impacts of the Revised Amended Ordinance, together with the implementation of future oil and gas activities expected to be undertaken pursuant to the Revised Amended Zoning Ordinance. See GR 3 regarding the shelf life of the EIR.

0044-50

The commenter conflates the EIR's description of project impacts with the annual cap on well permits that may be issued under the Amended Ordinance. The Amended Ordinance has been further clarified to include this annual cap, and thereby addresses commenters' concerns.

0044-51

The Revised Amended Ordinance has been further revised to include a cap of 3,649 new well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with an Conditional Use Permit and additional CEQA review as described in the Revised Amended Ordinance. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0044-52

The commenter is mistaken. Further CEQA review is required for oil and gas activities that require Conditional Use Permits, as described above in [cross-reference]. Through the MMRP process, the County and members of the public will also have the opportunity to assess the extent to which Project impacts remain within the scope of impacts that were assessed and mitigated under this EIR. At such time as the MMRP identifies a trend that may lead to significant impacts that are new or worse than forecast in the EIR, then the County's ongoing implementation of the Ordinance would need to be assessed. Further, the many responsible agencies that issue discretionary permits for Project-related activities remain subject to Section 21166 and may require additional environmental review for future new or significantly worse impacts than identified in the EIR.

0044-53

The comment is correct that the Revised Amended Ordinance would establish a ministerial permit system. Please see GR-1 regarding the ministerial permitting process. However, as discussed above, the Revised Amended Ordinance caps the number of new well permits that can be issued annually at 3,649 based on forecasts supported by substantial evidence. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0044-54

The commenter's summary of the EIR is noted.

0044-55

The commenter's opinion is noted.

0044-56

The DEIR has reached a different conclusion about the ongoing concentration, consistent with historic trends, of oil and gas production activities on Tier 1 lands. Drilling on Tier 2 lands is also subject to more extension permit processing requirements, and the County's expanded suite of measures for split estates creates new costs and burdens for oil producers and new benefits for surface owners. While there have been limited examples of litigation between surface owners and subsurface mineral rights owners, it is possible that intensification of activities in new areas could increase such conflicts and that may further discourage surface production activities on Tier 2 lands.

The EIR assumes that the geographic distribution of future oil and gas production in the Project Area will be similar to historic patterns, rather than an unprecedented expansion of development into Tier 2 agriculture lands and into the Monterey Shale as the commenter suggests.

Regarding the Monterey Shale, please see GR 18 and response 47. Regarding continued concentration of oil and gas development in Tier 1 areas, this assumption is supported by substantial evidence, including the CCST study, Independent Assessment of Scientific Technical Information on Advance Well Stimulation Technologies in California. The CCST's assessment indicated that future oil development will be primarily achieved through extending the life of existing oil fields via a variety of conventional methods. CCST's assessment further indicated that future expanded production will likely be in and near the existing oil fields. *Id.,* page 210. Under the Revised Amended Ordinance, those areas are classified as Tier 1.

The category of Tier 2 lands did not exist prior to the Revised Amended Ordinance and nothing would have prevented oil fields from expanding into the predominantly agricultural areas that will now be classified as Tier 2 lands. The reason that no major oil fields are located in Tier 2 is that there is insufficient recoverable oil to drive major expansion into these areas. Exploration for oil and gas in Kern County has been going on for over 100 years. If there were enough oil reserves concentrated somewhere within Tier 2 lands that were economically viable to develop into new oil fields, those areas of Tier 2 would already have undergone Tier 1 levels of development. Accordingly, future oil and gas production activities of the Project are considered in the DIER to impact less than 1% of Tier 2 agricultural lands from year 2015 through 2040. EIR Section 4.2.4, Project Impacts. Based on CCST's assessment of future patterns of oil expansion in Kern County, it is highly likely that future oil development will continue to occur within or near DOGGR's existing field Administrative Boundaries. It is also reasonable to assume, based on the CCST's assessment, that there is a low probability of significant undiscovered oil fields existing beneath Tier 2 agricultural lands that would lead to unprecedented expansion of future oil wells into Tier 2 agriculture lands. Accordingly, substantial evidence supports the EIR project description in that the anticipated percentage of 95% of future oil and gas production would occur within DOGGR's Administrative Boundary areas.

0044-57

Regarding the unlikelihood of substantial increased production on Tier 2 lands, see response 56. The Draft EIR relies on the best available scientific information and avoids speculation, consistent with CEQA's mandates. Please see GR 21. Commenter's argument that the EIR must speculate on future technological breakthroughs that would result in some future unknown new level of well activity in the Monterey Shale formation is unreasonable and improper under CEQA. EIR Appendix U, Kern County Drilling and Hydraulic Fracturing Comparison Memo, describes the differences in hydraulic fracturing techniques in oil and gas fields in other parts of the County in relation to the Monterey Shale. As discussed in Appendix U and in GR 18, geological and technological barriers to accessing the Monterey Shale remain formidable. Moreover, the Amended Ordinance caps the number of well permits that can be issued annually. Even if a technology breakthrough permitted accessing the Monterey Shale and created greater demand for new wells, the cap would apply.

0044-57 cont'd

0044-58

The experts advising the County, as noted above, believe that the historic pattern of well distribution reflects the actual location of recoverable oil reserves, and that it is reasonable to assume that the vast majority of future wells will continue to be located above existing oil reserves.

0044-59

As described above, the best available scientific information is that formidable technological barriers preclude large-scale increases in extraction from the Monterey Shale. Unknown new technologies that may be developed, coupled with global pricing variability and other regulatory uncertainties, do not provide the necessary evidence that major increases in WST activities are reasonably foreseeable. WST activities are now tracked at the state level, and are also part of the MMRP process, and will provide advance warning of any change in this circumstance that could potentially trigger the need for a supplemental EIR process under 21166. Please see GR 18 and responses 47 and 57.

0044-60

The location of oil reserves in Kern County have been thoroughly explored for more than a century. No "new fields" are anticipated to be discovered given this level of historic exploration and production. The commenter's Exhibit PD-1 assumes greatly expanded production in the Monterey Shale. Regarding the Monterey Shale, please see GR 18 and responses 47 and 57. As explained in GR 18, while accessing the Monterey Shale would require advances in well stimulation technology, the differences in geology between the Monterey Shale and shale deposits elsewhere in the U.S. mean that the technologies used elsewhere would not be applicable and new technologies would be necessary. The commenter's argument that the EIR must speculate on future technological breakthroughs that would result in some future unknown new level of well activity in the Monterey Shale is unreasonable and improper under CEQA.

0044-61

The extent to which future production in Kern County will "increase" is speculative given technology barriers to Monterey Shale recovery, and the need for more wells to maintain even existing production volumes given the age and depleting volumes of existing oil and gas reserves. Please see GR 8, GR 18 and responses 47, 57 and 60. The EIR's projections concerning future oil and gas development in the County, and the extraction techniques that will be used for such activities, is supported by substantial evidence, based on past and projected future industry practice. The EIR relies on the best available scientific information and avoids speculation, consistent with CEQA's mandates; please see GR 21.

0044-61 cont'd

0044-62

Commenter confuses the level of infrastructure improvements forecast to be needed by the project, with a description of permitting responsibilities by other responsible agencies. Additional infrastructure is anticipated to be required for Project implementation, as described in the Project Description and in Appendix W describing the ground disturbance factors. New infrastructure, or "accessory" facilities and equipment, includes a broad range of Project activities such as electric and communication service and distribution lines, access roads, storage tanks and separators, steam plants, pipelines, etc. However, large-scale infrastructure such as new or expanded cogeneration facilities, landfills, and transmission lines, are not anticiapted to be needed, require separate Conditional Use Permits if proposed (if within the jurisdiction of the County) or other agencies (if within the jurisdiction of other agencies such as the CPUC, and will require further CEQA review at that time. This is not impermissible piecemealing since these are not reasonably foreseeable future uses. Legal team add cites etc.

Cases hold that review of such support facilities "is not required in an EIR for the project the facility is to serve if: (1) obtaining more detailed useful information is not meaningfully possible at the time when the EIR for the project is prepared, and (2) it is not necessary to have such additional information at an earlier stage in determining whether or not to proceed with the project." *National Parks and Conservation Association v. County of Riverside* (1996) 42 Cal.App.4th 1505, 1518; see also *Kaufman & Broad-South Bay, Inc. v. Morgan Hill Unified School District* (1992) 9 Cal.App.4th 464 (CEQA review premature when no plan has been formulated about future development). The Project makes no commitment to construction of energy infrastructure and there are "adequate environmental safeguards" in place in the form of review of additional infrastructure by other agencies such the CPUC if the expansions do occur. *National Parks* at p. 1520.

0044-63

Commenter's legal citations are noted for the record and included in the Final EIR. Extension of high-voltage electric transmission lines is not an "integral part[] of the same project" (*Tuolomne County Citizens for Responsible Growth, Inc. v. City of Sonora* (2007) 155 Cal.App.4th 1214, 1229) or a "crucial element" without which the proposed project "cannot go forward" (*San Joaquin Raptor/Wildlife Reserve Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 732).

0044-64

The Draft EIR serves as an informational disclosure document, and as such properly describes extent to which certain no new or expanded large-scale infrastructure is needed for Project implementation, along with the lead agency jurisdiction of such infrastructure.

0044-65

No new electrical transmission lines are necessary, or anticipated to be constructed, to meet demands created by Project activities.

0044-66

The EIR appropriately describes constraints that reduce the likelihood that new cogeneration facilties would be constructed as part of the evidentiary basis for concluding that no such new facilities are reasonably foreseeable. The EIR thus appropriately excludes construction of unnecessary cogeneration facilities, while acknowledging that existing cogeneration facilities continue to operate in support of Project activities and are thus appropriately included in emission estimates and other impact assessment categories.

The commenter cites caselaw to demonstrate that cogeneration plants are polluting; however, the case is not relevant to this EIR. As explained in the EIR, construction of new cogeneration plants is not reasonably foreseeable, and in the unlikely event that one is proposed it will undergo separate CEQA review.

0044-66 cont'd

0044-67

The EIR explains the basis for the future well projections, and the speculative nature of unknown future technology, as described above.

0044-68

The information about Stockton is noted, but is also irrelevant. Kern County is the host of more megawatts of renewable energy (solar and wind) facilities than any other county in California, also has major gas plant electric generators, and already has ample cogeneration capacity from existing plants. It is not reasonably foreseeable that new cogeneration plants will be constructed in Kern County.

0044-69

The EIR explains the basis for excluding new cogeneration facilities from the EIR and requiring a discretionary permit, which automatically triggers the need for further CEQA review. Any future cogeneration facilities are speculative as Kern County has not approved a cogeneration facility in over 10 years and the current energy market makes cogeneration facilities less attractive. EIR, page 3-44. This satisfies CEQA's requirements. While the commenter cites *Bozung v. Local Agency Formation Commission* (1975) 13 Cal.3d 263 (*Bozung*), deferring consideration of remote or speculative cogeneration facilities is not unlawful "piecemealing" under *Bozung*. In that case, the court held that an annexation proposal was part of an overall development plan by which a property owner intended to urbanize its agricultural property. As such, the future development should have been considered with the annexation proposal. (*Id.* at pp. 283-284.) The test for piecemealing was further developed in *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376, 396, which held that "an EIR must include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects."

As applied here, it is not reasonably foreseeable that the Project will result in the construction of new cogeneration facilities. Based on past permitting and the current energy market, it is not reasonable to anticipate the development of any cogeneration facilities in the foreseeable future. The comment provides no evidence of proposed projects or any regulatory changes that would drive the construction of new cogeneration facilities for oil and gas production.

Not only is it uncertain whether any new cogeneration facilities would be proposed, but any estimate regarding the number or technology for future cogeneration facilities would be entirely speculative. While the comment points to a recent natural gas-fired combined heat and power facility that was approved in Stockton in 2015, that project was to provide power to a wet corn milling plant and not to support oil and gas activities. The cited example does not make construction of future cogeneration facilities in Kern County for oil and gas activities "reasonably foreseeable" or demonstrate that the County is actually contemplating a larger project that includes cogeneration facilities by approving the Project. See *Christward Ministry v. County of San Diego* (1993) 13 Cal.App.4th 31, 45.

0044-70

The comment is incorrect in suggesting that a cogeneration facility is a type of steam generator. A steam generator produces only steam, while a cogeneration facility produces both electricity and steam. See San Joaquin Valley Air Pollution Control District Rule 4406, defining "Steam Generator" as a "fossil-fuel-fired combustion device which has a rated heat input capacity greater than fifteen million BTUs per hour and which evaporates water to dry steam, or to a mixture of water vapor and steam that has an absolute pressure of more than thirty pounds per square inch." In the same rule, a "Cogeneration Facility" is a facility which employs technology defined in Sections 25134 of the Public Resources Code, and from which the electricity generated is no less than ten (10) percent and no greater than 90 percent of the useful energy output of the facility." Pub. Res. Code section 25134 in turn defines "Cogeneration" as "the sequential use of energy for the production of electrical and useful thermal energy. The sequence can be thermal use followed by power production or the reverse, subject to the following standards: (a) At least 5 percent of the cogeneration project's total annual energy output shall be in the form of useful thermal energy. (b) Where useful thermal energy follows power production, the useful annual power output plus one-half the useful annual thermal energy output equals not less than 42.5 percent of any natural gas and oil energy input.

0044-71

The comment states that the EIR must be revised to describe the Project's maximum build-out, which includes the maximum density of oil and gas operations that could occur on different types of land uses, and the total number of new wells that could be developed over time. These comments are addressed by information provided in the EIR, and further clarification is provided here.

The EIR describes the maximum build-out and total number of new wells that can be developed over time. The DEIR's projected total number of wells drilled per year is 3,649 (including new production wells, all categories; water disposal; water flood injectors; idle wells, non-cyclic; observation wells; steam flood injectors; air injection; and gas disposal). DEIR p. 3-32. The Revised Amended Ordinance includes a cap of 3,649 well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Thus, the maximum build-out for purposes of the ministerial permit approval process is the 3,649 wells annually over the 25 year life of the project. Please see GR-8 explaining the well projections utilized for purposes of impact analysis in the EIR.

The EIR also discloses information on the distribution of those new wells. The EIR divides the Project Area into Tiers, and into sub-regions, for the purposes of forecasting future Project activities and assessing impacts and mitigation measures. As described in the EIR, 90% of future activities are forecast to occur in Tier 1 areas, where oil and gas is the dominant surface use. DEIR p. 4.4-199; 4.9-130; 4.9-135. The remaining 10% of future oil and gas activities are expected to be distributed as shown on Tables 3-6 through 3-8, which shows distribution among Tiers within each of the three subareas. These tables provide a breakdown of potential drilling activities for years 2015 through 2040 for the Western, Central and Eastern Subareas, and for the Tiers. Based on this forecast, of the maximum annual 3,649 new wells forecasted, an average of 248 new wells could be drilled annually on Tier 2 lands. This amounts to less than 1% of the forecasted annual new wells. The level of well drilling in any given year may be higher or lower than this average, consistent with the variations in well drilling activities that have historically occurred due to market and other conditions. However, the total number of new wells drilled annually would not exceed 3,649 under the Revised Amended Ordinance.

Commenter's concerns about land use adjacent to certain receptors is evaluated extensively in several sections of the EIR. See, e.g., DEIR Section 4.3 (Air Quality); 4.8 (Hazards and Hazardous Materials); and 4.12 (Noise). A range of mitigation measures has been prescribed to protect sensitive receptors from nearby oil and gas activities. For example, MM 4.3-5, MM 4.8-4, and MM 4.12-1 require a permit applicant to identify sensitive receptors in the vicinity of the permit applicant's project and take protective measures as specified. To the extent the comment is concerned with sensitive biological resources, MM 4.4-1 through 4.4.18 impose requirements for activities that could impact sensitive natural communities. See also the Appendices to this EIR, which include additional clarifying information on air quality, noise, and vibration. Please refer to Section 7.1.4 for the Revised Summary of Impacts, Mitigation Measures and Significance Conclusions.

Additionally, Tier 1 does not include schools, daycare centers, hospitals, cemeteries, or similar types of sensitive receptors. DEIR p. 4.4-3. The Kern County and Metropolitan Bakersfield General Plans contain policies designed to guide land use decisions to ensure that sensitive land uses are adequately considered. See DEIR p. 4.10-14 through 4.10-173. The Project is consistent with these policies. DEIR Table 4.10-7.

0044-72

As described above, the number of wells issued under the Amended Ordinance is capped at 3,647 annually. This represents "full buildout" as that term is used by commenter, notwithstanding the fact that the term is more often applied to construction projects than ongoing implementation of a land use ordinance.

0044-72 cont'd

0044-73

Further clarifications to the Amended Ordinance have been made that address this comment, including clarification of the total annual cap of 3,647 well permits.

0044-74

See prior responses beginning with 35. The Revised Amended Ordinance now includes a cap on the number of new wells that may be issued under the ministerial permit provisions considered in this EIR. As discussed in GR 8, the annual well projections are very conservative. As discussed in GR 3, this EIR will have a "shelf life" or effective period that corresponds to the environmental impacts evaluated and mitigated in this EIR. Zoning ordinances remain in effect, but at such time as activities are proposed that fall outside the scope of the EIR – whether that occurs in year 5, 15 or 25 – must be evaluated under CEQA. Similarly, although it is not reasonably foreseeable that after more than 100 years of exploration and production in Kern County "new" oil reserves will be discovered outside the Project Area, the Revised Amended Ordinance also now makes clear that any such activities are outside the scope of this EIR and would require discretionary permitting including additional CEQA review. Commenter's example of using zoning authority to impose cap on the construction of housing units is noted, but while local government's zoning authority is an appropriate tool to regulate land use development such as housing units, as discussed in GR Alts 1 and 2, the County cannot impose absolute locational or infrastructure caps that would limit or preclude a mineral owner from extracting oil without incurring liability for compensating that owner. The Revised Amended Ordinance clarifies that any such activities that are outside the scope of this EIR would require a discretionary permit and trigger the need for additional CEQA review.

0044-75

See comment 74.

0044-76

See comment 74.

0044-77

Commenter's legal references are noted and included in teh Final EIR.

0044-78

Commenter's legal references are noted and included in the Final EIR.

0044-79

Commenter's reliance on the facts presented in the DEIR is noted.

0044-80

Commenter's reliance on the facts presented in the DEIR is noted. A letter from Holly King, cited by the commenter, was not received by the close of the public comment period.

0044-80 cont'd

0044-81

Commenter's opinion is noted.

0044-82

Please see GR AG-2 regarding rangeland.

0044-83

Comments 85 to 86 state that the EIR does not effectively analyze indirect farmland conversion because the EIR provides inaccurate calculations used to determine the number of future wells likely to occur in Tier 2 lands. The commenter's opinion is noted for the record and will be forward to the Planning Commission and Board of Supervisors for their consideration. Please see response to comments 43-85 to 43-86 below.

0044-84

The comments state taht Tier 2 lands make up 87% of land in the Project Area, and that new production is "most likely to occur on Tier 2 lands." The commenter has not submitted evidence to suggest that new oil and gas activities are more likely to occur on Tier 2 lands than in other Tiers, and that conclusion is not supported by information in the EIR. Please refer to response to comment 44-54 regarding the concentration and likely location of future oil and gas activities in the Tier 1 and Tier 2.

0044-84 cont'd

0044-85

Comments 85 to 86 state that the EIR's estimate of farmland conversion is also inaccurate because the EIR used an average acreage of land disturbance that occurs per producible well, rather than analysis of maximum buildout. The EIR does analyze maximum buildout, and does not use improper averaging that might underrepresent potential disturbed area. Further clarification is provided here about the methodology by which the EIR conducts the analysis and portrays the information in Appendix F. Also, under the Revised Amended Ordinance, actual mitigation will be imposed on a site-specific basis, based on the site plan submitted by the permit applicant in the Conformity Review process.

The comment cites to Appendix F of the EIR in its statement that the EIR analyzed only an average acreage of land disturbance, rather than considering full build out. Appendix F describes the derivation of a land disturbance factor – that is, a mathematical multiplier for purposes of estimating total land disturbance from Project activities within the scope of the EIR . In order to estimate the amount of land use disturbance which will occur when oil and gas production and development activities are undertaken pursuant to the Revised Amended Ordinance, it is

necessary to derive a multiplier – the disturbance factor – which can then be multiplied by the maximum number of annual wells to arrive at land use disturbance figures for full buildout.

To determine the land disturbance figure, the County conducted an independent analysis of the actual, on the ground disturbance in the ten largest oil producing fields in the County fields using aerial photography. The aerial photographs were digitized for the ArcGIS platform, and then used to identify physical disturbance related to oil production in each field, including roads, well pads, pipelines, storage and parking areas, and other uses. The identification of these features is done by digitizing the shapes, or "polygons," of the area to be calculated. Determining the individual areas from each digitized polygon allowed for an acreage calculation for individual polygon areas to reach a total disturbance area for a given field, as discussed further below.

To present the total disturbance acreage estimates to a per-well land disturbance factor, the next step was to divide the total by the number of wells in the field. This was accomplished by dividing total land disturbance by the number of producible wells in the field, rather than dividing by the number of wells identified as active in the DOGGR data base. Using the smaller number of producible wells as the denominator resulted in greater per-well land disturbance factors, adding environmental conservatism to the analysis of impacts to agricultural, biological and other resources in the Draft EIR. See Draft EIR, Appendix F, page 8.

Then, after dividing total land disturbance by the number of producible wells in the field, the initial result was rounded upward to derive the final disturbance factors. This rounding upward also ensures that the land use disturbance analysis uses conservative figures. The final adjusted (rounded up) disturbance factors are shown on Table 11 of Appendix F. The Western Subarea used an adjusted factor of 2.0 acres of disturbance per well; the Central subarea used a disturbance factor of 3.0 acres of disturbance per well, and the Eastern Subarea used a disturbance factor of 1.20 acres per well.

The comment cites to the Western subarea's factor of 2.0 acres per well and states that "of 10 fields surveyed, 5 had disturbed more than 2.0 acres per well…" The comment refers to Attachment A to Appendix F, and is correct that some fields list individual disturbance areas that are greater than the factor for that field. However, that does not indicate that improper averages were used; rather, those individual disturbance areas are a function of the use of polygons in the ArcGIS platform which are necessary to calculate total area. This part of the methodology warrants further clarification here.

Disturbance for each field is shown on Attachment A to Appendix F. It is important to understand that even though Attachment A includes lists of discrete disturbance figures, these numbers are derived from need to represent the specific disturbed features on the digitized aerial photographs in numeric form for purposes of adding up a total disturbance number. For example, depending on the technical intricacies of calculating land area using ArcGIS polygons, a portion of an access road shown on the map might be calculated as a fraction of an acre, while an adjoining portion of that same road could be an acre. Or, a building's footprint could be represented as a separate number from an adjoining parking area, depending on how the how one draws the polygon to calculate the area. In other words, the list of discrete disturbance areas for each field represents the GIS polygons used to calculate land area from a digitized GIS photograph. The fact that some polygons were larger than others was taken into account, but was not the sole driver, for the calculation of the land use disturbance factor.

Upon adding up the individual polygon areas to get total disturbed area, that area was divided by the number of producible wells in the field and rounded up, as described above. Therefore, there is no averaging conducted here that would tend to underrepresent disturbed area. An example of the type of averaging that might underrepresent disturbance areas would be if the EIR had collected a range of well pad sizes, and then used the average well pad size rather than the largest well pad size to evaluate potential land disturbance. That methodology was not employed here.

Conversely, a methodology which uses a disturbance factor derived from only the largest features, or polygons, from each well field would grossly distort the analysis so as to render it virtually meaningless. The total land disturbance figures in Appendix F represent land disturbed due to a variety of oil field uses: access roads, producible and injection well pads, water and oil storage, conveyance pipelines, processing tanks and other facilities, administrative buildings, and maintenance, truck and other equipment staging, storage and parking areas. There is necessarily a range in the area of land disturbed for each of these various uses identified in the aerial photographs, and using only the largest features as a factor would not make sense. For example, a small access spur disturbs less ground than an administrative building and, depending on the way the polygon is drawn, each of these features would likely be listed as discrete land uses disturbances in Attachment A of Appendix F. Using only the surface disturbance for the administrative building - or the largest feature in a given field – would ignore the range of uses in an oil field and would grossly distort the analysis which, in turn, would undermine the informational value of the EIR.

The commenter cites to *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal. App. 4th 645, 655 in stating that CEQA requires an analysis of maximum buildout, not a "hoped for average." The legal authority has been noted and reviewed, and the EIR is consistent with this principles in that case. With respect to the discussion of "averages" raised by the comment, *County of Merced* illustrates the rationale behind analyzing potential impacts based on the maximum anticipated production, which this EIR has done. In *County of Merced,* the EIR for a mine expansion analyzed only potential impacts from the average forecast mine production, rather than the maximum production level anticipated by the project description. That EIR concluded that since the forecast for average annual production did not exceed historical averages, the project would not result in an increase in production. The court invalidated the approval of that EIR, citing the misleading nature of the project description and analyses. Here, however, this EIR forecasts the maximum annual number of future ministerial wells permits issued pursuant to the Project, and conducts the environmental analysis based on the assumption that the maximum number of wells is reached. The analysis is consistent with that required by CEQA and in line with the principle of analyzing the maximum proposed build-out espoused in *County of Merced.*

The commenter also refers back to earlier comments made regarding analysis of the whole of the project under CEQA; please accordingly refer back to responses to comments 44-37 through 44-70.

0044-86

Comments 85 to 86 state that the EIR's estimate of farmland conversion is also inaccurate because the EIR used an average acreage of land disturbance that occurs per producible well, rather than analysis of maximum buildout. The EIR does analyze maximum buildout, and does not use improper averaging that might underrepresent potential disturbed area. Further clarification is provided here about the methodology by which the EIR conducts the analysis and portrays the information in Appendix F. Also, under the Revised Amended Ordinance, actual mitigation will be imposed on a site-specific basis, based on the site plan submitted by the permit applicant in the Conformity Review process.

The comment cites to Appendix F of the EIR in its statement that the EIR analyzed only an average acreage of land disturbance, rather than considering full build out. Appendix F describes the derivation of a land disturbance factor – that is, a mathematical multiplier for purposes of estimating total land disturbance from Project activities within the scope of the EIR . In order to estimate the amount of land use disturbance which will occur when oil and gas production and development activities are undertaken pursuant to the Revised Amended Ordinance, it is necessary to derive a multiplier – the disturbance factor – which can then be multiplied by the maximum number of annual wells to arrive at land use disturbance figures for full buildout.

To determine the land disturbance figure, the County conducted an independent analysis of the actual, on the ground disturbance in the ten largest oil producing fields in the County fields using aerial photography. The aerial photographs were digitized for the ArcGIS platform, and then used to identify physical disturbance related to oil production in each field, including roads, well pads, pipelines, storage and parking areas, and other uses. The identification of these features is done by digitizing the shapes, or "polygons," of the area to be calculated. Determining the individual areas from each digitized polygon allowed for an acreage calculation for individual polygon areas to reach a total disturbance area for a given field, as discussed further below.

To present the total disturbance acreage estimates to a per-well land disturbance factor, the next step was to divide the total by the number of wells in the field. This was accomplished by dividing total land disturbance by the number of producible wells in the field, rather than dividing by the number of wells identified as active in the DOGGR data base. Using the smaller number of producible wells as the denominator resulted in greater per-well land disturbance factors, adding environmental conservatism to the analysis of impacts to agricultural, biological and other resources in the Draft EIR. See Draft EIR, Appendix F, page 8.

Then, after dividing total land disturbance by the number of producible wells in the field, the initial result was rounded upward to derive the final disturbance factors. This rounding upward also ensures that the land use disturbance analysis uses conservative figures. The final adjusted (rounded up) disturbance factors are shown on Table 11 of Appendix F. The Western Subarea used an adjusted factor of 2.0 acres of disturbance per well; the Central subarea used a disturbance factor of 3.0 acres of disturbance per well, and the Eastern Subarea used a disturbance factor of 1.20 acres per well.

The comment cites to the Western subarea's factor of 2.0 acres per well and states that "of 10 fields surveyed, 5 had disturbed more than 2.0 acres per well…" The comment refers to Attachment A to Appendix F, and is correct that some fields list individual disturbance areas that are greater than the factor for that field. However, that does not indicate that improper averages were used; rather, those individual disturbance areas are a function of the use of polygons in the ArcGIS platform which are necessary to calculate total area. This part of the methodology warrants further clarification here.

Disturbance for each field is shown on Attachment A to Appendix F. It is important to understand that even though Attachment A includes lists of discrete disturbance figures, these numbers are derived from need to represent the specific disturbed features on the digitized aerial photographs in numeric form for purposes of adding up a total disturbance number. For example, depending on the technical intricacies of calculating land area using ArcGIS polygons, a portion of an access road shown on the map might be calculated as a fraction of an acre, while an adjoining portion of that same road could be an acre. Or, a building's footprint could be represented as a separate number from an adjoining parking area, depending on how the how one draws the polygon to calculate the area. In other words, the list of discrete disturbance areas for each field represents the GIS polygons used to calculate land area from a digitized GIS photograph. The fact that some polygons were larger than others was taken into account, but was not the sole driver, for the calculation of the land use disturbance factor.

Upon adding up the individual polygon areas to get total disturbed area, that area was divided by the number of producible wells in the field and rounded up, as described above. Therefore, there is no averaging conducted here that would tend to underrepresent disturbed area. An example of the type of averaging that might underrepresent disturbance areas would be if the EIR had collected a range of well pad sizes, and then used the average well pad size rather than the largest well pad size to evaluate potential land disturbance. That methodology was not employed here.

Conversely, a methodology which uses a disturbance factor derived from only the largest features, or polygons, from each well field would grossly distort the analysis so as to render it virtually meaningless. The total land disturbance figures in Appendix F represent land disturbed due to a variety of oil field uses: access roads, producible and injection well pads, water and oil storage, conveyance pipelines, processing tanks and

other facilities, administrative buildings, and maintenance, truck and other equipment staging, storage and parking areas. There is necessarily a range in the area of land disturbed for each of these various uses identified in the aerial photographs, and using only the largest features as a factor would not make sense. For example, a small access spur disturbs less ground than an administrative building and, depending on the way the polygon is drawn, each of these features would likely be listed as discrete land uses disturbances in Attachment A of Appendix F. Using only the surface disturbance for the administrative building - or the largest feature in a given field – would ignore the range of uses in an oil field and would grossly distort the analysis which, in turn, would undermine the informational value of the EIR.

The commenter cites to *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal. App. 4th 645, 655 in stating that CEQA requires an analysis of maximum buildout, not a "hoped for average." The legal authority has been noted and reviewed, and the EIR is consistent with this principles in that case. With respect to the discussion of "averages" raised by the comment, *County of Merced* illustrates the rationale behind analyzing potential impacts based on the maximum anticipated production, which this EIR has done. In *County of Merced,* the EIR for a mine expansion analyzed only potential impacts from the average forecast mine production, rather than the maximum production level anticipated by the project description. That EIR concluded that since the forecast for average annual production did not exceed historical averages, the project would not result in an increase in production. The court invalidated the approval of that EIR, citing the misleading nature of the project description and analyses. Here, however, this EIR forecasts the maximum annual number of future ministerial wells permits issued pursuant to the Project, and conducts the environmental analysis based on the assumption that the maximum number of wells is reached. The analysis is consistent with that required by CEQA and in line with the principle of analyzing the maximum proposed build-out espoused in *County of Merced.*

The commenter also refers back to earlier comments made regarding analysis of the whole of the project under CEQA; please accordingly refer back to responses to comments 44-37 through 44-70.

0044-87

The comment states that the DEIR's survey of the ten largest oil producing fields for purposes of determining land disturbance acreage did not take into account economies of scale that the comment states occur in high-producing fields. The comment is noted. Various methods of determining land use disturbance were considered, and the methodology described in Appendix F was selected. The method surveys those oil producing fields which account for 97 to 99 percent of the total oil production and total produced water in the Project Area, which forms a reasonable basis by which to select the fields. Appendix F, p 4.

Additionally, the EIR contains measures to encourage the use of existing infrastructure where possible. See DEIR at pp. 4.9-152–4.9-153; MM 4.1-1 (The Applicant shall use existing roads whenever possible. If use of existing roads is not feasible, construction of new roads should be routed to minimize the amount of disturbance without impeding existing surface use.); MM 4.2-2(h) (requiring that overhead electrical and communication lines "shall be aligned to the greatest extent feasible with existing access roads" and that the lines be run "the minimum distance between the access road and the well installation and other oil and gas facility" and "parallel to tree or row crops" and the "[i[the use of existing roads is not feasible, lines should be routed to minimize surface disturbance and minimize the impacts to surface area.").

No evidence has been submitted to show that surveying the ten largest oil fields to determine the land use disturbance factor results in significant adverse impacts. Nor has the County received additional suggestions for an alternative method of surveying that would be preferable to the method selected by the County and its experts.

0044-88

The comments state that the EIR only considered farmed acreage that was physically replaced by certain oil and gas infrastructure, but did not consider actual acreage taken out of production due to interference with agricultural operations. Please see responses to comments 44-89 and 44-114, which discuss mitigation measures which address the commenter's concern. Additionally, to the extent the Project results in conversion of farmland, MM 4.2-1 requires 1:1 replacement of such Farmland, regardless of who holds title to such Farmland. Please see GR Ag-1 and GR-4.

0044-89

A letter from Holly King, cited by the commenter, was not received by the close of the public comment period.

0044-90

The County does not regulated private property transactions, which may occur for many reasons and are in any event wholly outside the County's jurisdiction and control. The comment states that the EIR fails to take into account potential of conversion of Farmland from voluntary sale by property owners. The comment cites the "H. King Letter" as evidence that such transactions have occurred in the past. As of September 19, 2015, the County has received no such letter. In any event, to the extent the Project results in conversion of Farmland, MM 4.2-1 requires 1:1 replacement of such Farmland, regardless of who holds title to such Farmland. Please see GR Ag-1.

0044-91

Tier 2 was defined to include farmed lands, and comprises the vast majority of the lands within the Project Area. There are no significant farmed agricultural areas outside of Tier 2.

0044-92

The environmental impacts associated with loss of farmlands is properly assessed at the Project Area and sub-area scale for Tier 2 lands, since agricultural lands are a regional and statewide resource.

0044-93

Please see GR Ag-1.

0044-93 cont'd

0044-94

Please see GR Ag-1.

0044-95

Please see GR Ag-1.

0044-96

Please see GR Ag-1.

0044-97

The comment states that purchasing farmland in other parts of the state will do nothing to mitigate for loss of farmland in Kern County. Even if mitigation lands were located outside Kern County, this would be consistent with the Department of Conservation's views that agricultural conservation is a regional and statewide issue. (*See Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230, 237 [quoting the Department of Conservation as stating that "[t]he conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should be conducted regionally or statewide, and not limited strictly to land within the project's surrounding area"].)

More importantly, the majority of Farmland conservation mitigation will occur in Kern County. MM 4.2-1 prioritizes conservation of farmland in Kern County, both through the acquisition and conservation component of the measure, as well as by promoting restoration of already disturbed agricultural land in the County through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment. It is only if qualifying lands from willing property owners cannot be found in Kern County that mitigation lands may be located within the San Joaquin Valley or outside the San Joaquin Valley. See MM 4.2-1. Under the worst-case projection of Farmland conversion due to the project, less than 1% of the total acreage of Farmland in the County will be converted. Over 820,000 acres of Farmland will remain in Kern County to provide mitigation. DEIR at p. 4.2-18.

To the extent the comment seeks to have the EIR analyze the economic effects of loss of farmland in the County, such an analysis in beyond the scope of this EIR. *See* 14 Cal. Code Reg. § 15131(a); *see also Gray v. County of Madera* (2008) 167 Cal. App. 4th 1099, 1120, 85 Cal. Rptr. 3d 50 (EIR need not evaluate economic impacts on neighboring property owners from effects of groundwater declines on their private wells); *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1989) 209 Cal. App. 3d 1502, 1516, 258 Cal. Rptr. 267 (impacts on availability of child care facilities are not environmental impacts that need to be considered in EIR). Please see GR Ag-1.

0044-98

Agriculture and oil and gas activities have coexisted in Kern County for over a century. (DEIR at P. 2-24.) There is no indication that the Project, which provides more restrictions on oil and gas activities and mitigation measures to conserve agricultural resources, will cause a mass acceleration of Farmland conversion. Based on the analysis conducted in the DEIR, under the worst-case projection of Farmland conversion due to the Project, less than 1% (approximately 8,289 acres) of the 828,973 total acres of Farmland in Tier 2 of the total acreage of Farmland in Tier 2, which contains all of the Prime Farmland, Unique Farmland, and Farmland of Statewide Significance that is currently being used for agricultural uses in the Project Area (DEIR at p. 4.2-16), will be converted, and over 820,000 acres of Farmland will remain in Kern County. (DEIR at p. 4.2-18.)

Further, as described in response 99, response 114, and GR AG-1, MM 4.2 4.2-1 requires a 1:1 mitigation ratio for conversion of farmland and prioritizes conservation of farmland in Kern County, both through the acquisition and conservation component of the measure, as well as by promoting restoration of already disturbed agricultural land in the County through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment. Further, MM 4.2-1 has been revised to prioritize "acquisition of large blocks of agricultural land for preservation, and removal of legacy equipment, to minimize and mitigate fragmentation and edge impacts.

0044-99

Please see GR Ag-1.

0044-100

Please see GR Ag-1.

0044-101

Please see GR Ag-1.

0044-102

Please see GR Ag-1 and GR 16.

0044-103

Commenter indicates that the Farmland mitigation programs must be developed and established in the DEIR and not deferred to a later date.

The commenter cites to two cases for the proposition that a mitigation program must be fully developed during the EIR process—*California Native Plants Society v. County of El Dorado* (2009) 170 Cal.App.4th 1026 (CNPS) and the unpublished *South County Citizens for Responsible Growth v. City of Elk Grove* (Cal. Ct. App., Feb. 5, 2004), 20004 WL 219789 (*Elk Grove*).

In *CNPS*, the Court of Appeal considered the adequacy of a "rare plant fee" in El Dorado's County Code that allowed mitigation either through participation in a rare plant off-site mitigation program or through paying a fee for the direct or indirect impacts caused by development on the rare plants and rare plant habitat. The Court held that "[f]or an in-lieu fee system to satisfy the duty to mitigate, either that system must be evaluated by CEQA (two-tier approval for later, more specific, projects) or the in-lieu fees or other mitigation must be evaluated on a project-specific basis." (*CNPS*, *supra*, 170 Cal.App.4th at p. 1055.) The Court held that the fee program for rare plants was required to go through an environmental review and that it was not enough for the County to declare that the fee would fully mitigate the effects of development on rare plants.

Similarly, in *Elk Grove* the Court held that the mitigation fees that were going to be used to reduce the impact of farmland conversion should have been discussed in the EIR but stated that "[t]his would not be necessary if the City had an established program for the assessment and use of conservation fees." (*Elk Grove*, *supra*, 20004 WL 219789 at *8.) Since an established program was not in place, the Court requested that the EIR discuss when fees should be paid, how the fees should be spent, and which properties should have priority. (*Ibid.*)

Those standards are met here. The mitigation program for farmland conversion is being evaluated by CEQA through the EIR process.

MM 4.2-1 clearly states that Farmland will be mitigated at a 1:1 ratio and sets out four methods that can be used to achieve this standard. (See *North Coast Rivers Alliance v. Marin Municipal Water District* (2013) 216 Cal.App.4th 614, 629-630 [holding that a mitigation plan is sufficient if it identifies methods that will be used to mitigate the impact and sets out standards that the agency commits to meet]; see also CEQA Guidelines, § 15126.4, subd. (a)(1)(B) [mitigation measures "may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way"].)

MM 4.2-1 also states that mitigation must occur prior to a Project applicant submitting an application and that the land used for mitigation must "be of similar or higher agricultural quality as the lands" converted and priority is given to land in Kern County. This provides the necessary specificity to allow for public response through the CEQA process.

For more information, please see the Global Response on Mitigation Specificity and the Global Response on Agricultural Mitigation. Please see GR Ag-1 and GR 16.

0044-104

The comment cites *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296 (*Lodi*) for the proposition that "conversion of 40 acres of farmland was a significant impact even after conservation easement mitigation measures." In *Lodi*, the draft EIR determined that the conversion of 40 acres of prime farmland to urban use could not be mitigated absent an outright prohibition on development. (*Id.* at p. 320.) This was due to the fact that the urban development changed the character of the land such that it was permanently removed from the stock of agricultural land. (*Id.* at p. 323). Because more agricultural land could not be created (only other existing agricultural lands preserved), the EIR found that the lost farmland was not fully mitigated by a 1:1 conservation ratio and adopted a statement of overriding consideration. (*Id.* at p. 322). The Court of Appeal held that substantial evidence supported the City's determination that there was no feasible mitigation measure for permanently converted agricultural lands. However, the Court determined that a ratio higher than 1:1 was not justified in that circumstance and that the City's proposed 1:1 mitigation ratio "would minimize and substantially lessen the significant effects of the proposed project." (*Id.* at pp. 323-324.) The Court's first determination regarding permanently converted agricultural lands is not relevant here, as agricultural lands affected by the Project could be used again in the future for agricultural purposes. Further, that finding is in conflict with the later Court of Appeal decision of *Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230, in which the Court concluded that "[b]y thus preserving substitute resources, [1:1 ratio conservation easements] compensate for the loss of farmland within the Guidelines’ definition of mitigation." (*Id.* at p.

238.)

0044-105

Please see GR Ag-1.

0044-105 cont'd

0044-106

Please see GR Ag-1 and GR 16.

0044-107

Please see GR Ag-1, GR 16, and response 103 and 104.

0044-108

Please see GR Ag-1, GR 16, and response 103 and 104.

0044-109

Please see GR Ag-1, GR 16, and response 103 and 104.

0044-110

Each of these suggested revisions to mitigation measures is addressed in responses to commenter's Exhibits (including Ex Ag 13, LU-4 and LU-5), included in Response 262, 274, and 275 below. Additional surface owner provisions have been added to the Revised Amended Ordinance, and to EIR Mitigation Measures, to address many of the subjects raised by commenter. Commenter's request that surface owner permission or agreement be imposed as a pre-condition for allowing mineral owners to access land, comply with mitigation measures and regulatory mandates, or extract oil or gas, are all noted, but cannot be imposed by the County as these provisions would effectively create a surface owner "veto" of mineral owner property rights given existing laws that provide mineral owners with the dominant property right on split estates. See also, GR 4.

0044-110 cont'd

0044-110 cont'd

0044-111

See comment 104.

0044-111 cont'd

0044-112

The potential effect of water shortages is addressed in the EIR, pp. 4.17-49 – 60, which covers utilities and service systems. The DEIR acknowledges that the shortage of water in Kern County is a significant problem, to which the Project's water demand will contribute. Mitigation measures 4.17-2 and 4.17-3 are provided to reduce the Project's impacts on the water supply. However, given competing water demands, the complexity of laws affecting water rights, the preexisting allocation of water supplies, and the many water districts that have legal jurisdiction over one or more sources of water in the Project Area, the scope of the County's jurisdiction is limited and the implementation and effectiveness of mitigation measures is considered uncertain. The EIR therefore concludes that the mitigation measures cannot reduce the impacts below a level of significance. Section 15126.2(b) of the CEQA Guidelines requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less-than-significant levels. In order to approve the Project with this and other significant and unavoidable impacts, the County would be required to find that the project benefits outweigh these impacts.

0044-113

The EIR includes 22 detailed mitigation measures to reduce the frequency and/or consequences of hazardous materials spills. See MM 4.8-1 to 4.8-22. The EIR does not assume that mitigation will cause the risk of spills and contamination to "disappear", but analyzes the each impact and concludes that these mitigation measures are sufficient to reduce impacts to less than significant. The mitigation measures contain detailed prescriptive requirements which go beyond "best management practices." MM 4.8-6, which in the Draft EIR referred to best management practices, has been revised in the Final EIR to require compliance with specified standards. This analysis is comprehensively covers spills on all lands including agricultural lands. Commenter references its Exhibit Ag-9 regarding "irrigation water contamination"; please see GR Water-8.

0044-114

The comment refers to EIR page 4.22-2 which states that: "Use of heavy equipment, including trucks, and tanks used during oil and gas production activities would result in soil compaction *beneath roads* leading to well pad areas" (emphasis added). Soil compaction from heavy equipment used for oil and gas production would be confined to limited areas (access roads and well pads) and soil productivity would not be significantly affected. (By comparison, the use of farm equipment would have greater impact agricultural fields because soil compaction would occur throughout the field.) Similarly, any increased runoff related to soil compaction would be limited to oil and gas production areas because of the limited footprint that the heavy equipment would travel. Runoff from oil and gas production areas would be addressed by mitigation measures 4.9-1 and 4.9-2. A separate mitigation measure is not necessary.

0044-115

The commenter notes that use of heavy equipment *on cropland* would result in soil compaction. However, Project impacts related to soil compaction would be limited to areas disturbed for oil and gas activities, i.e., well pads and access roads. Moreover, any increased runoff related to soil compaction is managed through mitigation measures designed to control run-off.

The commenter's Exhibit 12 is a study of soil compaction caused by heavy farm equipment (high axle loads 10 tons and heavier). Although equipment used for oil and gas production is heavier than farm equipment, the impacts resulting from soil compaction during oil and gas production would be far less, because the frequency of trips and footprint that the heavy equipment would travel would be less than that required for farming activities. Heavy equipment for oil and gas production would be limited to roads and well pads and would be limited to well installation and/or recovery events (usually one trip in and one trip out). By contrast, farming activities (row crop production) requires heavy equipment that traverses throughout the entire area designated for agriculture (100% of a field per commenter's Exhibit 12) and the equipment will traverse the entire area prior to, during, and throughout the growing season and/or seasons (four passes as cited in the study).

The commenter's Exhibit 12 is a fact sheet advising landowners in Pennsylvania on soil compaction as an issue for negotiation of oil and gas lease provisions for restoration of the landowner's property after operations end. The fact sheet states: "Depending on the location and accessibility of the affected site," leaving the limited areas subject to soil compaction to revert to wildlife habitat is "often the most economical and logical use of these sites." This is an economic issue which is not an environmental impact under CEQA. "Economic and social changes resulting from a project shall not be treated as significant effects on the environment." CEQA Guidelines § 15064(e); *see also* Guidelines §§ 15131(a), 15382.

0044-116

The comment states that idle wells in the County can lead to fragmentation of farmland and grazing land, and cites to "H. King Letter" as evidence for this assertion. As of September 11 , 2015, no comment letter has been received from "H. King." Further, the existence of idle wells are part of the environmental baseline and are not an impacts of the Project. The vast majority of idle wells are located in Tier I areas, rather than in other tiers, as depicted in the attached Figures 1-4.

0044-117

See comment 116.

0044-118

See comment 116.

0044-119

The comment states that MM 4.2-2 is too vague to mitigate indirect Farmland conversions. MM 4.2-2 provides that each Applicant "shall comply" with 9 specific measures that control the physical and environmental footprint of oil and gas activities. These measures are specific and enforceable, and substantial evidence supports the determination that MM 4.2-2 will mitigate indirect impacts to less than significant. Please see GR 16.

0044-120

Please see response 115.

0044-121

Please see response 111.

0044-121 cont'd

0044-122

Please see GR Haz-2.

0044-123

Please see response 119 and GR 16.

0044-124

Commenter's objections to the sufficiency of MM 4.2-2 are noted. Revisions have been made to this MM that partially address these issues; however, as discussed in comment 261 in response to Ex AG 11 and 12, further mitigation to address soil compaction is not warranted based on evidence provided by commenter that use of heavy farm equipment has caused soil compaction in Pennsylvania. Responses to comments regarding water mitigation, farmland fragmentation, and idle wells, which commenter notes here but addresses in detail in other parts of its comment letter, are responded to in the context of the cross-referenced comments. The issue of idle wells, and the quotation from the County staff report, are also noted, and this issue is addressed in Responses 116-118 above. Commenter's concerns about the effects of mitigation measures on farmland are also noted, and as explained in Responses 262, 274, and 275 (responses to Exh Ag 13, LU 4 and LU-5), when under County jurisdiction and control some measures have been modified to reduce impacts to agricultural lands (e.g., planting of screening vegetation on agricultural lands) and other measures are required to comply with applicable regulations (e.g., federal Clean Water Act stormwater management requirements) or mitigate significant adverse impacts (e.g., pre-construction cultural resource surveys to assure avoidance of significant cultural resources). Following further consideration of these comments, and the modifications included in the Revised Amended Ordinance and EIR mitigation measures to address surface owner and agricultural impact issues, the County's longstanding practice of requiring compensatory mitigation for loss of agricultural lands based on ground disturbance impacts has been determined to continue to be the appropriate mitigation metric for this EIR.

0044-125

Please see GR 4.

0044-126

Please see GR 4.

0044-127

The comment states that the cumulative impacts analysis for Agriculture and Forest Resources is inadequate. As noted in section 3.7 of the DEIR, the cumulative analysis in the DEIR "uses the plan/projection approach, and includes both the KCGP and the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) approved in 2014." DEIR p. 3-80. This approach to cumulative analysis is authorized by Cal. Pub. Res. Code s. 21100(e), 14 CCR 15130(b)(1)(B), as well as CEQA case law. *See Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260; *Schaeffer Land Trust v. San Jose City Council* (1989) 215 Cal.App.3d 612.

Commenter asserts that the DEIR's cumulative agricultural impacts analysis is insufficient. Specifically, commenter requests that the County clarify whether the average annual farmland conversion rate has been increasing, whether the RTP/SCS conversion figure is calculated annually or over a period of time, and where the conversions forecasted under Kern County's General Plan would occur.

The Kern County General Plan provides a lawful basis for cumulative impacts, as does the Kern COG RTC/SCS. Pursuant to CEQA Guidelines § 15130(b)(1)(B), a lead agency "may base the cumulative impact analysis on a summary of projections of future development and impacts contained in an adopted general planning or related planning document, or in a prior environmental document that has been certified." The only requirements are that "[t]hese documents must be available to the public and actually describe or evaluate the regional or areawide conditions contributing to the cumulative impact." (*Ibid.*) The County General Plan and the RTP/SCS meet these requirements.

In response to commenter's questions about whether the rate of conversion is increasing and how the RTP/SCS conversion figure is calculated, the RTP/SCS states that the conversion of 24 square miles from agricultural use will occur "[f]or the 2014-2040 planning period (26 years)" (2014 RTP at p. 4-35). This duration is noted and included in the Final EIR prepared for the RTP/SCS. During this period, as stated in the DEIR, the RTP/SCS forecasts that the conversion of agricultural land will be 1/10th the conversion of the previous 22 years. (DEIR at p. 4.2-25). Thus, according to the RTP/SCS, the rate will be decreasing over the next 26 years due largely to local government efforts to balance urban expansion with the conservation of economically viable farmland.

Identification of the specific location of the potentially converted agricultural parcels was not necessary in order to prepare the cumulative impacts analysis for the Project, since the geographic scope of the Project is all of Kern County and not any particular agricultural area within the County. (See DEIR at p. 4-2-24.) The CEQA Guidelines allow a lead agency to define the geographic scope when conducting a cumulative impacts analysis, as long as a reasonable explanation for the geographic limitation is given. (CEQA Guidelines, § 15130(b)(3).) Here, the County chose analysis chose the whole of Kern County because agricultural land statistics and characteristics are typicallycollected at the County level. (DEIR at p. 4.2-24.) This is a reasonable explanation for this geographic limitation. Additional information regarding the mapping techniques used by the County to predict the loss of 80,847 acres of prime and important farmland and 55,000 acres of grazing land can be found in the Recirculated Draft Program EIR for the Kern County General Plan Update, January 2004, at pages 4-7-37 to 4-7-38. Since 2004, the Kern County General Plan Progress Reports (2005 to 2015) required to be filed by April 1 to the State Office of Planning and Research has shown the statistics of conversion in contrast to the projection in the 2004 General Plan EIR. The 2015 report shows that the cumulative conversion of agricultural land from 1998 to 2014 is 19,973 acres countywide. Compared to the projection of the loss of 80,847 acres, the current total of 19,973 in 2014 can been seen to show that conversion has declined not accelerated since the General Plan DEIR. Text revisions have been made to this EIR to reflect the duration of the analysis in both the RTP/SCS and the KCGP, as well as to reflect that the predicted loss of prime and important farmland in the KCGP is 80,847 acres, not 80,854 acres as identified in the DEIR.

0044-128

Please see response 111.

0044-129

The comment states that the cumulative impacts analysis for Agriculture and Forest Resources fails to include the "Tier 5 specific plans." Commenter fails to indicate which specific plans it believes should have been considered, and the comment's cross-reference to Section III.D.4 of its letter is inapposite. All relevant Specific Plans are discussed on DEIR pages 4.10-64 – 73. These Specific Plans are appropriately considered as part of the Project-level analysis, rather than as part of the cumulative analysis, because the Revised Amended Zoning Ordinance regulates all future oil and gas activity in the County, including in Tier 5. DEIR, pp. 3-24 – 3-26. As noted on page 3-26, Tier 5 are areas

including current and future Specific Plan boundaries either adopted with a Special Plan Zone District or which include specific provisions for oil and gas operations. Oil or gas exploration and production activities would be allowed with a CUP or as permitted by the regulations contained within the adopted Specific Plan(s) in Tier 5 areas." Any wells that will be developed in the Tier 5 will be part of the well cap imposed by the Revised Amended Ordinance (DEIR, p. 3-26; *see also* Global Response 13), though such wells would be subject to additional environmental review consistent with the requirement to obtain a conditional use permit.

The comment also states that the DEIR fails to take into account "the potential for future wind and solar development" in the cumulative analysis of impacts to agricultural resources. As discussed in response 130, this EIR appropriately uses a plan/projection approach to cumulative analysis, including specifically the KCGP. DEIR p. 3-80. This approach to cumulative analysis is authorized by Cal. Pub. Res. Code s. 21100(e), 14 CCR 15130(b)(1)(B), as well as CEQA case law. *See Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260; *Schaeffer Land Trust v. San Jose City Council* (1989) 215 Cal.App.3d 612. Future solar and wind development in the County are specifically included in the KCGP Energy Element (pp. 203-204 (wind) and pp. 209-210 (solar)), and the KCGP Land Use, Conservation and Open Space Element contains a specific goal "encourage alternative sources of energy, such as solar and wind energy, while protecting the environment" (p. 53). The assumed future development of renewable energy resources such as solar and wind were also considered in the KCGP Program EIR. KCGP PEIR, Ch. 4.7. Further the siting of commercial wind in the project boundary area is limited by the availability of wind velocities that are stable enough for commercial production and the Kern County Figure 19.08.160 and provisions that limit the height of structures for impacts to military operations. Commerical wind development requires the use of the WE (Wind Energy) Combining District. There is no WE zoing currently in the project boundary area and a discretionary zone change would be required for commercial wind development which would be subject to CEQA. Siting of new utlility scale solar projects would require the processing of a discretionary Conditional Use Permit and would be subject to CEQA. This DEIR while providing cumulative information on impacts has no inclusion of details or analysis for a project specific zone change for the WE combining District or a Conditional Use Permit for a utlility scale solar project. Thus, potential future development of wind and solar resources in the County, and the potential for such development to convert farmland, is included in the KCGP's predicted loss of up to 80,847 acres of prime and important farmland, and is therefore included in the cumulative analysis of this EIR.

0044-130

The reactivation of idle wells in Tier 2 is a component of the Project, has been included in the calculation of Project air emissions, and the effects of reactivation of idle wells are considered as part of the Project-level environmental review and therefore need not be considered as part of the cumulative analysis."

0044-131

Please see GR AG-2 regarding rangeland.

0044-132

Please see GR AG-2 regarding rangeland.

0044-133

Please see GR AG-2 regarding rangeland.

0044-133 cont'd

0044-134

Please see GR AG-2 regarding rangeland.

0044-135

Please see GR AG-2 regarding rangeland.

0044-136

Please see GR AG-2 regarding rangeland.

0044-137

The commenter's opinion is noted.

0044-138

As explained in the Draft EIR (*see e.g.,* p. 4.10-85) the proposed Project differs significantly from linear projects such as proposed highways. The proposed Project therefore does not have the same potential to create a physical barrier in the middle of an existing community in the CEQA sense. CEQA Guidelines § 15131(b); *Gentry v. Murrieta* (1995) 36 Cal. App. 4th 1359, 1419 ("A project will normally have a significant effect on the environment if it will disrupt or divide the physical arrangement of an established community. This guideline was intended to apply to projects, such as highway construction, that would constitute physical barriers dividing a community."). Oil and gas activities have historically taken place in the Project Area and existing communities have been constructed throughout the Project Area, including near existing well sites. To the extent Project activities and existing communities do or will overlap, the County's policies and zoning setbacks protect residential or other existing uses, and oil and gas drilling operations.

0044-139

The comment states that a project's conflict with an applicable land use plan is a significant impact under CEQA, and that this EIR is incorrect in finding that there are no significant land use conflicts. The commenter's opinion is noted. For reasons explained and in the responses to comments immediately following, the Project is consistent with the applicable General Plans.

The legal authorities cited by the commenter are noted. *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777 ("*Endangered Habitats League*") and *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903 ("*Pocket Protectors*"). In *Endangered Habitats League*, the Court found a project was inconsistent with the applicable general plan because the project would cause traffic impacts using a specific method of analysis beyond the threshold specified in the general plan's policy for a specific street. *Endangered Habitats League*, *supra*, 131 Cal.App.4th at pp. 783-785. There, the traffic conflict would have resulted in the type of actual environmental impact that the general plan policy was designed to avoid. Unlike the project in *Endangered Habitats League*, the Revised Amended Ordinance here does not directly conflict with an applicable goal or policy in the applicable land use plans. DEIR pp. 4.10-91 through 4.10-173.

The comment cites another case but does not discuss its applicability. In *Pocket Protectors*, the court held the City of Sacramento had to prepare an EIR after it approved a mitigated negative declaration for a residential project. *Pocket Protectors v. City of Sacramento*, *supra*, 124 Cal.App.4th at p. 908. The court held in part that the administrative record supported a fair argument that the proposed project could conflict with the applicable land use policies, which constituted grounds for requiring an EIR. *Id.* at p. 930. The court noted that the mitigated negative declaration was devoid of reasoning and evidence to support Sacramento's conclusion that the proposed project was consistent with the applicable land use policies. Here, unlike the analysis in *Pocket Protectors*, a full environmental impact report has been prepared. This EIR has fully analyzed and explained the Revised Amended Ordinance's consistency with the applicable land use policies. Please also see the responses to comments immediately following.

0044-140

There is no conflict with the applicable General Plans, and therefore no violation of the Planning and Zoning Law if the Project is approved. A lead agency has discretion to balance potentially competing goals and policies within a general plan, and that has been done here in making the determination that the Project is consistent with the Kern County General Plan and Metropolitan Bakersfield General Plan.

The relevant standard to determine consistency with an applicable land use plan is whether the project is "in agreement or harmony with the terms of the applicable plan." *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 678; see also *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 817; *Sequoyah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704, 718. A proposed project need not be in "rigid conformity with every detail" of an applicable land use plan. *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 678. To be consistent with the applicable land use plan, the proposed project must only be "compatible with the objectives, policies, general land uses, and programs specified in the applicable plan." *Id*. "Because policies in a general plan reflect a range of competing interests, the governmental agency must be allowed to weigh and balance the plan's policies when applying them, and it has broad discretion to construe its policies in light of the plan's purposes. [Citations.]" *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal. App. 4th 342, 386.

Here, this EIR's Land Use and Planning Chapter provides detailed analysis showing how the Revised Amended Ordinance is consistent with over 400 of the applicable goals, polices, and implementation measures in the Kern County General Plan and Metropolitan Bakersfield General Plan. DEIR pp. 4.10-91 through 4.10-173. In determining the Project's consistency with these policies, this EIR has analyzed the policies in light of a range of potentially competing interests. As clearly described in this EIR, both General Plans have a number of policies, goals, and implementation measures which support continued and expanding oil and gas activities, including – but not limited to - the following:

Kern County General Plan:

Chapter 1. Land Use, Conservation, and Open Space Element; Section 1.9 - Resource: Goal 1. To contain new development within an area large enough to meet generous protections of foreseeable need, but in locations that will not impair the economic strength derived from the

petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County. Goal 2. Protect areas of important mineral, petroleum, and agricultural resource potential for future use. Goal 4. Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County. Implementation Measure K. Protect oilfields and mineral extraction areas through the use of appropriate implementing Zone Districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).

Chapter 5. Energy Element; Section 5.2 - Importance of Energy to Kern County: General Goal: To assert Kern County's position as California's leading energy producer, to encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decisions and actions of other agencies as they affect energy development in Kern County. Policy 3. The County shall continue to streamline energy permitting regulations.

Chapter 5. Energy Element, Section 5.3. Petroleum Resources and Development; subsection 5.3.1. Urban/Residential Development in Petroleum Resource Areas: Goal. To protect oil resource areas from unnecessary urban/suburban encroachment, and in instances of urban/suburban development in oil resource areas, to provide for the development of petroleum resources in a manner compatible with the surrounding environment to minimize adverse impacts and protect health and safety. Policy 3. The County shall continue to provide the opportunity for establishing drilling islands prior to final maps subdivision approval of any proposal in a petroleum resource area or a waiver of surface entry rights by the applicable mineral rights holder. Policy 6. In areas where petroleum production occurs close to urban development, oil companies shall be encouraged to site equipment so as to avoid unnecessary disturbance to urban uses. Policy 7. The County should work in cooperation with incorporated cities of Kern County to establish compatible standards for oil development within urban areas. Implementation Measure A. The Drilling Island District of the Kern County Zoning Ordinance shall establish and maintain development standards to permit petroleum exploration and development on single lots and in small areas. Implementation Measure B. The Petroleum Extraction Combining District of the Kern County Zoning Ordinance shall establish and maintain specific standards for ensuring compatibility with urban and petroleum development for the Estate (E), Commercial Office (CO), Neighborhood Commercial (C-1), General Commercial (C-2), and Highway Commercial (CH) zoning designations. Oil and gas production shall be subject to provisions set forth in Chapter 19.98 of the Kern County Zoning Ordinance. Implementation Measure C. The County shall monitor its regulations pertaining to petroleum exploration, production, and update such regulations as necessary.

Chapter 5. Energy Element, Section 5.3. Petroleum Resources and Development; subsection 5.3.4. Petroleum Technology and Advancement: Goal. To encourage the continuing advancement of energy technology and to respond to the needs it creates on the work force. Policy 2. The County should encourage the energy resource industry to invest and research the practical advancement of technology, and allow for periodic updates or training sessions for industry workers. Implementation Measure A. The County should promote a continuing dialogue with petroleum industry representatives to monitor trends in technology and anticipate needed changes to development standards. Implementation Measure B. The County shall review and revise, as necessary, the Zoning Ordinance to make provisions for experimental technologies.

Chapter 5. Energy Element, Section 5.3. Petroleum Resources and Development; subsection 5.3.7. Processing and Transportation of Petroleum Products: Goal. To ensure the siting of refining facilities and pipelines in locations to provide maximum health, safety, and environmental protection; and to encourage the necessary processing and transportation facilities for Kern County's petroleum production. Policy 1. New refineries shall be sited in accordance with provisions of the Kern County Zoning Ordinance. Policy 2. The County shall review proposed pipelines and their alignments for their conformity with the Land Use, Open Space, and Conservation Element of this General Plan. Policy 3. The County shall encourage the development of new pipelines with alignments that provide for environmental and the public's health and safety protection. Implementation Measure A. The County shall review and revise, as necessary, the Zoning Ordinance to provide for suitable sites for refinery construction and expansion.

Metropolitan Bakersfield General Plan:

Chapter II, Land Use Element: Policy 31. Allow for a variety of industrial uses, including land-extensive mineral extraction and processing, heavy manufacturing, light manufacturing, warehousing and distribution, transportation-related, and research and development uses (I-1). Policy 32. Protect existing industrial designations from incompatible land use intrusions (I-1, I-6, I-8).

Chapter V, Conservation Element; Section B. Mineral Resources: Goal 1. Protect areas of significant resource potential for future use. Goal 2. Document areas of current mineral and energy resource extraction, as a basis for land use and conservation policies and programs. Policy 4. Land use decisions shall recognize the importance of identified mineral resources and need for conservation of resources identified by the State Mining and Geology Board (I-2). Policy 7. Promote development of compatible uses adjacent to mineral extraction areas (I-2). Implementation Measure 3. Periodically review and update local Zoning Ordinances that have been amended to accommodate mineral extraction uses outside of mineral resource zones.

Kern River Plan Element, Chapter III. Issues, Goals, and Basic Plan Policies: 3.4. Floodplain Management Policy 9. Oil and mineral exploration and production shall be allowed within the secondary floodway, provided that adverse effects on riparian vegetation and wildlife habitat are minimized. Appurtenant facilities, such as tank farms and steam generators, shall be located outside any floodway; except that they may be allowed within the 8.4/2.5 (Mineral and Petroleum/Secondary 3.6. Mineral and Petroleum Goal. To provide for the continued production of petroleum resources and to ensure that future exploration activities can take place, while ensuring that other open space values in the River area are reasonably protected. Utilize sand and gravel resources of the River in such a way as to ensure that floodway, groundwater recharge, and wildlife habitat values are protected.

Kern River Plan Element, Chapter V. Implementation Policies, F. Mineral and Petroleum Extraction: Implementation Policy 2. Mineral and petroleum extraction shall be encouraged on those lands designated "Mineral and Petroleum" on the Kern River Plan Map. Such use may also occur in other areas designated for recreation, resource, or industrial uses as long as the primary designated use is not significantly impaired and as long as such use is consistent with other provisions of this plan and in compliance with existing local, state, and federal regulations.

See additional policies related to providing for continued oil and gas development in both General Plans. DEIR pp. 4.10-14 through 4.10-70. These goals, policies and implementation measures demonstrate the interests that Kern County and the City of Bakersfield have in promoting

the continued development of oil and gas within their respective jurisdictions, as well as surrounding cities and communities and these interests must factor into the balancing conducted by the County.

The Project is not incompatible with those aspects of the two General Plans which promote interests other than oil and gas development. A finding that a particular project is consistent with the general plan requires only that the proposed project be "*compatible* with the objectives, policies, general land uses, and programs specified in" the applicable plan. (Emphasis added.) Govt. Code §66473.5.

General plans serve as "charter[s] for future development" and embody a local agency's "fundamental policy decisions." *Federation of Hillside and Canyon Assns. v. City of Los Angeles* (2004) 126 Cal.App.4th 1180, 1194. Policies in a general plan "typically reflect a range of competing interests." *Id*. Local agencies have "broad discretion to weigh and balance [those] competing interests in formulating development policies." *Id.*at 1196; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 678. Local agencies further have broad discretion to construe a general plan's policies "in light of the plan's purposes." *Save Our Peninsula Com. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 142.) "General plans ordinarily do not state specific mandates or prohibitions," but instead "state policies and set forth goals." *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 817; *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 378. Accordingly, the Kern County General Plan explains that the General Plan is a "policy document" that is "designed to give long-range guidance to those County officials making decisions affecting the growth and resources of the unincorporated Kern County jurisdiction, excluding the metropolitan Bakersfield planning area." Kern County General Plan, Introduction, p. vi. The Metropolitan Bakersfield General Plan likewise states that the "general plan is a policy document designed to give long range guidance to those making decisions affecting the future of the Metropolitan Bakersfield planning area." Metropolitan Bakersfield General Plan, Introduction, p. I-1.

Considering the County's need to balance competing interests, the Revised Amended Ordinance is consistent with Kern County's General Plan and the Metropolitan Bakersfield General Plan. A proposed project is consistent with a land use plan if that proposed project is "in agreement or harmony with the terms of the applicable plan." *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 678; *Sequoyah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704, 718. A proposed project need not be in "rigid conformity with every detail" of an applicable land use plan. *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 678. To be consistent with the applicable land use plan, the proposed project must only be "compatible with the objectives, policies, general land uses, and programs specified in the applicable plan." *Id.* A proposed project must also not obstruct the attainment of any policies in the general plan. *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 817.

The Project's compatibility is described in great detail in Table 4.10-7, and implementation of the Revised Amended Ordinance would not result in incompatible land uses. As explained in this EIR, for more than a century, there has been co-location of oil and gas operations with agricultural operations in Kern County, including use of the land via split estates between surface owners and mineral owners. Further there are legal recourses and constitutional protections for both parties to resolve any disputes in the courts. DEIR p. 3-15 to 17. As described further in Global Response 4, detailing the benefits to surface owners and agricultural interests in the Revised Amended Ordinance, co-located agricultural and oil and gas operations will continue to productively coexst. Please also refer to responses to commenter's comments immediately preceding and following this comment (comments -139 to -167).

The commenter cites to *Families Unafraid to Uphold Rural El Dorado County v. El Dorado County* (1998) 62 Cal.App.4th 1332 ("*Families"*) to support its statement that a project may be inconsistent with a general plan if it conflicts with a fundamental and clear policy in that plan. In that case, the court found the proposed project clearly conflicted with a fundamental policy in the applicable land use element that required development to be contiguous with specified land uses as specified in the general plan; there was no room for discretion or ambiguity within that particular policy. *Families*, *supra*, 62 Cal.App.4th at pp. 1341-42. Here, however, the applicable goals and policies land use plans have been analyzed, and the EIR has concluded the Revised Amended Ordinance is consistent with those goals and policies. See pp. 4.10-91 through 4.10-173 in DEIR. The comment also cites to *Napa Citizens for Honest Gov. v. Napa County* (2001) 91 Cal.App.4th 342,378 to assert that a proposed project cannot frustrate a general plan's policies and objectives. As this EIR's detailed analysis shows, the Revised Amended Ordinance will not frustrate the applicable policies or objectives in existing land use policies, and, in fact, furthers the policies described above. DEIR pp. 4.10-91 through 4.10-173.

In sum, as explained in Chapter 4.10 – Land Use and Planning, the County has weighed the competing interests in the applicable General Plans. The Revised Amended Ordinance is in "agreement" and "harmony" with the Kern County and Metropolitan Bakersfield General Plan and is compatible with the general policies and goals set forth in those plans.

0044-140 cont'd

0044-141

This comment states that oil and gas development would occur on lands governed by the Kern County General Plan and the Metropolitan Bakersfield General Plan, and states that the project conflicts with three objectives in the plan concerning conflict with existing land uses, adequacy of water supplies, and clustering of industrial developments. The comment is incorrect . The Kern County and Metropolitan Bakersfield General Plan both contain policies which support oil and gas activities, and the Planning and Zoning Law allows the County to harmonize policies through a balancing of interests.

The commenter also states that the DEIR recognizes the potential for a land use conflict. It should be noted that the EIR also states that the revisions to the ordinance would reduce the potential land use conflicts to less than significant. DEIR p. 4.10-87.

Please see response to comment 0044-140 regarding consistency with the Kern County and Metropolitan Bakersfield General Plans. See also GR 4 (regarding benefits to surface owners and agricultural interests from the Revised Amended Ordinance), and responses to commenter's comments 44-139 to 44-167.

0044-142

This comment cites five goals and policies from the Kern County and Metropolitan Bakersfield General Plans which the comment states "prohibit the County from approving projects that would result in incompatible land uses." Both General Plans have been thoroughly considered in this EIR, and the EIR concludes that approving the Project would not result in incompatible land uses.

This comment also states that the DEIR recognizes the potential for a land use conflict. This comment is correct; however, it should be noted that the EIR also states that the Revised Amended Ordinance would reduce the potential land use conflicts to less than significant. DEIR p. 4.10-87.

The five policies cited in the comment do not prohibit approval of this Project. The Project's consistency with these five policies and goals cited are individually analyzed and directly addressed in Table 4.10-7. (Please note that the comment includes a typographical error when it cites "Chapter 1.9 (Industrial);" it is understood that the commenter meant "Chapter 1.8 (Industrial)" here.) The relevant analyses from Table 4.10-7 is excerpted here for clarity:

Kern County General Plan

Chapter 1.8 (Industrial)

Goal 3. Ensure compatibility with land use designations such as residential, commercial, or other land uses that may be affected by such activities.

CONSISTENT. The proposed Project would not alter currently established land use designations such as residential, commercial, or other land uses. The new development standards are intended to provide greater environmental protection with respect to oil and gas development in the Project Area. Additionally, oil and gas development in residential and commercial areas (Tier 4) would still require the acquisition of a CUP prior to drilling new wells. Therefore, the proposed Project would be consistent with Goal 3.

Chapter 1.9 (Resource)

Goal 3

Goal 3. Ensure the development of resource areas minimize effects on neighboring resource lands.

CONSISTENT. The purpose of the EIR is to analyze the impacts of future oil and gas development on all land within the County's jurisdiction within the Project Area as well as analyzing impacts on neighboring resource lands. Mitigation designed to reduce and avoid impacts on lands associated with resource area development would also have the indirect effect of reducing impacts on neighboring areas. Therefore, the proposed Project would be consistent with Resource Goal 3.

Policy 7. Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

CONSISTENT. Lands designated as Tier 2 are zoned either A or A-1 and may contain Important Farmland with Class I and II soils. As discussed in Section 4.2, Agricultural and Forestry Resources, the Kern County Zoning Ordinance identifies oil and gas drilling and production activities as a compatible use on A and A-1 lands. Therefore, the proposed Project would be consistent with Policy 7.

Metropolitan Bakersfield General Plan

Goal 3. Accommodate new development which is compatible with and complements existing land uses.

CONSISTENT. The proposed Project's new development standards would reduce adverse impacts associated with oil and gas production. 90% of new development would occur in Tier 1 areas, by definition, are areas in which oil and gas development is the primary land use. New development standards described throughout this EIR would ensure that oil and gas development in all Tiers is compatible with existing land uses. Therefore, the proposed Project would be consistent with Goal 3.

Policy 10. Implement, as appropriate, the California Environmental Quality Act to minimize land use conflicts and reduce environmental impacts of all proposed resource extraction operations (I-2).

CONSISTENT. Proposed development standards are intended to minimize land use conflicts and reduce environmental impacts of future oil and gas explorationand production activities. MM 4.10-1 would implement a new Oil and Gas Conformity Review Process, which includes a system of surface owner sign off and notification in order to reduce land use conflicts. Therefore, the proposed Project would be consistent with Policy 10.

Both the Kern County General Plan and the Metropolitan Bakersfield General Plan have in their land use designations, policies and the County's implementing Zoning Ordinance acknowledge that agriculture, grazing and oil and gas production are compatible uses with one another. The Kern County General Plan Land Use, Open Space and Conservation Element, Section 1.9 Resource, identifies petroleum exploration and extraction and farming and grazing activities as being compatible land uses in all of the Resource Land Use Designations(Map Code 8.1(Intensive Agriculture), Map Code 8.2 (Resource Reserve), Map Code 8.3 (Extensive Agriculture), Map Code 8.4 (Mineral and Petroleum) and Map Code 8.5(Resource Management). Oil and gas production activities occur throughout many of these designations. In addition, Resource Policy No. 15 specifies that "Agricultural and other resource uses will be considered a consistent use in areas designated for Mineral and Petroleum Resource uses on the General Plan

The project is compatible with the cited policies and goals from the Kern County and Metropolitan Bakersfield General Plans. None of these policies would prohibit the Project or result in impermissible land use conflicts. Please see response to comments 43-141 and 43-142 for a discussion regarding the standards for determining whether a project is consistent with applicable general plans. Please also see also GR 4 (regarding benefits to surface owners and agricultural interests from the Revised Amended Ordinance), and responses to commenter's comments 44-139 to 44-167.

0044-142 cont'd

0044-143

The comment states that mineral rights are often severed from surface ownership, and that this allows oil and gas operators to use farmlands to develop mineral rights. This comment is correct. The EIR discusses split estates at page 3-15 to 3-17, and explains that the rights of the mineral owner to use of the surface of the real property are dominant to the rights of the owner of the surface estate, which gives the mineral owner the right to reasonable access to develop its mineral right. This section further explains that the rights of a mineral owner to use the surface estate can only be restricted by an express grant of such rights from the mineral owner to the surface owner, and that mineral rights are real property rights primarily established under the common law of California and generally governed by the California Civil Code, Division 2, Part 2.

The comment also states co-locating oil and gas and agricultural operations can create significant land use impacts, and that the Project will result in oil and gas encroachments into agricultural land. As explained in this EIR, for more than a century, there has been co-location of oil and gas operations with agricultural operations in Kern County, including use of the land via split estates between surface owners and mineral owners. DEIR p. 3-15 to 17. In the historic and ongoing co-location of these uses, there has been little evidence of problems and conflicts.

In evaluating the Project, a range of competing interests, goals and policies were balanced. Please see response to comments 44-141 and 44-142 for a more detailed discussion of the balancing required to determine consistency with a project's general plan and responses to comments 44-146 through 44-167 which address additional comments regarding potential conflicts of these land uses. Also, please refer to Global Response 4, which details the benefits to surface owners and agricultural interests in the Revised Amended Ordinance None of the policies commenters cite would prohibit the Project or result in impermissible land use conflicts.

0044-144

The comment states that the DEIR is silent on conflicts between agricultural and oil and gas land uses, and lists examples taken from the staff report for the DEIR. The comment also cites to the "H. King Letter" as evidence that such transactions have occurred in the past. As of September 19, 2015, the County has received no such letter. However, this EIR is not silent on the topic of potential conflicts between agricultural and oil and gas use. The EIR discloses and analyzes several potential areas of conflict.

For example, the EIR discusses potential conflicts with Williamson Act contracts, and concludes that because the Kern County Agricultural Preserve Standard Uniform Rules includes oil and gas drilling and production as a compatible use within Agricultural Preserves established under the Williamson Act, there is no significant impact with respect to Williamson Act contracts. DEIR p. 4.2-20.

Potential conflicts between oil and gas development and agricultural operations in the area of water use was also considered. For example, this EIR considered the potential for water quality impacts to agricultural or drinking water wells downgradient of a produced water pond. DEIR p. 4.9-69. Potential impacts to drinking or agricultural groundwater quality as a result of injection activity in the Project Area was also considered. DEIR p. 4.9-72 and 4.9-74. Please refer also to GR Water-3, which discusses the Project's consistency with the Groundwater Sustainability Management Act, which is also relevant to water use by both oil and gas and agricultural operations.

The EIR also considers the potentially significant impact of farmland conversion. DEIR p. 4.2-16 to 4.2-18. Several of the examples cited in the comment would trigger the farmland mitigation measures considered in the EIR. For example, the creating of new access roads "which take out crops" could trigger an obligation to mitigate that disturbed land at a 1:1 ratio. The mitigation measure ensure that any active farmland that is converted by future oil and gas exploration and extraction activities authorized by the Project over its 25-year life span are mitigated at a ratio of 1:1. DEIR at pp. 4.2-18, 4.2-19. The DEIR's analysis shows that this mitigation program will reduce the impacts on Farmland to a level that is less than significant. DEIR at p. 4.2-19. Please refer to GR 4 for a more complete discussion of this mitigation measure. Please also see Section 7.1.4, the Revised Summary of Impacts, Mitigation Measures and Significance Conclusions for revisions to mitigation measures that concern impacts to agricultural lands.

0044-145

The comment states that agricultural land values have decreased because of oil and gas operations. Land value is not a CEQA issue, and the commenter has submitted no evidence of any decline in value caused by the proximity of oil and gas operations to agricultural lands that is strictly tied to the oil and gas development and not to other limiting factors such as drought, site specific water availability, invasive insects, international commodity prices, and other market factors.

Reduction in agricultural land values is not an impact on the environment under CEQA. "Economic and social changes resulting from a project shall not be treated as significant effects on the environment." CEQA Guidelines § 15064(e); *see also* Guidelines §§ 15131(a), 15382; *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1020-21 (holding an EIR for a mining project did not have to consider the project's economic impacts on neighboring landowners due to the potentially significant impact on water levels in their private wells because there was "no evidence that any significant physical changes on the environment will result from loss in the property value of [those] neighboring lands"). Economic considerations are not relevant to the CEQA analysis unless there is evidence to show those considerations will have "a significant effect on the physical environment." *Maintain Our Desert Environment v. Town of Apple Valley* (2004) 120 Cal.App.4th 396, 446; CEQA Guidelines §§ 15064(e), 15131(a).) The commenter has submitted not submitted such evidence. Evidence of economic impacts that "do not contribute to or are not caused by physical changes in the environment is not substantial evidence that the project may have a significant effect on the environment."(CEQA Guidelines § 15064(f)(6); *Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th 1004, 1019. The focus of the environmental review under CEQA "shall be on the physical changes" that result from a project. CEQA Guidelines § 15131(a).

Agricultural uses and oil and gas uses have a long history of co-existing on split estates in the County. This commenter presents no evidence that any economic considerations from the adjacent or co-location of agricultural and oil and gas uses will have any effect on the physical environment. Therefore, analysis of the Revised Amended Ordinance on neighboring property values is not required under CEQA or the CEQA guidelines.

0044-145 cont'd

0044-146

This comment is noted. Please refer to GR 4 and GR Ag-1.

0044-147

The comment is noted. Please refer to GR 4 (Surface Owners and Agriculture).

0044-148

The comment is noted. The Revised Amended Ordinance surface owner sign off provisions, and its alternative review process if the surface owner sign off cannot be obtained, reflect a balancing of the respective interests between the mineral estate owner and the surface owner. Please refer to GR 4 (Surface Owners and Agriculture). Please also refer to RTC 44-272.

0044-149

The comment is noted. Please refer to GR 4. Please also see changes made in the Revised Amended Ordinance that relate to the surface owner signoff process.

0044-150

The comment is noted. Please refer to GR 4. Please also see changes made in the Revised Amended Ordinance that relate to the surface owner signoff process.

0044-151

The comment is noted. Please refer to GR 4. Please also see changes made in the Revised Amended Ordinance that relate to the surface owner signoff process. With respect to resolution of other land use conflicts described earlier, please see responses to comments 44-139 to 44-145. In response to this comment's statement that there are no measures that require clustering, please see response to comment 44-159.

0044-152

Please see GR 4. Please also see the Revised Amended Ordinance. The requirements of the site plan contents provide sufficient information to inform the surface owner of the nature and extent of the potential impacts to the surface use.

0044-153

Please see GR 4. Please also see the Revised Amended Ordinance. The requirements of the site plan contents provide sufficient information to inform the surface owner of the nature and extent of the potential impacts to the surface use.

0044-154

Please refer to responses to comments 44-139 through 44-145 regarding the Project's consistency with the Kern County and Metropolitan Bakersfield General Plans, and the standards by which that consistency is determined. With respect to consistency with Williamson Act contracts specifically, please see response to comment 44-147. The express statements in the Kern County Agricultural Preserve Standard Uniform Rules that oil and gas activities are considered compatible with Williamson Act demonstrates that the Project would have less than significant impacts to Williamson Act contract farmlands. With respect to potential general land use conflict between oil and gas activities and agricultural surface use, the mitigation measures proposed in this EIR reduce the impacts of the potential conflicts to less than significant. Please see the Section 7.1.4. (Revised Summary of Impacts, Mitigation Measures and Significance Conclusions). Please also see GR Ag-1 regarding agricultural impacts and mitigation.

0044-155

Please refer to GR 4, GR Ag-1, responses to comments 44-139 to 44-167, the Revised Amended Ordinance, and Section 7.1.4 of this EIR.

0044-156

Commenter's text references an exhibit listing mitigation measures that commenter recommends as additional feasible mitigation for agricultural impacts. Responses to these comments are included in Response 262, Ex Ag 13.

0044-157

See comment 156.

0044-158

See comment 156.

0044-158 cont'd

0044-159

The comment states that the Project conflicts with KCGP and Metropolitan Bakersfield General Plan policies concerning the clustering of industrial uses. The policies are specifically discussed in the General Plan in relation to Industrial general plan designations and Industrial zone distircts. The amended zoning ordinance applies to activities that are not limited to these industrial zones and primarily are in resource conservation zones and therefore, the policies do not specifically apply. Each General Plan's policies are discussed in Chapter 4.10 – Land Use and Planning. DEIR, pp. 4.10-14 – 4.10-64. While section 1.8 of the Land Use, Open Space and Conservation Element does include Policy 5, which promotes clustering of industrial uses (DEIR, p. 4.10-18), the Energy Element of the KCGP include numerous and more specific policies concerning promotion and implementation of oil and gas activities in the County that do not require clustering (DEIR, pp. 4.10-37-42). The County is entitled to balance its General Plan policies when determining whether the Project is consistent with the General Plan. *San Franciscans Upholding the Downtown Plan* (2002) 102 Cal.App.4th 656, 668; *Mitchell v. County of Orange* (1985) 165 Cal.App.3d 1185, 1191-1192. Here, the Revised Amended Ordinance reflects an appropriate balance of interests between economic development and environmental protection, as reflected in the KCGP policies concerning the petroleum industry. DEIR, pp. 4.10-37 – 42.

0044-159 cont'd

0044-160

Please see response 142 to this letter. A lead agency has discretion to balance potentially competing goals and policies within a general plan,

and that has been done here in making the determination that the Project is consistent with the Kern County and Metropolitan Bakersfield General Plans. This EIR's Land Use and Planning Chapter provides detailed analysis showing how the Revised Amended Ordinance is consistent with over 400 of the applicable goals, polices, and implementation measures in the Kern County General Plan and Metropolitan Bakersfield General Plan. DEIR pp. 4.10-91 through 4.10-173. In determining the Project's consistency with these policies, this EIR has analyzed the policies in light of a range of potentially competing interests, including the General Plan policies related to water supply cited in the comments.

0044-160 cont'd

0044-161

Please see response 142 to this letter. A lead agency has discretion to balance potentially competing goals and policies within a general plan, and that has been done here in making the determination that the Project is consistent with the Kern County and Metropolitan Bakersfield General Plans. This EIR's Land Use and Planning Chapter provides detailed analysis showing how the Revised Amended Ordinance is consistent with over 400 of the applicable goals, polices, and implementation measures in the Kern County General Plan and Metropolitan Bakersfield General Plan. DEIR pp. 4.10-91 through 4.10-173. In determining the Project's consistency with these policies, this EIR has analyzed the policies in light of a range of potentially competing interests, including the General Plan policies related to water supply cited in the comments.

0044-162

The comment's quotations from the EIR are accurate.

0044-163

Please see response 160-161 to this letter. As described in the EIR, p. 4.17-58, oil and gas activities utilize a very small fraction of groundwater resources. (Please note that the Final Water Supply Analysis has been revised to reflect minor corrections or additional information as described in GR Water-05. None of the revisions significantly affects the EIR analysis or conclusions.) Maintaining oil and gas production is consistent with policies favoring oil and gas development in the General Plan, which are cited above in response 141 to this letter. The County has discretion to balance competing General Plan policies, including those favoring oil and gas development and the water supply policies cited by the commenter.

0044-164

Regarding General Plan consistency, please see responses 141 and 160-161 to this letter. Water shortages already exist in Kern County and will not "result" from the Project as suggested by the commenter. As described in the EIR, oil and gas activities utilize a very small fraction of groundwater resources. However, consistent with the requirements of CEQA, the EIR recognizes that the Project does contribute additional demand. The Project's share of M&I water use would compete with other M&I demands for supplies that are not expected to be readily available in the Project Area. Therefore, the EIR finds that the impacts to M&I water supplies in the Project Area would be significant at a Project level, and oil and gas water demand would also contribute to significant cumulative impacts to groundwater and regional water resources in the Project Area. Implementation of MM 4.17-2 to MM 4.17-4 could reduce water supply impacts, but the allocation of water supplies and water demands, the complex laws affecting water rights, the many water districts that have legal jurisdiction over one or more sources of water in the Project Area, the varied technical feasibility of treating produced water, and the produced water reuse opportunities all present complex variables that fall outside the scope of the County's jurisdiction or control under CEQA. Accordingly, the EIR concluded that Project impacts to water supplies would be significant and unavoidable. EIR,pp. 4.17-57 – 59.

0044-165

Please see responses 141 and 160-165 to this letter.

0044-166

The comment states that the DEIR fails to analyze the Project's inconsistency with habitat conservation plans and the Sustainable Communities Plan.

Habitat conservation plans (HCPs) and Natural Community Conservation Plans (NCCPs) are disclosed and discussed in the DEIR Chapter 4.4 – Biological Resources. The following plans are discussed: Draft Valley Floor HCP; Chevron North American Exploration and Production LoKern HCP (LoKern HCP); California Resources Elk Hills HCP (Elk Hills HCP); Freeport McMoRan Oil & Gas HCP; CRC Non-Unit HCP; Aera

Coles Levee Ecosystem Preserve HCP; Chevron Pipeline HCP; California Aqueducts – San Joaquin Field Unit HCP; Kern County Water Facilities HCP; Kern Water Bank HCP/NCCP; PG&E San Joaquin Valley Operations and Maintenance Program HCP; Tehachapi Uplands Multiple Species HCP; and Metropolitan Bakersfield HCP. DEIR, pp. 4.4-154-168. The DEIR states: "HCPs are approved by the USFWS in conjunction with providing incidental take permit coverage for listed species and to also foster the conservation of other covered species. NCCPs are approved by the CDFW and are intended to function in a manner similar to the federal a HCP for state listed and other covered species. The CDFW may also issue incidental take permits for state covered species that are based on and coordinated with an approved federal HCP under section 2081(b) of the CESA." DEIR, p. 4.4-154. Mitigation Measure 4.4-2 ensures that no incidental take of species may occur in a manner inconsistent with an approved HCP or NCCP. For further discussion of the LoKern HCP and Elk Hills HCP, see Global Response Bio-2.

As disclosed in the DEIR, the "Kern County Council of Governments (COG) adopted the SCS for Kern County as part of its Regional Transportation Plan (RTP) in 2014. The RTP and SCS incorporate forecasted development patterns, modeling and measures designed to integrate land use and transportation planning to reduce local and regional GHG emissions. Oil and gas resources, as well as other land uses, are components of the SCS." DEIR, p. 4.10-14. The SCS recognizes Kern County's leading role as a provider of energy and natural resources to the State:

"Energy and Natural Resources production is the cornerstone and foundation of Kern County. Historically oil production has driven energy development. Kern County is the top oil-producing county in California. This county alone produces 76% of California's total oil. If Kern County were a state, it would be the third largest oil-producing state in the U.S., behind Alaska and Texas. Kern County has four giant oil fields (greater than 1 billion barrels of cumulative production) and as a whole produces 445,000 barrels per day. In terms of future production, Kern County is leading the state in development and production of renewable energy. Over 7,000 megawatts of renewable energy in the form of wind, solar, geothermal, biogas, and gasification production have been permitted countywide. The county's dependence on energy and natural resource production as part of our economic structure is reflective in the fact that all 10 of the county's top tax payers are either oil-producing and/or processing companies, renewable energy producers or mining operations. For the year 2013–2014, these companies made up an overall assessed value of over 31% of all general taxes owed and paid to the county." SCS, p. 4-18.

The SCS also promotes the need to increase regional and local energy independence through a variety of means:

"The Kern region will continue to increase its regional and local energy independence. With more transit and active transportation options and by living closer to where they work, community members will have alternatives to driving their cars. Additionally, this SCS seeks to promote conservation of our natural resources and open spaces, providing opportunities to invest in renewable energy production and distribution. Increased energy independence means less dependence on foreign oil, decreased payments to foreign countries, reduced trade imbalances and an improved economy." SCS p. 4-4

The Revised Amended Ordinance is consistent with the SCS's recognition of Kern County as a leader in energy and natural resource production, as well as the goal of increasing energy independence by reducing dependence on foreign oil, as it will allow the continued production of oil and gas in the County, while also imposing new procedural and environmental requirements that are more protective of the general health, safety, and welfare of the community. To the extent the SCS promotes alternative means of transportation to reduce consumption of oil and gas, the Revised Amended Ordinance is not in conflict with those policies because the consumption of oil and gas products by end users is a function of market demand, and the production of oil and gas under the Revised Amended Ordinance will necessarily react to that demand. The Revised Amended Ordinance has been further revised to include a cap of 3,649 well permit ministerial approvals annually, however, consistent with the projected number of annual wells evaluated in this EIR, so the production of oil and gas in the County would be consistent with the total number of authorized wells.

0044-167

Please see response 166.

0044-167 cont'd

0044-168

Please see the responses below. The commenter's opinion regarding the adequacy of the EIR's analysis of groundwater resources is noted. The EIR acknowledges the importance of agriculture in the County, see EIR, pages 4.2-1 – 4.2-6. The EIR included a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the Water Supply Assessment (Appendix T) and as further updated in GR Water 5. The amount of water used in WST operations is a very small fraction of the amount of water used in the Project Area. MM 4.17-2 requires Applicants to increase the re-use of produced water, following treatment as needed, to more than offset Project use of higher quality groundwater and surface water. The EIR also recognizes that current drought conditions have severely

restricted the availability of imported and local surface supplies throughout California, including the Project Area, and groundwater is being used more heavily to meet Project Area demand, including for oil and gas activities. The WSA evaluates average, single dry year, and multiple dry year conditions. EIR, pp. 4.17-50. (Please note that the WSA has been revised to reflect minor corrections or additional information as described in GR Water-05. None of the revisions significantly affects the EIR analysis or conclusions.)

0044-169

Please see the responses below. The commenter's opinion regarding the adequacy of the EIR's analysis of groundwater resources is noted. The EIR acknowledges the importance of agriculture in the County, see EIR, pages 4.2-1 – 4.2-6. The EIR included a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the Water Supply Assessment (Appendix T) and as further updated in GR Water 5. The amount of water used in WST operations is a very small fraction of the amount of water used in the Project Area. MM 4.17-2 requires Applicants to increase the re-use of produced water, following treatment as needed, to more than offset Project use of higher quality groundwater and surface water. The EIR also recognizes that current drought conditions have severely restricted the availability of imported and local surface supplies throughout California, including the Project Area, and groundwater is being used more heavily to meet Project Area demand, including for oil and gas activities. The WSA evaluates average, single dry year, and multiple dry year conditions. EIR, pp. 4.17-50. (Please note that the WSA has been revised to reflect minor corrections or additional information as described in GR Water-05. None of the revisions significantly affects the EIR analysis or conclusions.)

0044-170

Please see the responses below. The commenter's opinion regarding the adequacy of the EIR's analysis of groundwater resources is noted. The EIR acknowledges the importance of agriculture in the County, see EIR, pages 4.2-1 – 4.2-6. The EIR included a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the Water Supply Assessment (Appendix T) and as further updated in GR Water 5. The amount of water used in WST operations is a very small fraction of the amount of water used in the Project Area. MM 4.17-2 requires Applicants to increase the re-use of produced water, following treatment as needed, to more than offset Project use of higher quality groundwater and surface water. The EIR also recognizes that current drought conditions have severely restricted the availability of imported and local surface supplies throughout California, including the Project Area, and groundwater is being used more heavily to meet Project Area demand, including for oil and gas activities. The WSA evaluates average, single dry year, and multiple dry year conditions. EIR, pp. 4.17-50. (Please note that the WSA has been revised to reflect minor corrections or additional information as described in GR Water-05. None of the revisions significantly affects the EIR analysis or conclusions.)

0044-171

The commenter's citations are noted and included in the record.

0044-171 cont'd

0044-172

The comment states that the EIR improperly considered groundwater in the Project Area as a single "undifferentiated mass." The EIR describes the hydrogeological features and water-bearing formations within the County, pp. 4.9-3 – 4.9-8, with basins as well as surface features depicted in Figure 4.9-9; see also p. 4.9-11 depicting individual aquifers exempted under the Underground Injection Control (UIC) program. The EIR also includes detailed quantitative data on groundwater quality in the Western, Central and Eastern Subarea, with analytical results from both shallow and deep wells. Tables 4.9-17 and 4.9-18. The WSA (Appendix T1) prepared for purposes of the EIR considered a variety of data sources and specific groundwater formations. WSA, pp. 14-15, 17-21. Data on groundwater supplies were obtained by reviewing detailed publicly available reports and water management plans prepared by the local water agencies and water districts within the Project Area. These local agencies are the best sources of information on available groundwater resources and management, and are required to update their management plans every five years. Based on supply and demand estimates developed from the detailed water management plans and reports, the WSA concluded that there is no surplus water in the Project Area and that the Kern County Subbasin is in an existing overdraft condition. This information was incorporated into the analysis of available groundwater supplies for purposes of the EIR. CEQA analysis requires reasonable disclosure based on best available information, but does not require "perfect" information; please see GR 21. In addition, it should be noted that many groundwater aquifers within the Kern County Subbasin are interconnected laterally and, to a lesser extent, vertically, and water distribution systems in the Project Area are also interconnected. Hence the use of groundwater is not as precisely location-specific as the commenter suggests.

It should also be noted that, as part of implementation of the Sustainable Groundwater Management Act (SGMA), local groundwater management authorities are being established to further define groundwater resources; establish sustainable groundwater use rates; and allocate groundwater among users. See GR Water-3 regarding the SGMA. The SGMA will play a significant role in future supply estimates. The County is required to participate in the Kern groundwater sustainability effort underway, and the basin has now been designated by the Department of Water Resources as being in critical overdraft. SGMA will require that agricultural, municipal, and industrial activities account for

current and future uses of water and create sustainable plans for managing the resource. While the EIR finds that oil and gas activity uses very little groundwater compared to other uses, significant impacts to groundwater supply are identified and mitigation measures are proposed. MM 4.17-2 and 4.17-3 require the Applicant to work with the County to increase the re-use of produced water from oil and gas activities. These measures are intended to help reduce the industry's dependence on groundwater, which will contribute to alleviating stress on this limited resource in the future.

0044-173

The EIR does not assume that all groundwater is suitable for all purposes. The EIR clearly acknowledges that aquifer water quality is variable and extensively discusses the UIC program, in which aquifer unsuitable as sources of drinking water due to high salinity, hydrocarbons or other criteria (as specified in USEPA regulations) may be utilized for disposal by injection of oilfield produced water. EIR, pp. 4.9-72-75, 104-108. However, for purposes of the water supply analysis, the EIR does conservatively assume that the oil and gas industry's demand for Municipal and Industrial (M&I) quality water will be met by using M&I-quality groundwater. EIR, p. 4.17-22. As the commenter notes, some oil and gas production activities require high quality M&I water. Operators obtain M&I water from a variety of sources, including groundwater wells, deliveries from Project Area water purveyors, spot market purchases, or in truck-mounted tanks that are filled at industrial locations served by M&I supplies. However, the amount of water supplied by these sources varies considerably from year to year, and the current drought has severely restricted the availability of imported and local surface supplies. Accordingly, for conservative analysis purposes, the WSA and EIR assumed that all oil and gas demand will be met by M&I quality water, in order to be sure not to underestimate the industry's M&I water demand.

0044-174

As the commenter notes, the DEIR discusses the status of the ongoing investigation of DOGGR's UIC program. See, e.g., EIR pp. 4.9-72, 4.9-96–98, and 4.9-107–4.9-108. Please see also GR Water-02 regarding the UIC program. As of July 31, 2015, DOGGR reported to EPA that it had reviewed 5,625 UIC wells throughout the state that were permitted to inject into aquifers not designated as "exempt" under the UIC program. 5,475 of the wells are associated with thermal Enhanced Oil Recovery (EOR) operations (steam flood and cyclic steam wells). Because water must be pretreated to a higher quality before EOR injection, and small quantities of water are involved, DOGGR considered any threat to aquifers to be "greatly reduced." Of the remaining 150 non-thermal wells, 126 are no longer classified as injection wells and are not injecting fluids, 19 are water flood wells, one is a pressure maintenance well and only four are waste disposal wells. DOGGR is conducting further investigation of the remaining wells to determine if they pose a potential risk to groundwater with a current beneficial use. Letter from Steve Bohlen, DOGGR, and Jonathan Bishop, State Water Resources Control Board, to Michael Montgomery, USEPA Region IX (July 31, 2015). However, the magnitude of risk to aquifers utilized for water supply appears very limited based on information currently available.

0044-174 cont'd

0044-175

The EIR describes the Central Valley Regional Water Quality Control Board (CVRWQCB) enforcement efforts to address surface disposal-related groundwater contamination. EIR, p. 4.9-101–4.9-108. As discussed in GR Water-01, on July 30, 2015, subsequent to the release of the Draft EIR, the CVRWQCB adopted an order directing the Valley Water Management Company to conduct additional investigations and implement remediation measures, if necessary, for the surface spray system at the Race Track Hill Facility in the Project Area (Order R5-2015- 0093, http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/kern/r5-2015-0093.pdf, accessed September 19, 2015). It should be noted that this water management facility would not be eligible for Site Plan Conformity Review under the Revised Amended Ordinance and would require a Conditional Use Permit.

0044-176

Please see responses 172 and 173 above. The EIR is not required to conduct the site-by-site groundwater quality evaluation requested by the commenter.

0044-176 cont'd

0044-177

The EIR acknowledges that California is experiencing a severe drought and has implemented unprecedented water use reduction measures to address historically low snowpack and rainfall levels. As stated in the EIR, the drought has had substantial impacts in Kern County, which relies on imported surface water and groundwater to meet urban and agricultural demand. Due to drought-related reductions in surface water availability, regional aquifers have been depleted by extractions in lieu of surface water use to a substantial extent. Should groundwater extractions be further limited by the SGMA planning process, supply shortfalls could be greater than anticipated. EIR, p. 4.9-149. The WSA, Appendix T, also considers historic and current drought conditions; see WST pp. 97-102.

0044-178

The EIR acknowledges that the drought has had substantial impacts in Kern County, which relies on imported surface water and groundwater to meet urban and agricultural demand. EIR, p. 4.9-149. The EIR cites the Department of Water Resources’ "Public Update for Drought Response" report referenced by the commenter. EIR, p. 4.7-9 and 4.17-53.

0044-178 cont'd

0044-179

Please see above responses regarding water supply impacts and please see GR 20 regarding recirculation.

0044-180

The commenter's case quotations are noted and included for the record.

0044-180 cont'd

0044-181

The commenter's opinion is noted.

0044-182

Please see responses 172 and 173 to this letter, above. This EIR is not required to conduct the site-by-site groundwater quality evaluation requested by the commenter. An EIR does not require "perfect" information; please see GR 21. This EIR includes a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the WSA, and as further updated in GR Water 5. The amount of water used in WST operations is a very small fraction of the amount of water used in the Project Area. MM 4.17-2 requires Applicants to increase the re-use of produced water, following treatment as needed, to more than offset Project use of higher quality groundwater and surface water. This analysis is sufficient for CEQA purposes.

0044-183

Please see response to 0044-182.

0044-183 cont'd

0044-184

Please see GR Water 03 regarding the SGMA. This statute creates a new process for addressing regional groundwater supplies throughout the state. The County is required to participate in the Kern groundwater sustainability effort underway, and the basin has now been designated by

the Department of Water Resources as being in critical overdraft. SGMA will require that agricultural, municipal, and industrial activities account for current and future uses of water and create sustainable plans for managing the resource. Under these circumstances, it would be speculative to predict how groundwater extraction by any sector will affect long-term aquifer viability, how competition for groundwater will impact current users, which users will bear the brunt of future groundwater deficiencies, or whether and how much crop production may be affected. While the EIR finds that oil and gas activity uses very little groundwater compared to other uses, significant impacts to groundwater supply are identified and mitigation measures are proposed. MM 4.17-2 and 4.17-3 require the Applicant to work with the County in the SGMA process to increase the re-use of produced water from oil and gas activities.

Regarding land subsidence, please see response 2-14 through 2-21**.**

0044-185

The commenter states that the EIR identifies groundwater as the Project's sole potential source of M&I water. This is not correct. As explained in the EIR, p. 4.17-22, operators obtain M&I water from a variety of sources, including groundwater wells, deliveries from Project Area water purveyors, spot market purchases, or in truck-mounted tanks that are filled at industrial locations served by M&I supplies. However, the amount of water supplied by these sources varies considerably from year to year, and the current drought has severely restricted the availability of imported and local surface supplies. Accordingly, for purposes of analysis, the EIR adopted the over-conservative assumption that all oil and gas demand will be met by M&I quality water, in order to be sure not to underestimate the industry's M&I water demand.

0044-186

Please see response to 0044-186.

0044-187

The commenter's legal citations are noted and included in the record. The commenter's opinion regarding the adequacy of mitigation is noted. Please see GR 16 regarding adequacy of mitigation measures.

0044-188

The Draft EIR included a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the WSA, and as further updated in GR Water 5. The amount of water used in WST operations is a very small fraction of the amount of water used in the Project Area. MM 4.17-2 requires Applicants to increase the re-use of produced water, following treatment as needed, to more than offset Project use of higher quality groundwater and surface water.

Further, as noted in the Water Quality discussions in the EIR, in the Water Quality Appendix, and in various comment letters including the letter from the Water Board (Letter 3), produced water varies dramatically in quality and treatability. For these and related reasons, the Draft EIR does not prescribe any particular location, treatment technology, or beneficial use of treated produced water. However, as described in GR Water 5, there is more produced water used for agriculture than was reported in the Draft EIR, and several produced water treatment proposals remain under consideration by local water districts. Local water districts act as the lead agency for such projects, and are not subject to County zoning regulations; any such treatment facility would trigger the need for further CEQA review by the lead agency and be required to address environmental impacts and mitigation measures to address issues such as subsidence, monitoring and compliance parameters, and related issues.

0044-189

As discussed in response 2-85 through 92, the produced water reuse mitigation measure included in the Draft EIR has been clarified to explain the County's ongoing role in overseeing implementation of this mitigation measure. The feasibility of implementing this mitigation measure is supported by substantial evidence in the record, including information about additional produced water reuse and about additional produced water treatment proposals under consideration by local water districts. Applicant's use of higher quality water is minimal relative to other users, and increased treatment and reuse of produced water is already occurring, and the MMRP will include monitoring for Applicant compliance with this mitigation measure.

0044-189 cont'd

0044-190

Please see response to 0044-189.

0044-191

Please see response to 0044-189.

0044-192

Please see response to 0044-189.

0044-193

Please see response to 0044-189.

0044-193 cont'd

0044-194

As the commenter notes (comment 173), oil and gas production requires a certain amount of high quality, clean water, designated M&I water, for certain activities including well drilling and maintenance, well stimulation and supplemental steam generation. Please see GR Water-4 regarding for further details regarding the infeasibility of replacing all use of M&I water for oil and gas activities with produced water.

0044-195

Please see response to 0044-194.

0044-196

As the commenter notes (comment 173), well stimulation is among the activities for which M&I water may be needed. Please see GR Water-4 regarding for further details regarding the infeasibility of replacing all use of M&I water for well stimulation with produced water.

0044-196 cont'd

0044-197

The commenter's statute and case citations are noted for the record and included in the final EIR. *Pocket Protectors v. City of Sacramento* (2004) 124 Cal. App. 4th 903 and *Ocean View Estates Homeowners Ass’n Inc. v. Montecito Water Dist.* (2004) 116 Cal. App. 4th 396 do not address the adequacy of an EIR analysis of significant impacts. These cases concern Negative Declarations and consider whether the record contained any substantial evidence raising a "fair argument" of significant impact that would require an EIR. Such cases are irrelevant to the task of reviewing the conclusions in an EIR. *North Coast Rivers Alliance v. Marin Muni. Water Dist. Bd.* (2013) 216 Cal. App. 4th 614, 625; *see also Bowman v. City of Berkeley* (2004) 122 Cal. Ap. 4th 572, 589.

0044-198

The commenter's opinion is noted. As the comment correctly states, the EIR acknowledges significant and unavoidable impacts to visual resources.

0044-199

Oil and gas operations are distributed throughout the Project Area, with particular intensity in Tier 1, and at lesser intensity but still with a strong presence in Tier 2. Continuing this pattern of historic land development will cause visual changes within the immediate vicinity of the new equipment. However, these changes are generally consistent with existing visual patterns.

Not every visual change is a significant visual impact for CEQA purposes. *North Coast Rivers Alliance v. Marin Mun. Water Dist.* (2013) 216 Cal. App. 4th 614, 62-25 ("aesthetic issues, such as public and private views, are properly studied in an EIR to assess the impacts of a project. However, a lead agency has the discretion to determine whether to classify an impact described in an EIR as ‘significant,’ depending on the nature of the area affected"). See also *Clover Valley Foundation v. City of Rocklin* (2011) 197 Cal. App. 4th 200, 243 (upholding EIRs determination that aesthetic impacts of a residential development would be less than significant, despite high degree of change, based on the topography and residential character of the area). Under Kern County's environmental checklist, a significant impact occurs if a project would:

Have a substantial adverse effect on a scenic vista; Substantially damage scenic resources, including but not limited to, trees, rock, outcroppings, and historic buildings within a state scenic highway; Substantially degrade the existing visual character or quality of the site and its surroundings; or Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. [The commenter does not discuss this topic.] The EIR evaluated all of these impacts. First, the EIR found that there were no designated scenic vistas or State Scenic highways within the Project Area. EIR, pp. 4.1-28. Next, the EIR provided an extensive discussion of the potential to degrade existing visual character, as discussed in the next response.

0044-199 cont'd

0044-200

The comment criticizes the EIR's analysis of visual impacts as cursory or generic. In determining whether the Project would substantially degrade the existing visual character of sites, the EIR considered the impacts on a landscape or regional scale and also provided extensive analysis and included mitigation measures at the micro scale. EIR, pp. 4.1-19 - 4-41. Ten key observation points ("KOPs") were identified as representative views within the Project Area where oil and gas development would occur. The The KOPs were selected to represent typical views of the Project components and views from sensitive locations. As stated in the EIR, the County identified Western, Central and Eastern Subareas, and Tiers within each subarea, based on existing development characteristics, which include visual characteristics. Views representative of all Subareas and Tiers were included for consideration, as were views from sensitive areas (Panorama Park, Wind Wolves Preserve) and . The photosimulations for each KOP illustrate potential oil and gas development that could occur during construction and operation. The KOPs were assessed across of variety of factors at various points of oil and gas development. The KOPs include county and local parks, open spaces, highways, and residences. Viewer sensitivity and view vividness, intactness and unity were included in the assessment. Based on this analysis, the County's expert consultants determined that the KOPs provide representative views based on common topography, geography and existing visual features and reached conclusions regarding the significance of visual impacts, including the finding that some visual impacts would be significant and unavoidable even after mitigation. EIR, pages 4.1-41, 4.1-50. 4.1-51. Such visual simulations provide substantial evidence supporting the conclusions in an EIR. *North Coast Rivers Alliance v. Marin Muni. Water Dist. Bd.* (2013) 216 Cal. App. 4th 614, 627. The conclusions are tied to the analytical methodology employed by the County and paint a representative picture of impacts throughout the Project Area that "reflect[s] a good faith effort at full disclosure." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App.3d 692, 712. So long as the simulations

0044-201

Commenter's opinion regarding the importance of the environmental setting is noted for the record. The citation to *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal. App. 4th 99, 119, refers to an argument raised by a party without the court determining its validity. The citation to CEQA Guidelines § 15125(a) is inaccurate. The relevant provision is § 15125(c) which states that special emphasis "should" be placed on environmental resources that are rare or unique, not "must."

0044-202

The commenter's reference to parks and other locations within the Project Area is noted. See EIR p. 4.15-5 – 4.15-8, listing parks and preserves in the Project Area, including those mentioned by the commenter.

0044-203

In addition to the environmental setting discussion on EIR pages 4.1-3–5, the existing visual character from each of the KOP viewpoints is discussed in detail in the EIR, pp. 4.1-19 – 41

0044-204

The commenter's quotation from the Kern River Plan is noted. The Kern River Plan is an element of the Kern County General Plan which has been incorporated by reference in the EIR, p. 2.29-30. It should also be noted that the Kern River Plan contains policies supportive of oil and gas development:

Kern River Plan Element, Chapter III. Issues, Goals, and Basic Plan Policies: 3.4. Floodplain Management Policy 9. Oil and mineral exploration and production shall be allowed within the secondary floodway, provided that adverse effects on riparian vegetation and wildlife habitat are minimized. Appurtenant facilities, such as tank farms and steam generators, shall be located outside any floodway; except that they may be allowed within the 8.4/2.5 (Mineral and Petroleum/Secondary 3.6. Mineral and Petroleum Goal. To provide for the continued production of petroleum resources and to ensure that future exploration activities can take place, while ensuring that other open space values in the River area are reasonably protected. Utilize sand and gravel resources of the River in such a way as to ensure that floodway, groundwater recharge, and wildlife habitat values are protected.

Kern River Plan Element, Chapter V. Implementation Policies, F. Mineral and Petroleum Extraction: Implementation Policy 2. Mineral and petroleum extraction shall be encouraged on those lands designated "Mineral and Petroleum" on the Kern River Plan Map. Such use may also occur in other areas designated for recreation, resource, or industrial uses as long as the primary designated use is not significantly impaired and as long as such use is consistent with other provisions of this plan and in compliance with existing local, state, and federal regulations. Oil and Gas development was evaluated during the creation of the Kern River Plan and all mitigation measures are consistent with the plan design.

0044-205

The Kern River is included in the visual impact analysis for the Eastern Subarea, EIR p. 4.1-30. The immediate foreground of KOP 1 includes the Kern River. As the following comment notes, three of the ten KOPs are views from parks. The EIR was not required to evaluate viewpoints from every park and recreation venue in the Project Area. See GR 21 regarding the use of best available information for purposes of CEQA review. The EIR found that there were no designated scenic vistas or State Scenic highways within the Project Area. EIR, p. 4.1-28.

0044-205 cont'd

0044-206

As the comment notes, three of the ten KOPs are views from parks. KOP 4 represents views "for motorists travelling westbound on Highway 223 and descending into the San Joaquin Valley through the transitional foothills of the southern Sierra Nevada." EIR, p. 4.1-23. KOP-6 describes views from the Wind Wolves Preserve. For KOP 9, the "view is representative of views for motorists and others traveling west in the transitional foothills of the rugged Temblor Range." EIR, p. 4.1-26.

The commenter is correct that the Project will result in several significant visual impacts, but these impacts have been evaluated by the EIR; see pp. 4.1-27–51. To be adequate, the EIR must "reflect a good faith effort at full disclosure; [CEQA] does not mandate perfection, nor does it require an analysis to be exhaustive." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App.3d 692, 712. See also GR 21 regarding the use of best available information for purposes of CEQA review. There is no requirement—and the commenter has cited to no authority—that an EIR must evaluate the impacts on views from every public park or trail. The commenter's citations to, 1607 and *Ocean View Estates Homeowners Ass’n Inc. v. Montecito Water Dist.* (2004) 116 Cal. App. 4th 396, 401 are unavailing. These cases do not reach the adequacy of an EIR's analysis of significant impacts. Such decisions are irrelevant to the task of reviewing the conclusions in an EIR. *North Coast Rivers Alliance v. Marin Muni. Water Dist. Bd.* (2013) 216 Cal. App. 4th 614, 625; *see also Bowman v. City of Berkeley* (2004) 122 Cal. Ap. 4th 572, 589.

The commenter cites *Quail Botanical Gardens Foundation v. City of Encinitas* (1994) 29 Cal. App. 4th 1597 and *Ocean View Estates Homeowners Ass’n Inc. v. Montecito Water Dist.* (2004) 116 Cal. App. 4th 396. These cases concern Negative Declarations and consider whether the record contained any substantial evidence raising a "fair argument" of significant impact that would require an EIR. Such decisions are irrelevant to the task of reviewing the conclusions in an EIR. *North Coast Rivers Alliance v. Marin Muni. Water Dist. Bd.* (2013) 216 Cal. App. 4th 614, 625; *see also Bowman v. City of Berkeley* (2004) 122 Cal. Ap. 4th 572, 589.

The commenter's Exhibit AES-1 is a close-up photograph of existing wells on Highway 46. AES 1 is cited to suggest that the photosimulations in the DEIR are misleading. Several of the KOPs were taken from roads and highways similar to Highway 46 and represent the views of such locations in perspective. The mitigation measures included in the DEIR will help minimize the significant, but unavoidable, impacts on aesthetic resources. EIR , p. 4.1-40–41; 4.1-50.

0044-206 cont'd

0044-206 cont'd

0044-207

The commenter objects to the aesthetic impacts of the Project, which would result in "the addition of oil and gas facility construction activities and the ongoing operation of production facilities to the rural characteristics of open space lands in the Project Area." The comment does not acknowledge the existing visual character of the Project Area, which has nearly ten thousand wells already in existence on Tier 2 agricultural

lands (See Figure XX). The co-existence of agricultural operations with oil and gas production, which comprise the top two economic sectors in Kern County, has characterized the visual character of the Project Area for nearly a century. Commenter's specific requests for changes to aesthetic mitigation measures, referenced in this comment, are set forth in greater detail in Appendix AG-14 of commenter's letter, for which further responses are provided in [INSERT CROSS REFERENCE TO APPROPRIATE CORES NUMBER FOR THIS APPENDIX]. Commenter's opinion that compliance with law is not appropriate as CEQA mitigation is inconsistent with applicable legal authorities, as described in GR 16. One of the aesthetic mitigation measures in the Draft EIR, MM 4.1-4, was revised to not require planting of visual screening vegetation from sensitive receptors to avoid vegetation planting that would be incompatible with crop cultivation. Aesthetic impacts, and the effectiveness of aesthetic mitigation measures, can be highly subjective. Because there is no objective metric for concluding that changes to the existing environment have no significant aesthetic impact, this impact was considered significant and unavoidable.

0044-207 cont'd

0044-207 cont'd

0044-208

The comment criticizes the EIR's cumulative analysis of visual impacts. However, "it is reasonable to infer the [lead agency] addressed both individual *and* cumulative visual impacts" of the Project when it found that Project development would "unavoidably affect visual resources." *Sequoyah Hills Homeowners Ass’n v. City of Oakland* (1993) 23 Cal. App. 4th 704, 716. The commenter also states that the EIR failed to identify feasible mitigation for the Project's cumulative visual impacts. The EIR identified Mitigation Measures 4.1-1 through 4.1-6 as feasible mitigation measures, though it also determined that no additional feasible mitigation measures exist to reduce the significant cumulative visual impacts to less than significant. DEIR at 4.1-51.

The EIR complied with the plan or projection method of compliance identified in CEQA Guidelines § 15130(b)(1)(B) by relying on both the Kern County General Plan the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) approved in 2014. EIR at 3-80. The commenter states that the lack of a summary of projections or description or evaluation of the documents invalidates the EIR. These documents were incorporated by reference and are publicly available. DEIR at 2.29–30.

An EIR is required to provide a reasonable analysis of the cumulative impacts. CEQA Guidelines § 15130(b). The discussion need not provide as much detail as is provided for the effects attributable to the project alone and is guided by standards of practicality and reasonableness. *Id.* In this EIR, the direct impacts of the Project are already significant and unavoidable. The EIR combines these effects with the projected continued growth in unincorporated Kern County and the cities within Kern County to determine that visible changes to the landscape will occur even with implementation of the mitigation measures and other goals, policies, implementation policies, and mitigation measures for these other General Plans, regional plans. EIR at 4.1-51. In so doing, it was determined that these visual changes constitute adverse aesthetic impacts. *Id.*

The commenter's legal citations are noted for the record and included in the final EIR. The commenter cites *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App.3d 692, 712 for the proposition that the DEIR is inadequate because it fails to provide information on similar developments contributing to cumulative effects. In *Kings County Farm Bureau*, the lead agency determined that the project would have no significant adverse effect on the environment, but the court found insufficient information in the records to support the determination. . The commenter also cites *San Bernardino Valley Audubon Society v. Metropolitan Water District of Southern California* (1999) 71 Cal. App. 4th 382, 399. In that case, the EIR merely stated that the cumulative effects could occur, but would be mitigated. The court found that this analysis was insufficient to support a finding of no impact. In contrast to those cases, this EIR finds, based on substantial evidence in the visual analysis of representative KOPs, that the Project will result in a significant impact on aesthetic resources.

0044-208 cont'd

0044-208 cont'd

0044-209

Please see GR Noise 1.

0044-209 cont'd

0044-210

Please see GR Noise 1.

0044-211

Please see GR Noise 1.

0044-211 cont'd

0044-211 cont'd

0044-211 cont'd

0044-212

Please see GR Noise 1.

0044-212 cont'd

0044-212 cont'd

0044-213

Please see GR Noise 1.

0044-214

Please see GR Noise 1.

0044-214 cont'd

0044-215

This is an introductory comment generally stating that the DEIR's analysis of vibration impacts is flawed because it establishes a threshold of significance for vibration but then ignores that threshold. Further clarifications on the tables presented in this EIR has been provided below. Additionally, Mitigation Measure 4.12-2 is modified to include setback distances for geophysical testing methods including Vibroseis and shothole techniques. Please refer to response to comment 44-216 below, and new Appendix V-2 to the FEIR regarding Geophysical Surveys and Vibration), also discussed in more detail below.

0044-216

The comment states that activities associated with geophysical surveys will results in vibration levels which will exceed state guidelines for vibration annoyance and damage potential criteria. The comment also states that the DEIR does nothing to protect residents and other receptors from the vibration impacts. Both of these comments are incorrect. Additional clarification on this topic is provided here, and further review of this issue has resulted in modifications to MM 3-12-2 to include manadatory setback distances to uses that are susceptible to adverse vibration risks for designated types of geophysical survey operations.

As explained in this EIR, vibration is measured at peak particle velocity (ppv, inches per second). The ppv value represents the degree to which vibration is perceptible to a receptor; the higher the value, the more perceptible the vibration. The ppv value is a function of the relationship between the source of the vibration and the distance of the source from the receptor.

In support of its statement that the project's activities will exceed thresholds for annoyance and structure damage, the commenter makes a comparison of Tables 4.12-10 with 4.12-5 and 4.12-6. Table 4.10-5 lists ppv values for different levels of perceptible vibration – that is, whether a person can feel a vibration - from both transient sources and continuous/frequent intermittent sources. Using this threshold, a value of .9 ppv represents a vibration that rises to the level of "annoyance" if felt by a person. Table 4.10-6 lists ppv thresholds that are protective of structures. Since ppv is a function of distance and the source of the vibration, these ppv values could be generated by any number of sources at whatever distance is required to reach the stated values.

The commenter compares those two thresholds (one for human perceptibility and the other for structure protection) with Table 4.12-10, which shows typical vibration levels during construction. This latter table provides the ppv for various types of equipment and activities at a specified distances of 100 feet and 300 feet. To clarify, Table 4.12-10 provides examples, i.e., it is an illustrative dataset: if a receptor is located 100 feet or 300 feet from the specified vibration source, they are likely to feel vibrations at the ppv shown in the table.

In order to clarify an understanding of Table 4.12-10, it must be stated that the Table does not present ppv thresholds and minimum "stand-off distances." The stand-off distance is the buffer distance between the source generating the vibration and the receptor which is protective of the receptor or structure. Table 4.12-10 shows that a specific shot-hole blast at 100 feet could cause damage to structures (and annoyance to people). Accordingly, the DEIR states: "To avoid exceeding these values, operators generally set charges at least 300 feet from water wells and engineered structures unassociated with oil and gas development. For the shothole method, Table 4.12-10 shows the vibration levels for various charge sizes at the minimum 300 feet stand-off distance." DEIR p. 4.12-24. The ppv of 0.40 for the specified shothole at a 300 feet stand-off distance is less than the ppv threshold for both "annoyance" (for human perceptibility) and structures.

As stated in the DEIR, "[f]or the shothole method, survey practices and existing regulatory guidance ensure that there would be no exceedance of the significance threshold when detonating charges." DEIR p. 4.12-24. For a detailed explanation of oil industry practices within Kern County, please also see and new Appendix V-2 to this EIR.

Appendix V-2 is a letter dated September 19, 2015, from Cynthia Black, Chief Geophysicist for California Resources Corporation, regarding Geophysical Surveys and Vibration, with attachments. This letter provides information on geophysical surveying technologies used by the oil industry in general, and California Resources Corporation's activities in Kern County in particular. The letter further provides technical detail on how vibration impacts are measured, describes the regulatory and industry standards and practices, and suggests specific standards to be included in the DEIR.

Appendix V-2 notes that industry practices either follow, or are more conservative than, the U.S. Bureau of Mines (USBM) and the Office of Surface Mining and Reclamation (OSMR) guidelines. The Black letter recommends a stand-off distance of 300 feet from the closest occupied building, water well, sewer system, and septic tank for shothole geophysical surveying activities, and 150 feet from the closest occupied building, water well, sewer system, and septic tank for Vibroseis geophysical surveying activities.

The comment states that some types of damage could occur as a result of shothole blasting even at 300 feet, again citing a comparison of the tables described above. Table 4.10-6, which comes from Caltrans references, states that there could be potential damage to "fragile" structures at a ppv of .2 or "extremely fragile, historic buildings, [and] ancient monuments" at .12 ppv. These buildings are unlikely to be present in the vicinity of geophysical surveying activities within the project area. Additionally, Attachment 2 to Appendix V-2 is a report by Matheson Mining Consultants entitled *Utilizing Peak Particle Velocities to Develop Seismic Offset Distances*, published in the Denver Geological Society's monthly publication, the Record, in 2014. The report summarizes the USBM and OSMR standards and states that "Documented cases of structural damage have never been observed in any structure (historic, exceptionally fragile, residential, or commercial) at particle velocities less than or equal to those recommended in the USBM and OSMRE standards." Based on this information, applying a stand-off distance of 300 feet from the closest occupied building, water well, sewer system, and septic tank for shothole geophysical surveying activities, and 150 feet from the closest occupied building, water well, sewer system, and septic tank for Vibroseis geophysical surveying activities will ensure necessary protection to those receptors.

Accordingly, Mitigation Measure 4.12-2 is modified to include setback distances for geophysical testing methods including vibroseis and shothole techniques.The revised mitigation measure follows:

Operations. New oil and gas wells shall be a minimum 210 feet from the closest sensitive receptor. Geophysical testing methods using truck-mounted machines, such as the Vibroseis technique, shall be a minimum 150 feet from the closest occupied building, water well, sewer system, and septic tank. Geophysical testing methods using underground detonation (also called shothole) techniques shall be a minimum 300 feet from the closest occupied building, water well, sewer system, and septic tank.

0044-216 cont'd

0044-217

Please see GR Noise 1 and GR 16.

0044-217 cont'd

0044-218

Please see Global Response TR 1: Traffic Analysis and Mitigation Program.

0044-219

Please see GR TR-1

0044-220

The Traffic and Transportation Analysis report submitted by the commenter has been noted. Please see GR TR-1.

0044-221

Please see Global Response TR 1: Traffic Analysis and Mitigation Program.

0044-221 cont'd

0044-222

Please see Global Response TR 1: Traffic Analysis and Mitigation Program.

0044-222 cont'd

0044-223

Please see Global Response TR 1: Traffic Analysis and Mitigation Program.

0044-223 cont'd

0044-224

Please see Global Response TR 1: Traffic Analysis and Mitigation Program.

0044-224 cont'd

0044-225

Please see Global Response TR 1: Traffic Analysis and Mitigation Program.

0044-225 cont'd

0044-226

The comment does not cite authority for the statement that "A valid safety analysis must develop and compare accident rates, measured in collisions per million-vehicle-miles, per key roadway segments." An unsubstantiated opinion is not substantial evidence. (See CEQA Guidelines, § 15384, subd. (a).) The Traffic Impact Study looked at roadway accident history data and concluded that there were "no specific findings indicating increased accident rates on study area roadways related to oil and gas activity." (Traffic Impact Study, DEIR Appendix W, at pp. 76-77.)

The comment also misquotes the Traffic Study, which actually found that there were no "specific items identified for improvement or mitigation related to recent accident history or existing roadway geometrics." (Traffic Impact Study, DEIR Appendix W, at p. 93.) The report merely recommends that the DEIR include funding as a mitigation measure to cover any issues that may occur in the future. (*Ibid.*) MM 4.16-1 includes a fee of $1,500 per permit for new wells to cover roadway impacts. (See DEIR at p. 4.16-77.)

The Traffic Impact Study considered the fact that as much as ten percent of Project-generated traffic would consist of heavy trucks. (Traffic Impact Study, DEIR Appendix W, at p. 79.) This figure was determined based on existing roadway segments that are used by oil and gas traffic. (*Ibid.*) These are the same roadways where there has not been a history of serious safety impacts. This information was included and analyzed in the Transportation and Traffic section. (See DEIR at pp. 4.16-79–4.16-80.) Since there was a potential for significant impacts in the future, MM 4.16-2 would require that the Applicants create a Construction Traffic Control Plan if there is a large volume of heavy trucks that may cause conflict with auto traffic. With this mitigation measure, the impacts will be less than significant. (DEIR at p. 4.16-80.)

The Traffic Impact Study and the DEIR also included information on the two mainlines for the Union Pacific Railroad and BNSF Railway. (Traffic Impact Study, DEIR Appendix W, at p. 79; DEIR 4.16-24.) While the at-grade railroad crossings were not studied specifically, the roads in this

Project Area (which contain railroad crossings) were analyzed and the Traffic Impact Study determined that there were no increased accident rates from oil and gas activity. (Traffic Impact Study, DEIR Appendix W, at pp. 76-77.)

With mitigation, the Project would not result in a change in air traffic patterns that results in substantial safety risks, nor would it substantially increase transportation related hazards due to a design feature or incompatible use. The impacts are less than significant.

0044-227

See comment response 226.

0044-228

See comment response 226.

0044-228 cont'd

0044-229

See comment response 226.

0044-230

The comment suggests that the DEIR's reliance on MM 4.16-2, to reduce emergency access impacts, does not address emergency access impacts for the duration of the Project. As recognized by the DEIR, Countywide access is generally adequate. Although a number of corridors would operate at a level of LOS E or below, these roadways would operate below an acceptable LOS regardless of Project. (DEIR, at p. 4.16-78.) To minimize impacts to traffic generated by construction, the DEIR established MM 4.16-2, which would require a Construction Traffic Control Plan. Emergency access for the duration of the Project is further addressed in DEIR *Section 4.8, Hazards and Hazardous Materials*. As described by the DEIR, Oil and gas-related development is unlikely to result in a significant impact to emergency response within the Project area. (DEIR, at p. 4.8-9.) "While oil and gas development-related equipment may be present along emergency . . . routes, setback distances from public roadways, residences, and other structures in the vicinity of oil and gas-related development would ensure that oil and gas activities" would not interfere with emergency response. (*Ibid.*) For the cumulative scenario, the DEIR further provides that "given the overall rural nature of the Project Area, and the fact that Kern Council of Governments Regional Transportation Plan took in account traffic volumes from anticipated projects, the potential for a considerable contribution to a cumulative impact to emergency response is unlikely to occur, and would therefore be less than significant." (DEIR, at p. 4.8-104.) In any event, all future development under the Project would be subject to the California Occupational Safety and Health Administration (Cal/OSHA) standards developed in accordance with CCR, Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Equipment. (DEIR, at p. 4.14-11.)

0044-231

Please see GR GHG-1.

0044-231 cont'd

Please see GR GHG-1.

0044-231 cont'd

0044-231 cont'd

0044-231 cont'd

0044-231 cont'd

0044-232

Please see GR GHG-1. Inclusion of the AB 32 Scoping Plan is noted.

0044-233

Please see GR GHG-1. Inclusion of the AB 32 Scoping Plan Update is noted.

0044-234

Please see GR GHG-1.

0044-235

Please see response 299, below, regarding the recommended mitigation measure. Regarding the substantive issues referenced in this comment, please see GR GHG-1.

0044-235 cont'd

0044-235 cont'd

0044-235 cont'd

0044-235 cont'd

0044-235 cont'd

0044-235 cont'd

0044-236

The commenter's legal citations are noted and included in the Final EIR.

0044-237

The commenter's opinion is noted. Please see GR 1 regarding the ministerial permitting process. The Revised Amended Ordinance caps the number of well permits that can be issued annually at 3,649 based on forecasts supported by substantial evidence. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0044-238

The conclusion that substantial increases are not expected without dramatic technological advances, and accordingly substantial increases in population and housing activity are not expected, is supported by substantial evidence. Please see GR 18, which addresses the EIA estimates of recoverable reserves in the Monterey Shale cited by the commenter, and GR 15, regarding hydraulic fracturing technology and growth inducing impacts. Please also see GR regarding the baseline 6, which explains that the EIR did not select a market low point for use as the baseline.

0044-238 cont'd

0044-238 cont'd

0044-239

Please see responses above regarding comments that EIR understates the level of future oil and gas activity. The commenter mischaracterizes the nature of oil and gas access roads. As the EIR states, on page 3-39: "If an existing road cannot be used to access a new well location, a new road would be extended from adjacent existing roads. Access roads are typically 16 to 20 feet in width and vary in length, depending upon the distance from an existing roadway. . . . Although some access roads may be paved, it is assumed that almost all (95%) of new access roads would be unpaved dirt roads." Moreover, while an access road may be extended from an adjacent existing public or private road, the access roads themselves are private. Thus, these are not highway extensions or public roadways that may encourage or allow subsequent major residential or commercial development. The prospect that an oil and gas operator might allow an adjacent landowner to construct a house utilizing a private oil and gas access road for residential access is purely speculative. Moreover, the prospect of a few additional houses scattered in remote rural areas is not the type of development-scale growth considered significant in CEQA and NEPA cases on growth-inducing impacts. *City of Carmel-by-the-Sea v. Department of Transportation* (9th Cir. 1997) 123 F.3d 1142, 1165 (growth-inducement by constructing

freeway through undeveloped area); *City of Antioch v. City Council of the City of Pittsburg* (1986) 187 Cal. App. 3d 1325, 1337 (growth-inducing impact of road and sewer project "to provide a catalyst for further development in the immediate area"); *Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal. App. 4th 144 (growth-inducing impact of golf course project that would attract residential development in surrounding area).

Please see response 62 above regarding electric transmission lines, which are not part of the Project. Again, limited extensions of existing high voltage (above 50 kV) transmission lines to supply a new well pad or facility would not have the type of development-scale growth-inducing impact recognized in CEQA cases.

0044-239 cont'd

0044-239 cont'd

0044-240

As explained in the EIR, pages 4.13-9 – 11, in the absence of any dramatic technical advances, substantial increases in oil and gas production in the County and substantial increases in the population and housing activity associated with oil and gas production are not anticipated to increase appreciably above the baseline 2012 level. Further as production is not only based on technical advances but the price of a barrel of oil globally, at the time of this Response to Comments, employment has actually declined based on the current price of under $50 a barrel. The baseline 2012 level was during an historic high of over $100 a barrel. There is no evidence in the record that even a technical advance would escalate oil prices higher and therefore, dramatically increase the employment necessary for such production increases. Please see GR 15 and GR 18. The well forecasts utilized as the basis for impact analysis were based on historic data, including wide fluctuations in the number of new well completions per year in response to the price of oil, available technology, available reserves, and changing regulatory requirements. Please see GR 6 regarding the baseline and GR 8 regarding well projections. As the commenter notes, the Project Objectives include "ongoing economic development by the oil and gas industry" including jobs for oil and gas workers. Maintaining that oil and gas industry's contribution to County and state economies and tax revenues are also anticipated benefits of the Project. See GR Alt-1 and GR-Alt 2, which describe the potential loss of jobs, economic "multiplier effects" and tax revenues under alternatives that would ban or severely restrict industry activity. However, the industry's current economic contribution, and the negative economic consequences of ban alternatives, are not inconsistent with the discussion of growth-inducing impacts in the EIR, which is based on industry activity forecasts supported by substantial evidence. Moreover, the Revised Amended Ordinance caps the number of new well permits that can be issued annually at 3,649 based on the well forecasts. This provision will ensure that impacts, including growth-inducing impacts, will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

The comment that significant growth-inducement will result from existing oil and gas workers retiring and remaining in Kern County, while new workers immigrate into the County to replace them, is speculative and unsupported by evidence such as worker retirement rates and locations, the origins of new workers or immigration rates.

0044-240 cont'd

0044-241

244a [¶ starting "The Project is located…"]

This comment is noted for the record.

244b [¶ starting "The oil and gas industry…"]

Portions of Kern County are classified as severe non-attainment of the federal primary and secondary ambient ozone standards, which are set at the same level. The primary standard is set at a level that protects public health and the secondary standard is set at a level to protect public welfare, which includes adverse effects on vegetation. The cited technical paper by Wilkinson et al.[1] sites studies that explore how high levels of ozone may adversely affect crops. The basis for the current secondary ozone standard, as explained in the ozone criteria document,[2] includes a vast body of research. The ozone standards have been proposed by the United States Environmental Protection Agency and will likely be set at even lower levels than the existing standards. Areas that are not in attainment with these standards are required to develop USEPA-approved plans to improve air quality and continue to reduce airborne concentrations of ozone unit compliance with the standards are achieved. Once this occurs, because the secondary ozone standard is protective of vegetation, there would be no detrimental impacts on crops due to ozone exposure.

The San Joaquin Valley Air Pollution Control District has adopted ozone plans[3] as required by federal requirements to demonstrate how the SJVAPCD will attain the national ambient air quality standards for ozone. These ozone plans indicate that high ozone levels (*i.e.*, above the standards) that are generated in the Valley are the result of precursor (VOC and NO_X) emissions transported eastward from the San Francisco Bay Area during the day, as well as emissions from sources within the Valley. Thus, the plans to reduce ozone are required to address transported as well as local emission sources. The SJVAPCD and the California Air Resources Board have developed extensive plans to control and reduce emissions of precursors from both stationary and mobile sources. Oil and gas development in Kern County is subject to these requirements and, as such, will not be allowed to materially degrade ozone air quality or stall the trend for continual improvement.

Please also see GR Air-1. Please also see the responses to the appendices attached to this comment letter for responses to specific attachments.

244c [¶ starting "Given the existing…"]

As explained in the DEIR, MMs 4.3-1–4.3-8 will reduce impacts to less than significant and will ensure that there is a no net increase of criteria air pollutant emissions. Please also see GR Air-1 and GR-16.

244d [¶ starting "For example, the DEIR's primary air quality…"]

Mitigation measures should not be viewed in isolation. MM 4.3-1 is one of a *package* of air quality mitigation measures that, collectively, reduce the Project's air quality impacts to a level less than significant. Please also see GR Air-1, GR-16 and GR-22.

244e [¶ starting "The DEIR's other air quality…"]

Please see GR Air-1. GR Air-3, and GR-16. The mitigation measures in the DEIR do not delegate to the applicant the responsibility to enforce mitigation. All of the mitigation measures are measurable and enforceable by the County and in some instance by the SJVAPCD.

244f [¶ starting "At the same time…"]

Commenter suggests that Alternative 5, the Low-Emission Enhanced Oil Recovery (EOR) Alternative, should be included as mitigation. Such mitigation is infeasible within the meaning of CEQA Guidelines § 15364.

Under Alternative 5 all new and replacement steam generators for thermal EOR activities would be required to install low-emission steam generation technology. However, low-emission steam generation technologies are still in the demonstration and prototype phase. ClearSign Duplex (CSD) technology, which is referenced as a possible technology in Alternative 5, involves ceramic tile and burner modification. One operator (Aera) is conducting pilot testing of CSD. At least one other operator (Chevron) is considering pilot testing low-emission steam generation technologies. All technologies currently under consideration require additional testing and validation in actual operating conditions and environments before they can be considered field-proven.

Long-term effectiveness and commercial viability of either technology still remain to be determined, and no company has deployed either technology to date. Furthermore, because the technologies are still in development, the cost of installing the equipment is high compared to the resulting emissions decreases. As such, the technology is not yet readily available on a commercial scale for implementation in oil and gas production in Kern County. The commenter has not provided any evidence suggesting that low-emission steam generation technology is economically or technologically feasible at this time. For these reasons, a finding of infeasibility is appropriate (CEQA Guidelines § 15126.6(f)(1)).

The technological infeasibility of Alternative 5 is further demonstrated by the current Best Available Control Technology (BACT) Guideline for oilfield steam generators in the San Joaquin Valley Air Pollution Control District (SJVAPCD). The federal Clean Air Act requires implementation of BACT, defined as as an emission limitation that the relevant permitting entity "determines is achievable." 42 USC § 7479. Similarly, the SJVAPCD defines BACT as the most stringent emission limitation or control technique (1) achieved in practice; (2) contained in any State Implementation Plan, if presently achievable; (3) contained in an applicable New Source Performance Standard; (4) "Any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found … to be cost effective and technologically feasible …" Rule 2201, Section 3.10. The SJVAPCD BACT guideline was last updated in March of 2014 and currently requires 6 ppm NOx at 3% O_2 for steam generators that operate at 85 MMBtu/hr; and 7 ppm NOx at 3% O_2 for steam generators that operate at less than 85 MMBtu/hr.[4] By comparison, the low-emission steam generation technology contemplated by Alternative 5 would be expected to achieve rates comparable to or lower than 5 ppm NOx at 3% O_2 for steam generators operating at 55 MMBtu/hr. The fact that the rates in the current SJVAPCD BACT guideline are higher than what is contemplated by Alternative 5 further supports the conclusion that the technology required by Alternative 5 has not yet been achieved in practice, has not been shown to be presently achievable and is not technologically feasible. Alternative 5 was therefore properly rejected as an alternative and does not constitute feasible mitigation. Moreover, at such time as the SJVAPCD determines that low-emission steam generation technology has become feasible, it would be expected to update its BACT guidelines accordingly.

244g [¶ starting "Despite the patent…"]

The comment is a general conclusion and it is noted for the record. Please see GR Air-1.

[1] Exhibit AQ 4 to commenter's letter.

[2]Air Quality Criteria for Ozone and Related Photochemical Oxidants Volume I, (EPA 600/R-05/004aF) Section 9 ENVIRONMENTAL EFFECTS: OZONE EFFECTSON VEGETATION AND ECOSYSTEMS

[3] http://www.valleyair.org/Air_Quality_Plans/docs/2014-RACT-SIP.PDF;
http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/AdoptedPlan.pdf;
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/2007_8HourOzone_CompletePlan.pdf.

[4] http://www.valleyair.org/busind/pto/bact/bactLoader.htm.

0044-241 cont'd

0044-241 cont'd

0044-242

This introductory comment noted. Please see Responses 0079-243 to 0079-246, below.

0044-243

Per CEQA, the EIR need only contain sufficient concrete information about each alternative to allow meaningful evaluation, analysis and comparison with the Project in order to foster informed decision making and public participation. CEQA Guideline § 15126.6(d); *Laurel Heights Improvement Assn. v. Regents of the University of Cal*. (1988) 47 Cal.3d 376, 406 ("Laurel Heights").

The level of analysis of alternatives is subject to a rule of reason and need not be exhaustive; a crystal ball inquiry is not required. *Laurel Heights* at 406; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 547 ("*Sierra Club*"); *Foundation for San Francisco's Architectural Heritage v. City & County of San Francisco* (1980) 106 Cal.App.3d 893, 910. "Absolute perfection is not required; what is required is the production of information sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned. It is only required that the officials and agencies make an objective, good-faith effort to comply." *Residents Ad Hoc Stadium Comm. v. Board of Trustees* (1979) 89 Cal.App.3d 274, 286.

The EIR fully evaluates six alternatives to the Project: No Project Alternative (Alternative 1); CUP Alternative (Alternative 2); Reduced Ground Disturbance Alternative (Alternative 3); No Hydraulic Fracturing Alternative (Alternative 4); Low-Emission Enhanced Oil Recovery (EOR) Technology Alternative (Alternative 5); Recycled Water Alternative (Alternative 6). For each alternative, the EIR provides a detailed description of the alternative, compares its impacts to those of the Project, and evaluates the relationship between the alternative and the Project objectives. In addition, Table 6-1 of the Draft EIR sets forth a matrix that provides a summary comparison of the significant impacts of each alternative to the project and the remaining alternatives for each impact category analyzed in the EIR.

By way of example, the information set forth on Table 6-1 demonstrates that Alternative 1 and Alternative 6 would have relatively greater aesthetic impacts than would the Project, that Alternative 4 and 5's aesthetic impacts would be roughly the same as the Project, and that Alternative 2 and 3's aesthetic impacts would be somewhat less than the Project. A similar comparison is made for each impact category. This analysis, combined with the detailed evaluation of each alternative's impacts as compared to the Project provides the information necessary to permit a reasonable choice of alternatives. CEQA requires no more. Indeed, CEQA Guideline § 15126.6(d) is quite clear that "[a] matrix displaying the major characteristics and significant environmental effects of each alternative[,]" such as Table 6-1, "may be used to summarize the comparison." Moreover, reviewing courts have upheld EIR's that compare project alternatives using a matrix like that set forth in Draft EIR Table 6-1. See, e.g., *Sierra Club* at 547; *Del Mar Terrace Conservancy, Inc. v. City Council* (1992) 10 Cal.App.4th 712, 740.

CEQA does not require the EIR to provide a detailed narrative analysis and a comprehensive discussion that compares the full extent of each alternatives’ impacts to one another.

0044-244

As explained in the Draft EIR at page 4.3-121, mitigation measures that suggested by the public during the EIR scoping period were considered only for those areas in which Project impacts were determined to exceed applicable significance thresholds. If significance thresholds were not exceeded, suggested mitigation measures were not considered because they would not address an impact as defined by CEQA. If significance thresholds were exceeded, however, suggested mitigation measures were considered and compared with the mitigation measures identified in the Draft EIR. If the Draft EIR did not contain equivalent or more effective mitigation, suggested mitigation measures were assessed to determine whether they would be feasible under CEQA and, if infeasible, were not included in the Draft EIR. Also, suggested mitigation measures were excluded from the Draft EIR if other mitigation measures that are included in the Draft EIR were determined to adequately mitigate significant Project impacts to less than significant levels.

During the EIR scoping process, one suggested mitigation measure proposed requiring oil and gas projects to generate their own clean electricity during production using photovoltaic (PV) solar, direct line power, or both, to eliminate all needs for operation power diesel generators onsite, thus reducing emissions associated with such generators. As explained on page 4.3-121 of the Draft EIR, this suggested measure was not included in the Draft EIR because other mitigation measures identified in the Draft EIR (i.e., MM 4.3-8) require emissions of designated criteria air pollutants to be fully offset by funding emission reduction programs in the air basin, obviating the need for mandatory clean energy production. In no event did the Draft EIR reject suggested mitigation measures related to renewable energy on the ground that they are part of the Project alternatives. They were eliminated because the County has determined to fully mitigate relevant impacts by other equally or more effective means. Since the EIR requires Project emissions to be fully offset, the EIR need not include additional mitigation requiring emitters to use clean electricity for a specific percentage of their operational energy needs, as the commenter suggests. Please see Global Response Alt-1 for more information regarding the feasibility of requiring well permit applicants to power all or a portion of well operations with renewable energy sources.

The Draft EIR includes mitigation measures that address the treatment and re-use of produced water. For example, MM 4.17-2 requires the applicant to increase the re-use of produced water, and reduce its use of municipal and industrial quality water (M&I water) to the extent feasible. This mitigation measure further requires, by the end of 2016, the applicants to review water use data submitted to DOGGR under Senate Bill 1281 and identify the five biggest oil industry users of M&I water by volume. The five biggest oil industry users of municipal and industrial water are further required to cooperate in the development and implementation of a plan identifying new measures to reduce M&I water use by 2020. The required plan must address the following activities, as appropriate: steam generation; drilling and completions (including hydraulic fracturing); dust control; compaction activities related to construction; and landscaping. Through the KernFLOWS initiative or other efforts (e.g., Groundwater Sustainability Agency), the five biggest oil industry users of municipal-and-industrial water must also work with local agricultural producers and water districts to identify new opportunities to increase the use of produced water for agricultural irrigation and other activities, as appropriate. Any produced water treated and used for agricultural irrigation or other activities shall be tested and monitored to assure compliance with applicable standards for such agricultural irrigation or other uses.

Moreover, MM 4.17-3 requires the applicant, as part of the County's required participation for the formulation of a Groundwater Sustainability Agency, to work with the County to integrate into the Groundwater Sustainability Plan for the Tulare Lake-Kern Basin, best practices from the oil and gas industry to encourage the re-use of produced water from oil and gas activities, and (with appropriate treatment) to produce new water

supplies for other uses such as agricultural irrigation and groundwater recharge. The produced water re-use goal is 30,000 acre-feet per year, which would offset more than the current use of imported water and groundwater from non-oil bearing zones by the oil and gas industry. In addition, MM 4.17-4, the applicant must work with the County on the Groundwater Sustainability Plan to increase applicant use of reclaimed waters and reduce the applicant's use of imported M&I surface water or groundwater.

Please see Global Responses Alt-1 and Alt-2.

0044-244 cont'd

0044-245

Please see Global Response Alt-2.

0044-245 cont'd

0044-246

The commenter's request for revision and recirculation of the EIR derive from its previous comments regarding EIR deficiencies which the commenter believes require recirculation. Please see response above to the previous comments and see also GR 20 regarding the standards for recirculation.

0044-246 cont'd

0044-247

Please see GR 20 regarding recirculation.

0044-248

The drafter of this exhibit is a geologist and consultant on unconventional oil and gas sustainability issues. It is noted that he is a Fellow in the Post Carbon Institute, and has published articles against continued extraction of fossil fuels. The author identifies the Monterey Shale Formation as a "potential new play" that could result in substantial increases in oil production in Kern County which exceed the oil production estimates included in the Draft EIR.

This Exhibit has been reviewed, and the author's opinion of the "potential new play" of dramatic increases in Monterey Shale production in Kern County is noted. This opinion is not shared by expert agencies, as discussed in the Draft EIR at p. 4.13-9, or by experts retained by the County.

0044-249

This exhibit is a permit from the San Joaquin Valley Air Pollution Control District for a cogeneration plant that is part of its corn processing operations in Stockton, California.

This Exhibit has been reviewed, and is determined not to support commenter's assertion that the County has underestimated the need for new cogeneration plants for oil and gas production under the Amended Ordinance. The exhibit has no other relevance to the EIR.

0044-250

This exhibit is an excerpt from a California Planning book which includes a chapter describing "Growth Management and Smart Growth," within which are examples of "Housing and Population Caps," "Commercial and Industrial Caps," "Urban Growth Boundaries," and other growth controls such as limiting Infrastructure and downzoning to less intense uses. The section on "Commercial and Industrial Caps" provides as the only example a bi-annual square footage cap adopted by one Bay Area city for office buildings, and height restrictions.

This exhibit is noted, and determined not to support commenter's assertion that a "cap" on industrial or mineral extraction activity is "a common planning tool" in California. In fact, unlike traditional zoning decisions that may increase or decrease the development potential of land, restricting access to or extraction of mineral resources without compensation is a compensatory taking under State and Federal law. The exhibit has no relevance to the EIR.

0044-251

This exhibit is an unpublished appellate court decision that concluded, among other things, that a Sacramento-area city had failed to demonstrate the effectiveness of a new fee program to mitigate for the conversion of farmland to urban use by acquiring additional farmland. The court explained that the city's actions were improper not because the impacts to farmland were significant and unavoidable, but because the city had not shown that the fee would mitigate to the extent feasible as required by CEQA. Here, by contrast, the DEIR found that impacts to farmland would be less than significant after mitigation. DEIR at 4.2-19, -23. Therefore, the case is inapplicable. In addition, the County has in the past successfully mitigated potential impacts to farmland through fees and similar mitigation that, like the current Project, required a ratio of 1:1.

0044-252

This exhibit is an article examines fragmentation of agricultural land by urban development, and three strategies for managing urban development to reduce agricultural land fragmentation.

This Exhibit has been reviewed, and the author's critique of urban development "sprawl" patterns are noted. This article is cited for the general proposition that agricultural fragmentation is problematic.

Kern County is ranked among the nation's top-producing agricultural and oil production counties, and both of these economic sectors have continued to prosper as immediate neighbors, (and in the case of split estates with agricultural surface uses) as overlapping land uses. This exhibit is not relevant to the EIR.

0044-253

This exhibit is an article describing the experience of homeowners in North Dakota who have 25 wells within 2 miles of their home, including some wells located very close to their home. The homeowners were surface owners of a split estate, and the article goes on to describe other conflicts between surface and mineral rights owners in a state that, like California, holds that mineral rights holders have the dominant property right on split estates.

The article is noted. Please see GR-5, which describes the scores of procedural and substantive measures that have been included in the Revised Ordinance and EIR to reduce adverse impacts to surface owners, and provide surface and mineral owners with the enforced opportunity to reach a collaborative agreement (should they desire to do so) within the constraints of existing property rights laws.

0044-254

The exhibit is an article describing oil and gas regulatory activities outside California, and is cited as evidence that oil and gas extraction may preclude farming activities beyond the boundaries of the well paid itself.

The article is noted. The differences between oil and gas production in Kern County and other states, with respect to well stimulation practices, is addressed in Appendix U of the Draft EIR. The mission and conduct of regulators from other states is not relevant to the EIR. Agricultural and oil extraction activities have thrived in Kern County for more than a century, often as immediate neighbors or even co-located uses. It is noted that oil facilities on split estates do decrease the size of agricultural operations that could have occurred in the absence of oil activities, but that practice is consistent with (and an inevitable consequence of) the dominant mineral rights on split estates.

0044-255

This exhibit is another article describing landcover change generally, and forest This article is noted. There are no forest lands in the Project Area. Oil and gas development has been a major land use in Kern County for more than a century, and occurs both on and adjacent to lands that have for decades been under agricultural cultivation based on market conditions (e.g., the price of agricultural products, and the availability and price of irrigation waters). The successful co-location of agriculture with oil and gas production is the existing setting, and anticipated future condition, in Kern County. The Pennsylvania conditions described in the Exhibit are not relevant to this EIR.fragmentation specifically, in Pennsylvania attributed to shale-gas development.

0044-256

This exhibit is another article, describing primarily the impact of urban development patterns on agricultural lands, particularly suburban scale development patterns.

This exhibit is noted, and determined to have no relevance to this EIR.

0044-257

This exhibit presents an economic analysis of the 2015 drought on California agriculture prepared by a team of scientists from various

institutions. The analysis provides statistics regarding the many adverse economic and other consequences of the drought, and includes several recommendations – such as better groundwater management planning and practices – to address these challenges.

This exhibit is noted. The overdraft of groundwater in the Project Area is described in the Draft EIR, as are the relatively minor impacts of oil and gas production activities to groundwater conditions. The Draft EIR includes several mitigation measures to address water supply and water quality impacts, and to offset oil and gas use of higher quality surface and groundwater with increased treatment and agricultural irrigation use of produced water.

0044-258

This Exhibit is an article published by Circle of Blue, an internet site combining water and climate advocacy efforts. The article describes the California drought in relation to Kern County's agricultural, and oil and gas producers. This information is noted. Please also see Appendix T, the Water Supply Assessment for the Project. Appendix T uses published reports and other reliable sources, along with the most current modeling data available, to both estimate the baseline (2012) water demand and to project future water use. This Exhibit does not rely on all of the same sources as Appendix T. Projections in Appendix T about future water use are conservative, and include a 10% contingency. Appendix T does confirm that it is consistent with DOGGR data (convergence approximately >95%), which is also referenced in this Exhibit. Note also that Appendix T uses the metric of acre feet, while this Exhibit primarily uses gallons or barrels, which may account for certain inconsistencies, if any. As explained in Appendix T, projections about future water demand will vary and depend on changes in technology and applicable regulations or policies.

0044-259

This exhibit includes an article from the High Country News describing produced water surface disposal practices in the North Belridge oilfield specifically, and produced water disposal practices more generally. The DEIR includes a discussion of this issue. *See* DEIR 4.9-69. In addition, please note that the use of surface impoundments for produced water disposal by Aera Energy LLC (Aera) mentioned in the article was discontinued in 2008 and the lawsuit between Starrh and Starrh Cotton Growers and Aera was settled in 2013.

0044-260

This exhibit is a Penn State publication regarding the soil compaction problems caused by the use of heavy farm equipment, and the adverse agricultural production consequences of compacted soil. The exhibit has no direct relevance to this EIR, but is cited by the author for its conclusion that soil compaction is permanent.

This exhibit is noted. Soil compaction from heavy agricultural surface equipment use is not relevant to this EIR.

0044-261

This exhibit is also produced by Penn State, and describes soil compaction, and recommended measures to address such compaction, in the Marcellus Shale gas production areas of Pensylvania. The article notes that mitigating compacted soils requires the use of very heavy equipment, and deep tillage practices.

This exhibit is noted. There are substantial differences between gas extraction practices in the Marcellus Shale, and oil and gas production in Kern County, as described in Appendix U. There is no documented soil compaction problem in Kern County from oil and gas development practices. This exhibit is not relevant to this EIR.

0044-262

This exhibit suggests modifications to 30 of the 88 mitigation measures included in the Draft EIR. Fourteen of these modifications impose new requirements to obtain surface owner "agreement" or "permission" to engage in mitigation activities that are required to be implemented under the Amended Ordinance. For example, many of the comments propose that surface owner permission or agreement is required to be obtained before an applicant can engage in the required pre-construction surveys for sensitive biological or cultural resources. As explained in Global Response 4, under the California Constitution and relevant statutes the mineral owner holds the "dominant" property right on split estates. Requiring surface owner permission or agreement as requested by commenter would reverse this property right priority and provide surface owners with effective control over when, how or whether a mineral rights owner can access and extract minerals by prohibiting such activity absent surface owner permission or agreement. The requested elevation of surface ownership to dominant estate status is legally infeasible under CEQA.

Commenter also suggests monetary compensation to surface owners as a mandatory mitigation measure for replacement and re-vegetation of crops and/or orchards. As described in Global Response 4, surface owners have a right to such compensation in other states based on the laws

of those states; however, this compensation is not required under California law, nor does lawful use of property create any economic mitigation obligation to a private property owner under CEQA.

As discussed in greater detail in response to commenter's letter, as initially drafted the Amended Ordinance expanded on the mandatory notice requirements to surface owners, and created a separate and more lengthy permit processing track for split estates where surface owner signatures were not obtained as part of the Site Plan process. The notice requirements have been expanded in the Revised Amended Ordinance (included in Section 7.1.3 of this Final EIR), and surface owner notice is now required when an application is filed, and the contents of the required notice have been expanded to include all of the activities for mitigation activities for which commenter requests surface owner agreement or permission, including notice regarding the location of access roads (existing and new), materials used to complete required road soil stabilization for unpaved roads, and for access to complete required biological and cultural resource surveys. Notice is also required for all activities for which this comment requests landowner notice, including drainage plans and hazardous materials spills and cleanup activities. The County lacks jurisdiction to require surface owner notice of application-related activities that occur prior to the filing of an application, since this falls outside the scope of the County's zoning authority and falls within statutory and common law authorities governing mineral and surface estate owners.

This comment also requests specific exclusions or modifications to mitigation measures when applied to agricultural lands. There is no specific rationale provided for any of these modifications, and the County has determined that none avoid, or substantially minimize or mitigate, a significant adverse impact to the environment. Mitigation measure revisions accepted by the County are noted.

The comment on MM 4.1-2 requests that that operators have 45 days rather than 90 days to remove derricks, boilers and other drilling equipment from a drill site to mitigate a temporary aesthetic impact. The aesthetic impact remains temporary under either duration, and shortening this duration – which is one of six mandatory mitigation measures imposed to reduce aesthetic impacts – does not avoid or substantially reduce the temporary degradation of the visual character or quality of the site and its surroundings. **This mitigation measure revision is not warranted.**

The comment on MM 4-1-4 requests an exception to aesthetics screening (e.g., shrubs, trees or solid screen fencing) for oil or gas tanks located on agricultural lands, even where such tanks are in public view and located within 200 feet of a sensitive receptor. **This mitigation measure revision is accepted to avoid the need for non-crop planting on agricultural lands.** This comment further requests that screening fencing be required within 1000 feet (instead of the 500 feet specified in the Draft EIR) of any dwelling. The aesthetic benefit of fencing is effective at the 500 feet distance included in the EIR. **This mitigation measure revision is not warranted.**

The comment on MM 4.2-2 and 4.2-3 request that speed limits on unpaved roads be limited to 15 miles per hour instead of the 25 miles per hour included in the Draft EIR, and allowed by applicable San Joaquin Valley Air Pollution Control District regulations. The County has determined that the District's speed limit, and compliance with the District-mandated dust supression measures that are also required to be implemented under MM 4.3-2, is effective in reducing dust impacts to a less than significant level and the further reduction in the speed limit proposed by the commenter to reduce dust impacts is not warranted. Similarly, commenter requests that the speed limit for biologically sensitive areas be decreased from 20 miles per hour to 15 miles per hour, notwithstanding expert biological opinion and agency support for the 20 miles per hour speed limit. **These mitigation measure revisions are not warranted.**

The comment on MM 4.3-5 requests deletion of a mitigation measure option of relocating residents to an area hotel for avoiding significant temporary adverse noise impacts during construction activities. The intent of this mitigation was to acknowledge that temporary relocation was an effective means of avoiding adverse noise impacts from well construction activities, but to also limit use of this mitigation measure to circumstances in which residents voluntarily agreed to such a relocation. Commenter offers no rationale for precluding implementation of this technically feasible mitigation measure; however, clarification is appropriate since involuntary relocation is not legally feasible. **The following revision to this mitigation measure is accepted:** "Assist and pay to relocate residents to temporary lodging during well construction, drilling, and completion activities, if such residents voluntarily agree to such relocation."

The comment on MM 4.4-15(p) and (q) requests an expansion of the 50-foot buffer distance between extra work areas (such as staging areas and spoil storage areas) and wetlands or waterbodies, and a 100-foot buffer distance to wash water disposal (which may not be discharged from the site), to also apply to cultivated land or crop land. This measure is designed to protect the biological resource values of wetlands and waterbodies, including plants and animals using these riparian features. Commenter provides no biological resource rationale for applying this riparian buffer distance to agricultural lands. **These mitigation measure revisions are not warranted**. MM 4.4-15(v) requests that topsoil segregation and seed bank preservation be required only for areas with native vegetation (and by implication not apply to cultivated agricultural lands). Because this mitigation measure was intended to help preserve seed banks for previously-undisturbed vegetation and not cultivated agricultural lands, **the following revision to this mitigation measure is accepted**: "If ground disturbance is intended to be temporary **and does not occur on cultivated and crop lands,** perform topsoil segregation . . .[remaining text unchanged from Draft EIR]."

The comment on MM 4.8-3(b) requests that this measure requiring that fuel and lubricants in staging areas be stored at least 100 feet away from the edge of cultivated and crop lands also include a 100-foot buffer distance away from cultivated and crop lands. The buffer distance to riparian features reflects the greater potential for species to be present near such riparian species. Because other parts of this same mitigation measure already require secondary containment such as berms or dikes around tanks, and the storage of non-tank fuels and lubricants in tanks also requires secondary spill containment, **the requested revision to this mitigation measure is not warranted** and could have the adverse consequence of increasing the amount of ground disturbance required for staging areas.

The comment on MM 4.8-15 requests that surface owners and their employees have access to training and appropriate personnel protective equipment (PPE) at locations where larger quantities of acutely hazardous chemicals are stored, as described further in the mitigation measure. Surface owners and their employees may voluntarily agree to undertake such training, but responsibility and liability for managing acutely hazardous chemicals remains with the applicant. Therefore, **this mitigation measure is not warranted.** However, in response to this and similar requests, MM 4.8-1 has been amended to provide that the Worker Environmental Awareness program provided to the employees of an

oil and gas operation shall also be provided to the surface owner at the time of the application pathway process so the surface owner may educate employees as well.

The comment on MM 4-8-19 requests that "operators" of oil and gas activities comply with all applicable policies of the Kern County Airport Land Use Compatibility Plan. The Draft EIR requires compliance by "Applicants" rather than "operators." The Amended Ordinance applies to new Applicants, and not existing operators. **The requested revision to this mitigation measure is not warranted.**

The comment on MM 4.12-2 requests that new oil and gas wells be located a minimum of 1,000 feet, rather than 190 feet, from the nearest sensitive receptor. A revised noise study has informed, and increased, the required setback distance between wells and sensitive receptors to 210 feet. (See revised MM 4.12-2) There is no rationale for increasing this noise setback distance to 1000 feet, hence **the requested revision to this mitigation measure is not warranted.**

The comment on MM 4.16-1 requests establishment of a grant maintenance program for unpaved roadway maintenance and improvements, "particularly unpaved roads associated with active agricultural operations on and in the vicinity of split-estate properties." A compensatory mitigation program for private roadways owned by split estate surface owners is a monetary mandate that is inconsistent with laws establishing mineral owners as the dominant estate. Funding for public roadway wear and tear is already included in this Mitigation Measure. **The requested revision to this mitigation measure is not warranted.**

0044-263

This exhibit is the 2014 Kern County Agricultural Crop Report. This report was cited for statistical information about agricultural production in Kern County. The report is noted. Information about Kern County's agricultural industry and land uses is included in the EIR at pages 4.2-1 – 4.2-6.

0044-264

This exhibit provides generalized information about grazing lands in the United States, as reported by the United States Department of Agriculture Natural Resources Conservation Service.

This exhibit is cited as a reference for generalized statements about rangeland, and is noted. The Draft EIR identifies grazing lands in the Project Area. EIR page p. 4.2-5.

0044-265

This exhibit is a University of California report on the effects of the state's Williamson Act funding cuts on California ranch lands.

This exhibit is cited for the general assertion that rangelands provide important benefits. The exhibit is noted.

0044-266

This exhibit is an article from the Journal of the California Native Plant Society on the benefits of conserving and managing grasslands, prairie, and vernal pool landscapes.

Grazing is a common land use in rural portions of the Project Area that are not used for irrigated croplands or urban uses. The Draft EIR identifies grazing lands in the Project Area. EIR page p. 4.2-5.

0044-267

This exhibit is an article from the September-October 2002 edition of California Agriculture discussing various social, demographic, and economic factors that, as of 2002, were affecting the cattle industry in California. The article notes that "California's greatest concentration of cattle are in the Central Valley counties of Fresno, Kern, Merced, Stanislaus and Tulare, and the arid southern region comprised by Imperial, Riverside and San Bernardino counties." The article does not discuss whether the oil and gas industry has any effect on the cattle industry; nor does it discuss loss of grazing land as a significant issue for the cattle industry. There is also no information included as to whether the issues faced by the cattle industry in 2002 remain areas of concern.

0044-268

This Exhibit is an "Intended Decision" in the matter Center for Biological Diversity v. San Benito County et al. (Monterey Superior Court Case No. M123956), filed July 21, 2014. The case involved review of a decision by San Benito County to prepare a mitigated negative declaration for an exploratory oil extraction project and as such is inapposite to the County's decision to prepare an EIR for the Revised Amended Ordinance. Further, trial court decisions are not precedent in California.

0044-269

This Exhibit is an April 2015 article from Science Magazine concerning the impacts of increased production of oil and gas wells in central North America since 2000 on crop and rangelands. The article does not discuss oil and gas activities in California generally or Kern specifically, or indicate whether the oil and gas development in central North America included area where, as in Kern, agricultural and oil & gas uses have coexisted for 100-plus years.

0044-270

This Exhibit was not included in the CD provided by the commenter.

0044-271

This Exhibit is an article discussing incentives for landowners to lease their property for oil production utilizing hydraulic fracturing, focusing on Eastern states.

The article is noted. Well stimulation practices in Eastern states are not relevant to practices in California under different geological conditions. Please also see GR-5, which describes the scores of procedural and substantive measures that have been included in the Revised Ordinance and EIR to reduce adverse impacts to surface owners, and provide surface and mineral owners with the enforced opportunity to reach a collaborative agreement (should they desire to do so) within the constraints of existing property rights laws. This Exhibit is noted but is not relevant to this EIR.

0044-272

This Exhibit is an article discussing conflicts between development of mineral rights and agricultural land values in states that, like California, holds that mineral rights holders have the dominant property right on split estates.

The article is noted. Please see GR-5, which describes the scores of procedural and substantive measures that have been included in the Revised Ordinance and EIR to reduce adverse impacts to surface owners, and provide surface and mineral owners with the enforced opportunity to reach a collaborative agreement (should they desire to do so) within the constraints of existing property rights laws.

0044-273

This Exhibit is an article discussing conflicts between development of mineral rights and agricultural land values in states that, like California, holds that mineral rights holders have the dominant property right on split estates.

The article is noted. Please see GR-5, which describes the scores of procedural and substantive measures that have been included in the Revised Ordinance and EIR to reduce adverse impacts to surface owners, and provide surface and mineral owners with the enforced opportunity to reach a collaborative agreement (should they desire to do so) within the constraints of existing property rights laws.

0044-274

This comment suggests several changes to most sections of the Amended Ordinance to address commenter's opinion that the information presented by the County Planning Director during a workshop on the Draft EIR was not consistent with the Amended Ordinance included in the Draft EIR.

First, the purpose of the public review process for the Amended Ordinance and Draft EIR is to obtain meaningful feedback from the public and other stakeholders, and to carefully consider and make changes in response to such feedback. There were three workshops on the Draft EIR, and a staff report that described and made preliminary recommendations regarding the Amended Ordinance. Staff recommendations regarding the administrative procedures in the Amended Ordinance evolve, and continued to evolve, and generally are not relevant to the physical components of the Project described and evaluated in this EIR. For example, the level of procedural specificity described for an application review process that includes, or excludes, a surface owner signature for a split estate does not change either the physical character of the oil and gas activities regulated by the Amended Ordinance, nor is it relevant to the impacts or mitigation measures included in the EIR.

Second, all of the commenter's suggested revisions to the Amended Ordinance to conform to the workshop staff report have been considered. Based on feedback from several commenters on the Amended Ordinance, the application review procedures and other administrative details have continued to evolve, and a Revised Amended Ordinance is included in this Final EIR. The mitigation measures from the EIR, and

compliance with the California Environmental Quality Act more generally, also continue to be included in the Revised Amended Ordinance.

Changes that have been accepted are incorporated into the Revised Amended Ordinance are included in Section 7.1.3 of the Final EIR.

0044-275

Commenter's suggestions regarding changes to the Site Plan Requirements in the Amended Ordinance were considered, as were other comments on the Amended Ordinance. A Revised Amended Ordinance has been included in Section 7.1.3 that clarifies and expands on the amount of surface owner notice, and documentation, required during the Site Plan Review process.

0044-276

This Exhibit is a letter from DOGGR to USEPA regarding DOGGR's actions in response to the USEPA audit of the California Underground Injection Control (UIC) program.

The UIC program and USEPA audit are discussed throughout the DEIR. *See, e.g.*, pp. 4.9-72, 4.9-96–98, and 4.9-107–4.9-108. Please also see GR-Water 2 which describes the correspondence between DOGGR and USEPA and provides a detailed discussion of the UIC program and review status.

0044-277

This Exhibit is a report by the United States Government Accountability Office which found, among other things, that USEPA received twenty-four allegations of groundwater contamination from underground injection wells in California between 2009 and 2012. The report does not constitute substantial evidence that such contamination actually occurred (as opposed to just allegations) and the DEIR contains more recent and contrary evidence. *See, e.g.*, DEIR at 4.9-75. Please also see GR-20, 21, Water-2 and Water-6, which describe the investigations and conclusions of California agencies on this topic.

0044-278

This Exhibit is DOGGR's July 15, 2015 Preliminary Assessment of Eleven Aquifers Historically Treated as Exempt. Please see GR Water-2, which references and contains an analysis of this report.

0044-279

This Exhibit is newspaper article describing the status of an enforcement matter by the Central Valley Regional Water Quality Control Board. The DEIR already describes the CVRWCQB's enforcement efforts in this area. *See* DEIR at 4.9-101–4.9-108. *See also* GR-Water 1.

0044-280

This Exhibit is a newspaper article discussing California's drought conditions in 2014. The DEIR already considers California's drought conditions. *See, e.g.*, DEIR at 4.9-9–4.9-10.

0044-281

This Exhibit is an article analyzing drought conditions, including whether they are caused by climate change. The analysis is not specific to California or Kern County. The DEIR already considers California's drought conditions. *See, e.g.*, DEIR at 4.9-9–4.9-10.

0044-282

This Exhibit is an article analyzing California's drought conditions, including whether they are caused by climate change. The DEIR already considers California's drought conditions. *See, e.g.*, DEIR at 4.9-9–4.9-10.

0044-283

This Exhibit is an article analyzing California's drought conditions, including whether they are caused by climate change. The DEIR already considers California's drought conditions. *See, e.g.*, DEIR at 4.9-9–4.9-10.

0044-284

This Exhibit is an article analyzing California's drought conditions, including whether they are caused by climate change. The DEIR already considers California's drought conditions. *See, e.g.*, DEIR at 4.9-9–4.9-10.

0044-285

This Exhibit is an article analyzing California's drought conditions, including whether they are caused by climate change. The DEIR already considers California's drought conditions. *See, e.g.*, DEIR at 4.9-9–4.9-10.

0044-286

This Exhibit is an article analyzing California's drought conditions, including whether they are caused by climate change. The DEIR already considers California's drought conditions. *See, e.g.*, DEIR at 4.9-9–4.9-10.

0044-287

This Exhibit is an excerpt from Volume II of the CCST's Independent Scientific Assessment of Well Stimulation in California. The DEIR already includes and considers the relevant findings from the CCST's review of well stimulation. *See, e.g.*, DEIR at Ch. 4.6, 4.8 and 4.9. See also GR-20, 21 and Geo-1 and Water-6.

0044-288

Exhibit 1 is a close-up photograph of existing wells on Highway 46. AES 1 is cited for the proposition that the photos provided in Appendix G of the DEIR are misleading.

This photograph is noted. The DEIR uses Key Observation Points ("KOPs") in order to create a representation of the Project's aesthetic impacts on typical views in the Project area and views from sensitive locations. DEIR at 4.1-21. Several of the KOPs were taken from roads and highways similar to Highway 46 and represent the views of such locations. *See, e.g.*, DEIR at 4.1-22–26. Further, the mitigation measures included in the DEIR will help minimize the significant, but unavoidable impacts on aesthetic resources. DEIR at 4.1-40–41; 4.1-50.

0044-289

This Exhibit is a map of parks and recreational areas located in Kern County. It is cited for the proposition that the County has failed to assess aesthetic impacts on such areas.

This map is noted. The DEIR uses Key Observation Points ("KOPs") in order to create a representation of the Project's aesthetic impacts on typical views in the Project area and views from sensitive locations. DEIR at 4.1-21. Four of the ten selected KOPs assess views from local and county parks. These KOPs are representative of views from parks and recreational areas.

0044-290

This Exhibit is a list of industrial solar projects in Kern County. It used to support the proposition that the DEIR did not adequately analyze cumulative aesthetic impacts.

This list is noted. Under CEQA Guidelines § 15130, an agency may conduct its assessment of cumulative impacts using a summary of projections contained in an adopted local, regional, or statewide plan that describes and evaluates conditions contributing to the cumulative effect. The DEIR does so, relying on both the Kern County General Plan and the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy approved in 2014.

0044-291

This Exhibit is a list of industrial wind projects in Kern County. It used to support the proposition that the DEIR did not adequately analyze cumulative aesthetic impacts.

This list is noted. Under CEQA Guidelines § 15130, an agency may conduct its assessment of cumulative impacts using a summary of projections contained in an adopted local, regional, or statewide plan that describes and evaluates conditions contributing to the cumulative effect. The DEIR does so, relying on both the Kern County General Plan and the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy approved in 2014.

0044-292

This Exhibit is the executive summary of the Draft Desert Renewable Energy Conservation Plan. It used to support the proposition that the DEIR did not adequately analyze cumulative aesthetic impacts.

This executive summary is noted. Under CEQA Guidelines § 15130, an agency may conduct its assessment of cumulative impacts using a summary of projections contained in an adopted local, regional, or statewide plan that describes and evaluates conditions contributing to the cumulative effect. The DEIR does so, relying on both the Kern County General Plan and the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy approved in 2014.

0044-293

This Exhibit is a study of traffic noise reduction in Europe. The comment is noted. This EIR has an extensive analysis of noise impacts, including from traffic, in Kern County. DEIR, Ch. 4.12. Please see GR Noise-1.

0044-294

This Exhibit is an acoustical review of this EIR's noise analysis. The comment is noted. Please see GR Noise-1.

0044-295

This Exhibit is a review of the Traffic and Trasnportation analysis done for this EIR. The comment is noted. Please see GR TR-1.

0044-296

This exhibit is a CARB fact sheet showing the conversion of 1 MMT CO2 to familiar equivalents. This article was cited for the fact that GHG emissions from the oil and gas sector in 2012 are equivalent to 3.5 million passenger cars. The exhibit is noted.

GHG emissions from the oil and gas industry in 2012 are part of the baseline of the DEIR. In addition, as explained in the DEIR, Project GHG emissions would be mitigated to a level of no net increase. DEIR at 4.7-32 – 39.

0044-297

This exhibit is CARB's Climate Change Scoping Plan which lays out the agency's plan to meet the AB 32 GHG reduction levels. The comment letter states that the Scoping Plan incorporates the 2050 GHG reduction goal laid out in E.O. S-3-05. The exhibit is noted.

While the Scoping Plan mentions the 2050 goal of an 80% reduction in GHG emissions from 1990 levels by 2050 laid out in E.O. S-3-05, it does not craft any measures to attempt to meet this goal nor is it supposed to. The reductions laid out in the Scoping Plan are linked to the AB 32 requirement to reduce GHG emissions by 20% from 1990 levels by 2020. AB 32 does not mandate CARB to craft measures to meet the aspirational 2050 goal set out in E.O. S-3-05. See also GR GHG-1.

0044-298

This exhibit is CARB's First Update to the Climate Change Scoping Plan which analyzes the state's progress toward meeting the 2020 GHG emission reductions mandated by AB 32 and explains the agency's plan to build upon the first Scoping Plan in working towards further GHG emission reductions. The comment letter states that the First Update to the Scoping Plan incorporates the 2050 GHG emission reduction goals as longer term goals of the state. The exhibit is noted.

While both the Scoping Plan and First Update to the Scoping Plan address longer term GHG emission reduction goals, these goals (be they 2050 or beyond) are not mandated by AB 32 or any other California law. As such, the DEIR is not required to address these goals. See also GR GHG-1.

0044-299

This exhibit is *Cleveland National Forest Foundation v. San Diego Association of Governments* (2014) 231 Cal.App.4th 1056 (*SANDAG)*. This case was cited for the fact that one Court of Appeal has reasoned that omitting an analysis of a project's inconsistency with E.O. S-3-05 is not appropriate under CEQA. The case is noted.

The *SANDAG* case is currently on appeal to the California Supreme Court and thus has no precedential value for the DEIR. In any case, *SANDAG* is distinguishable as the project at issue in that case was a long-term regional transportation plan specifically geared toward addressing how to reduce GHG emissions over time. The Project here does not have as one of its purposes reducing GHG emissions over time. See also GR GHG-1.

0044-300

This exhibit is SJVAPCD's Best Performance Standards for Components at Light Crude Oil and Natural Gas Production, Natural Gas Processing Facilities, Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants. The comment letter states that BPS are not mitigation measures. The exhibit is noted.

The exhibit states that "BPS is not a required mitigation of project related impacts" but does not assert that BPS can never be used as mitigation. In fact, as described in the DEIR, SJVAPCD's District Policy: Addressing GHG Emission Impacts from Stationary Source Projects Under CEQA When Serving as the Lead Agency states that BPS is used to determine a Project's potentially significant impacts on GHG emissions. DEIR at 4.7-31 – 32. BPS that are implemented by GHG-emitting sources will reduce the GHG emissions from those sources and therefore also reduce the amount of GHG emissions that require further mitigation.

0044-300 cont'd

0044-301

This exhibit is a California Air Pollution Control Officers Association (CAPCOA) white paper about CEQA and Climate Change. The comment letter states that this white paper contains numerous mitigation measures for reducing GHG impacts. The exhibit is noted.

This document lists the following mitigation measures:

MM C-1: Certified Diesel Construction Equipment MM C-2: Alternative Fuel Construction Equipment MM C-3: Local Building Materials MM C-4: Recycle Demolished Construction Material MM C-1: Certified Diesel Construction Equipment is a mitigation measure for some criteria pollutants and diesel particulates (DPM), but the measure indicates that it has an adverse impact on GHG, as it "Increases CO_2 emissions when trapped CO and carbon particles are oxidized." DEIR mitigation measures such as MM 4.3-3, which requires that off-road engines meet the Tier 3 emission standards, would substantially reduce emissions of criteria pollutants (without increasing GHG emissions).

The CAPCOA document includes MM C-2: Alternative Fuel Construction Equipment, but states that this measure is also adverse with respect to some criteria pollutants. The measure suggests "Use alternative fuel types for construction equipment. At the tailpipe biodiesel emits 10% more CO_2

than petroleum diesel. Overall lifecycle emissions of CO_2 from 100% biodiesel are 78% lower than those of petroleum diesel." However, the use of biodiesel may also result in a 10% increase in NOx which would contribute to the nonattainment status for the State and federal ozone standard. *See* EPA. A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions. EPA420-P-02-001. October 2002. As such, MM 4.3-3 in the DEIR was recommended to reduce emissions of nitrogen oxides and particulate matter instead of a measure like MM C-2.

The CAPCOA document also lists MM C-3: Local Building Materials. The use of local building materials is frequently practiced by the construction industry to minimize the costs and time associated with transporting building materials and will likely be a practice used for Project construction activities.

Lastly, the CAPCOA document lists MM C-4: Recycle Demolished Construction Material. Section 4.17 Utilities and Service Systems of the DEIR discusses how the Kern County Waste Management Department (WMD) operates seven landfills, five transfer stations and three bin sites throughout the county. The WMD also operates two special waste facilities and provides information on recycling and waste to minimize waste generation. This DEIR section also discusses The California Solid Waste Reuse and Recycling Access Act of 1991 which requires expanded or new development projects to incorporate storage areas for recycling bins into the project design. Reuse and recycling of construction debris would reduce operating expenses and save valuable landfill space. To comply with this Act, the DEIR has included the following mitigation measure:

MM 4.17-5 During construction activities for Project facilities, the Applicant shall not store construction waste onsite for longer than the duration of the construction activity, or transport any waste to any unpermitted facilities. The Applicant shall also reduce construction waste transported to landfills by recycling solid waste construction materials, such as taking materials to recycling and reuse locations listed in the brochure on

recycling construction and demolition materials available on the Kern County Waste Management Department website. Thus, the MM 4.17-5 is comparable to MM C-4.

In addition, as stated in the DEIR, GHG emissions from Project activities will be mitigated to a level of no net increase. DEIR at 4.7-32 – 39. See also GR GHG-2.

0044-302

This Exhibit is a press report on the U.S. Energy Information Administration's reduction in its estimate of the amount of recoverable oil in the Monterey Shale Formation.

This Exhibit has been reviewed. The Exhibit supports the conclusion in the Draft EIR, p. 4.13-9, that in the absence of dramatic technological advances, substantial development of the Monterey Shale and resulting population, housing and growth inducing impacts are not anticipated. Please see GR 32 regarding technological constraints on developing the Monterey Shale.

0044-303

This Exhibit is a press report on the value of oil stocks. The Exhibit states that the oil industry exhibits boom and bust cycles.

This Exhibit has been reviewed. The DEIR took historic patterns in the oil and gas industry into account in developing the baseline and well forecasts. Please see GRs 10 and 13.

0044-304

The Exhibit is a press statement by the Western States Petroleum Association regarding the oil and gas industry's existing contribution of jobs and tax revenue to California and Kern County.

This Exhibit has been reviewed. The industry's existing contribution to the state and local economy is considered one of the benefits of the Project. This is not inconsistent with the discussion of population, housing and growth inducing impacts in the Draft EIR.

0044-305

This exhibit is an article from the Bakersfield Californian explaining the level of air quality in Kern County. This article was cited for the fact that air quality in Kern County is at nonattainment levels. The article is noted.

Information about the current air quality in Kern County's is included in the Draft EIR at DEIR at 4.3-4 – 9. Although Kern County is nonattainment for certain criteria pollutants, the DEIR would ensure that air quality impacts are mitigated to a level of less than significance through mitigation. DEIR at 4.3-70; 4.3-103. See also GR Air-1.

0044-306

This exhibit is an article describing the health risks of air emissions from the development of unconventional natural gas resources. The article was cited for the fact that emissions from the oil and gas industry are linked to poor health outcomes. The article is noted.

McKenzie (2012) conducted two evaluations of health risks, one based on the median value of air measurements and another based on a 95th percentile upper confidence limit (UCL) estimates. The study concludes: "These preliminary results indicate that health effects resulting from air emissions during development of unconventional natural gas resources are most likely to occur in residents living nearest to the well pads and warrant further study." However, the results showed that there are no significant chronic, sub-chronic health or cancer risk for risks for either the median or UCL exposure estimates for locations greater than ½ mile. Based on worst-case (70 year continuous outdoor exposure at a fixed location) rather than reasonable maximum exposure assumptions, the study indicated that estimated hazard indices less than 0.5 (<1 indicates no health risk) and cancer risk less than 7 in a million (10 in a million is commonly used by EPA and other air districts to be an acceptable risk level – see response 0049-9). For locations at or within ½ mile, the study indicates that median measured concentrations also indicated risks at acceptable levels for all three health effects. Within ½ mile the UCL risk estimates are higher indicating a hazard index of 1 for chronic effects, 5 for sub-chronic effects and 10 in a million for lifetime cancer risk. Given that the UCL values are representative wells that are much less than ½ mile away and that worst case (see above) exposure assumptions are used, these values are likely to be overestimates. In addition, even the worst case scenario presented risks at 10 in a million, lower than the SJVAPCD threshold for CEQA impacts. See also GR Air-5 and Air-6.

0044-307

This exhibit is an article on birth outcomes and maternal residential proximity to natural gas development in Colorado. The article was cited for the fact that emissions from the oil and gas industry are linked to poor health outcomes. The article is noted.

McKenzie (2014) studied birth outcomes statistics as related to natural gas well locations but did not examine concentrations of ambient air pollutants. Thus, while this type of epidemiological study can determine if there may be positive associations between distance and specific birth outcomes, these methods do not establish definitive cause and effect relationships. The study found that among the birth effects studied that there was a positive association between greater density and proximity of natural gas wells within a 10 mile radius and congenital heart defects. The study did not find significant correlations with other birth outcomes or address what pollutants may be involved or the specific types of sources or activities that may be implicated by the noted positive association. The authors conclude that given the limitation of the present study, that more comprehensive and rigorous research is warranted. This study does not suggest that emissions from the oil and gas industry are linked to poor health outcomes. See also GR Air-5 and Air-6.

0044-308

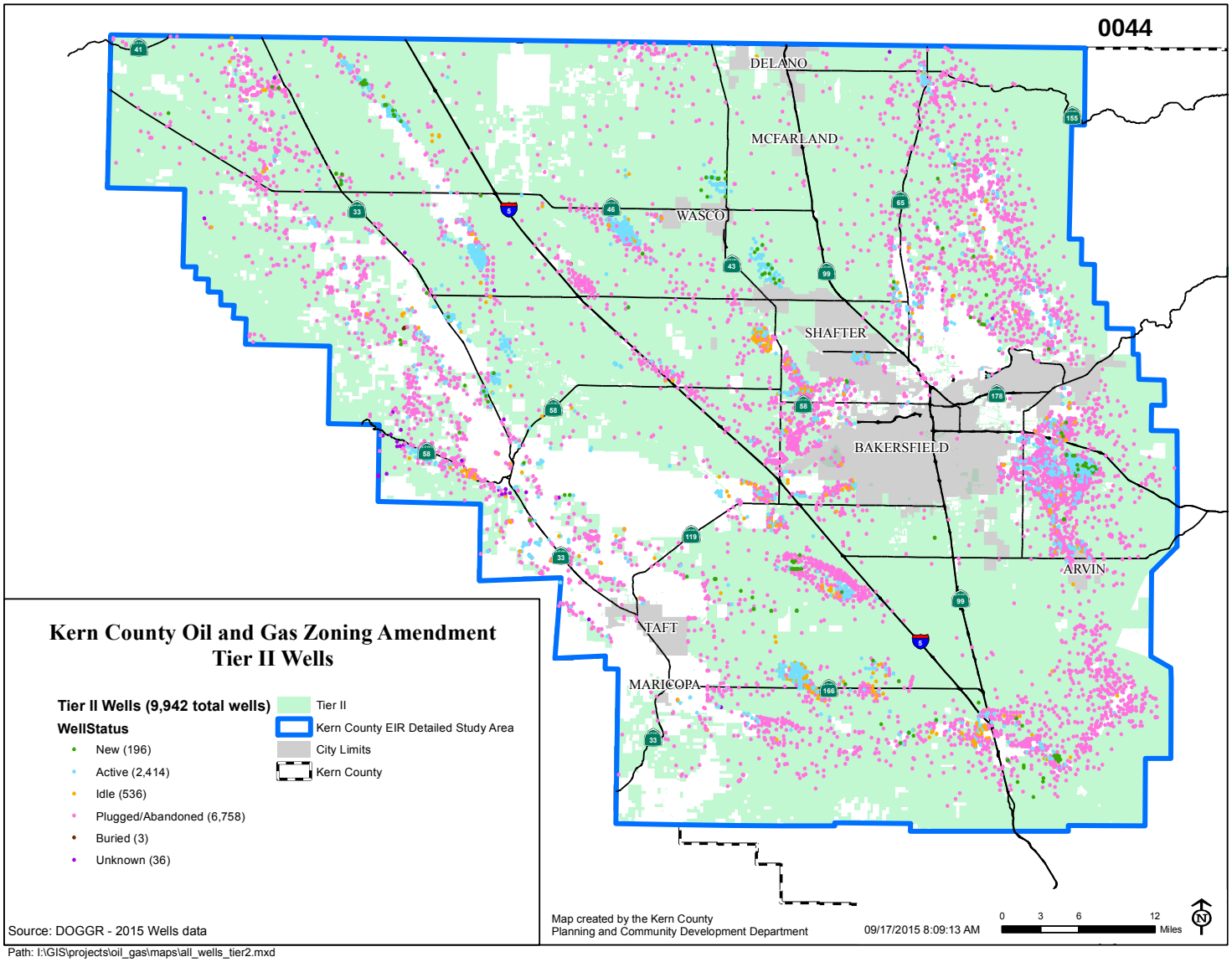
This exhibit is an article addressing how ozone pollution is reducing the food supply. This article was cited for the fact that air emissions from the oil and gas industry are linked to reduced agricultural yields. The article is noted.

This paper sites studies that explore how high levels of ozone may adversely affect crops. The basis for the current secondary ozone standard, as explained in the ozone criteria document (Air Quality Criteria for Ozone and Related Photochemical Oxidants Volume I, (EPA 600/R-05/004aF) Section 9 ENVIRONMENTAL EFFECTS: OZONE EFFECTSON VEGETATION AND ECOSYSTEMS), includes a vast body of research. The ozone standards have been proposed by EPA and will likely be set at even lower levels than the existing standards. Areas that are not in attainment with these standards are required to develop EPA-approved plans to improve air quality and continue to reduce airborne concentrations of ozone unit compliance with the standards are achieved. Once this occurs, because the secondary ozone standard is protective of vegetation, there would be no detrimental impacts on crops due to ozone exposure.

0044-309

This exhibit is a U.S. EPA discussion of oil and natural gas pollution standards. This article was cited for the fact that VOCs which are emitted from oil and gas operations contribute to the formation of ground level ozone. The article was not attached to the comment letter; however, we are aware that EPA's oil and natural gas pollution standards aim to reduce emissions of methane and VOC in order to address climate change and public health impacts.

While VOCs contribute to the formation of ground level ozone, all VOCs from the Project were considered in the air quality analysis in the DEIR. DEIR at 4.3-70 – 103. In addition, the air quality mitigation measures in the DEIR will ensure that air quality impacts from VOCs are less than significant after mitigation. *See* DEIR at 4.3-68 – 70; 4.3-103; 4.3-110 – 112; 4.3-120 – 121. See also GR Air-1.



Kern County Oil and Gas Zoning Amendment
Tier II Wells

Tier II Wells (9,942 total wells)

WellStatus

- New (196)
- Active (2,414)
- Idle (536)
- Plugged/Abandoned (6,758)
- Buried (3)
- Unknown (36)

- Tier II
- Kern County EIR Detailed Study Area
- City Limits
- Kern County

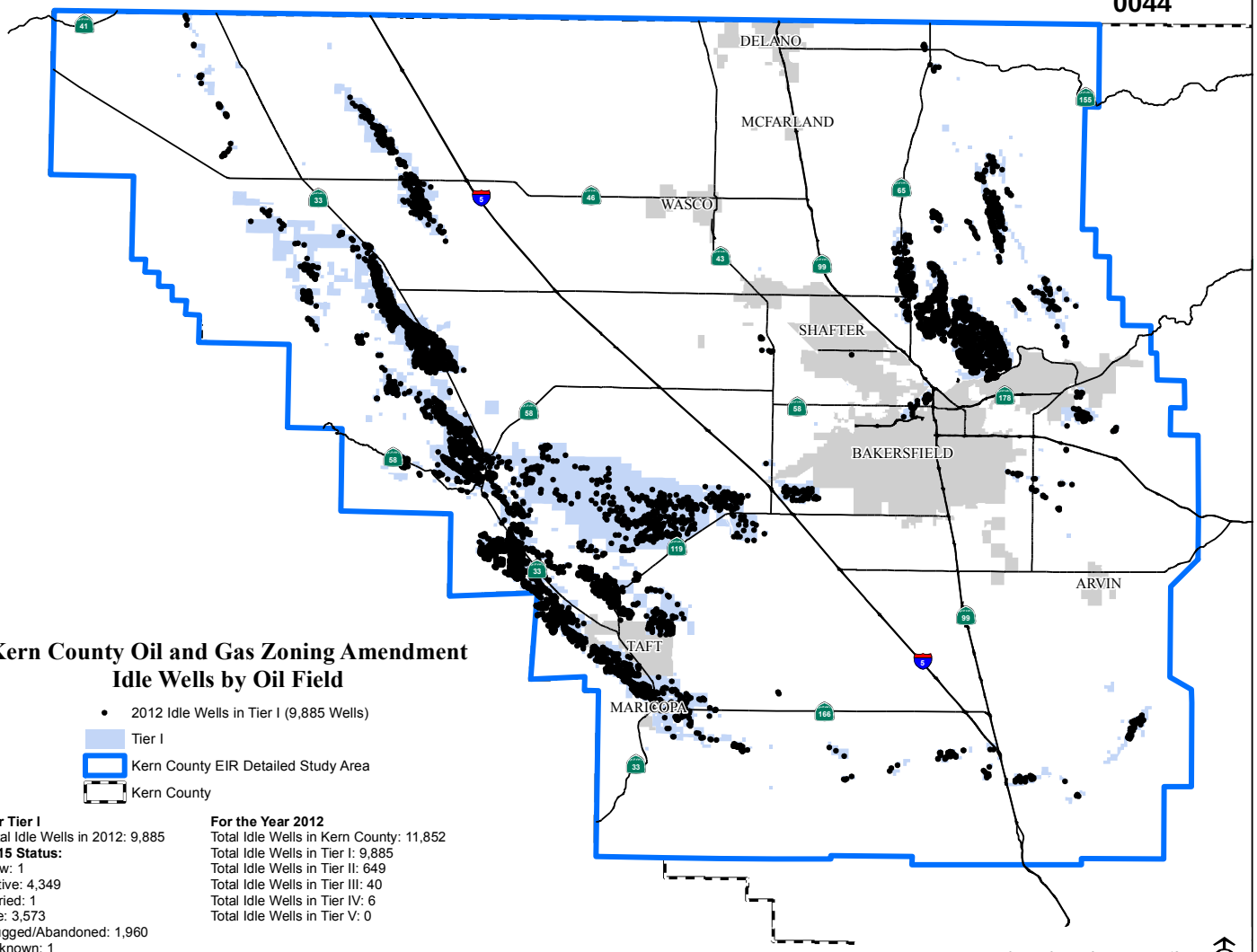
Source: DOGGR - 2015 Wells data

Map created by the Kern County
Planning and Community Development Department

09/17/2015 8:09:13 AM

0 3 6 12 Miles

Path: I:\GIS\projects\oil_gas\maps\all_wells_tier2.mxd



Kern County Oil and Gas Zoning Amendment
Idle Wells by Oil Field

- 2012 Idle Wells in Tier I (9,885 Wells)
- Tier I
- Kern County EIR Detailed Study Area
- Kern County

For Tier I
Total Idle Wells in 2012: 9,885
2015 Status:
New: 1
Active: 4,349
Buried: 1
Idle: 3,573
Plugged/Abandoned: 1,960
Unknown: 1

For the Year 2012
Total Idle Wells in Kern County: 11,852
Total Idle Wells in Tier I: 9,885
Total Idle Wells in Tier II: 649
Total Idle Wells in Tier III: 40
Total Idle Wells in Tier IV: 6
Total Idle Wells in Tier V: 0

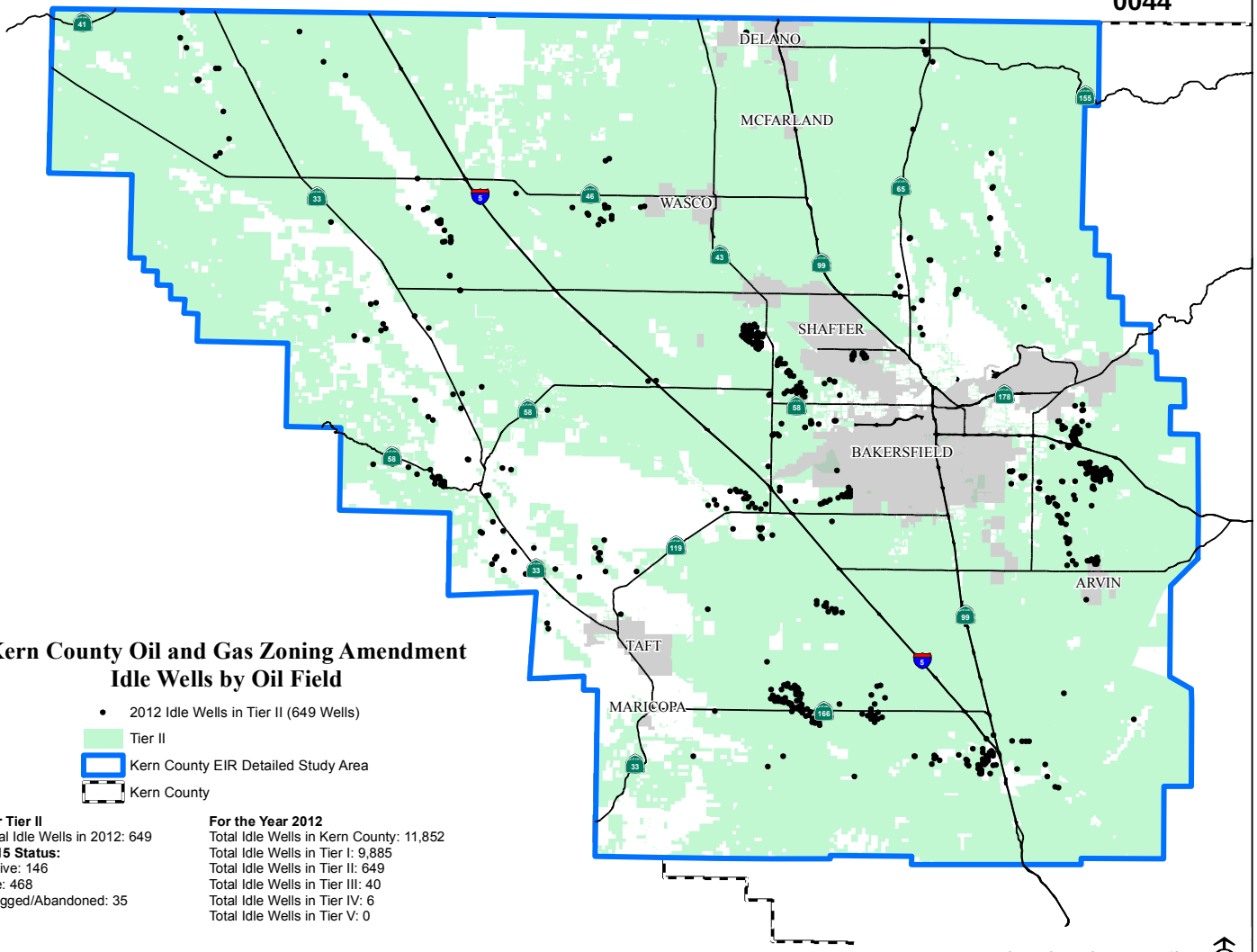
Source: DOGGR - 2012 Idle Wells data, 2015 Wells data

Map created by the Kern County
Planning and Community Development Department

08/13/2015 4:24:04 PM

0 3 6 12 Miles

Path: I:\GIS\projects\oil_gas\maps\idle_wells_tier1_2012.mxd



Kern County Oil and Gas Zoning Amendment
Idle Wells by Oil Field

- 2012 Idle Wells in Tier II (649 Wells)
- Tier II
- Kern County EIR Detailed Study Area
- Kern County

For Tier II
Total Idle Wells in 2012: 649
2015 Status:
Active: 146
Idle: 468
Plugged/Abandoned: 35

For the Year 2012
Total Idle Wells in Kern County: 11,852
Total Idle Wells in Tier I: 9,885
Total Idle Wells in Tier II: 649
Total Idle Wells in Tier III: 40
Total Idle Wells in Tier IV: 6
Total Idle Wells in Tier V: 0

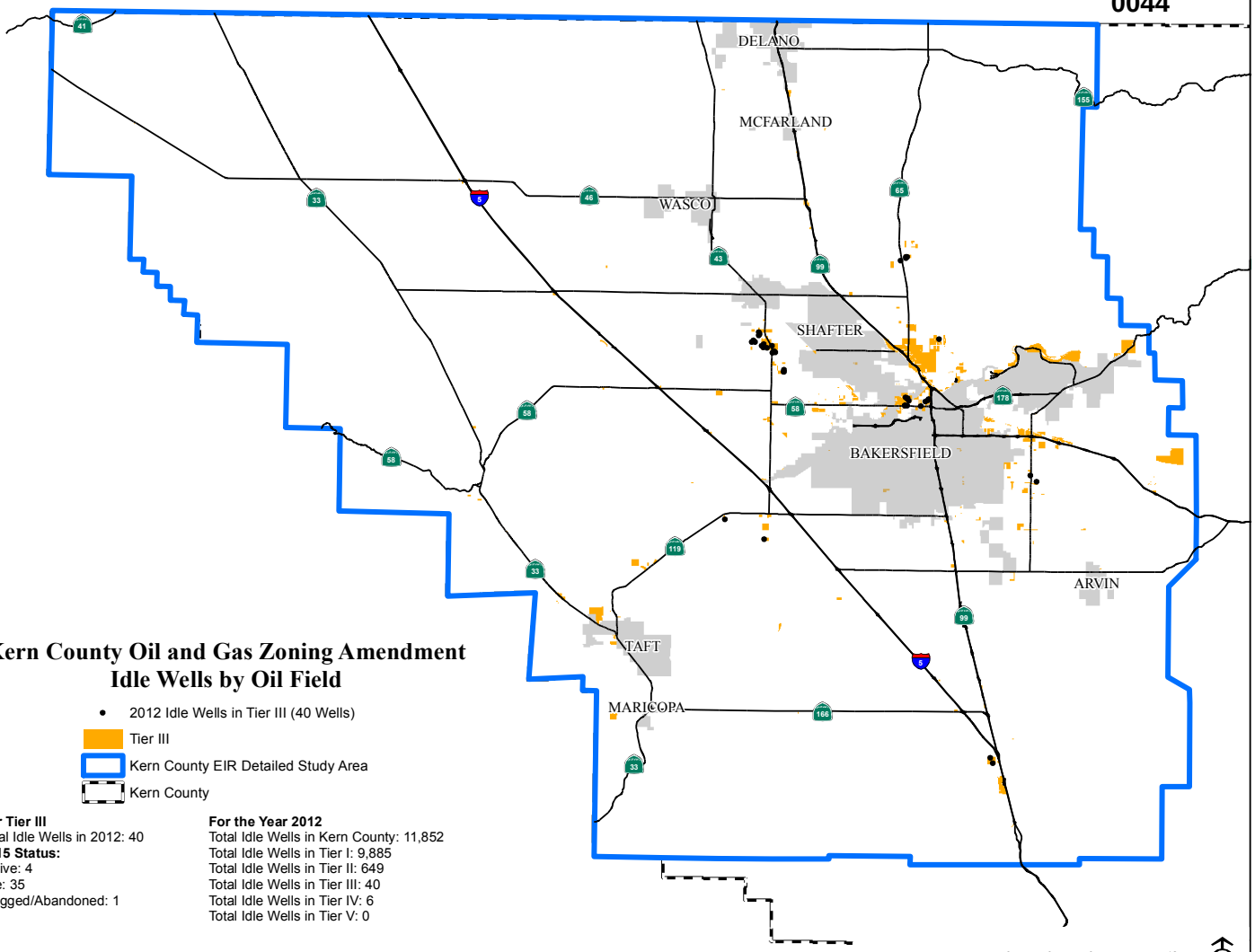
Source: DOGGR - 2012 Idle Wells data, 2015 Wells data

Map created by the Kern County
Planning and Community Development Department

08/13/2015 4:40:02 PM

0 3 6 12 Miles

Path: I:\GIS\projects\oil_gas\maps\idle_wells_tier2_2012.mxd



Kern County Oil and Gas Zoning Amendment
Idle Wells by Oil Field

- 2012 Idle Wells in Tier III (40 Wells)
- Tier III
- Kern County EIR Detailed Study Area
- Kern County

For Tier III
Total Idle Wells in 2012: 40
2015 Status:
Active: 4
Idle: 35
Plugged/Abandoned: 1

For the Year 2012
Total Idle Wells in Kern County: 11,852
Total Idle Wells in Tier I: 9,885
Total Idle Wells in Tier II: 649
Total Idle Wells in Tier III: 40
Total Idle Wells in Tier IV: 6
Total Idle Wells in Tier V: 0

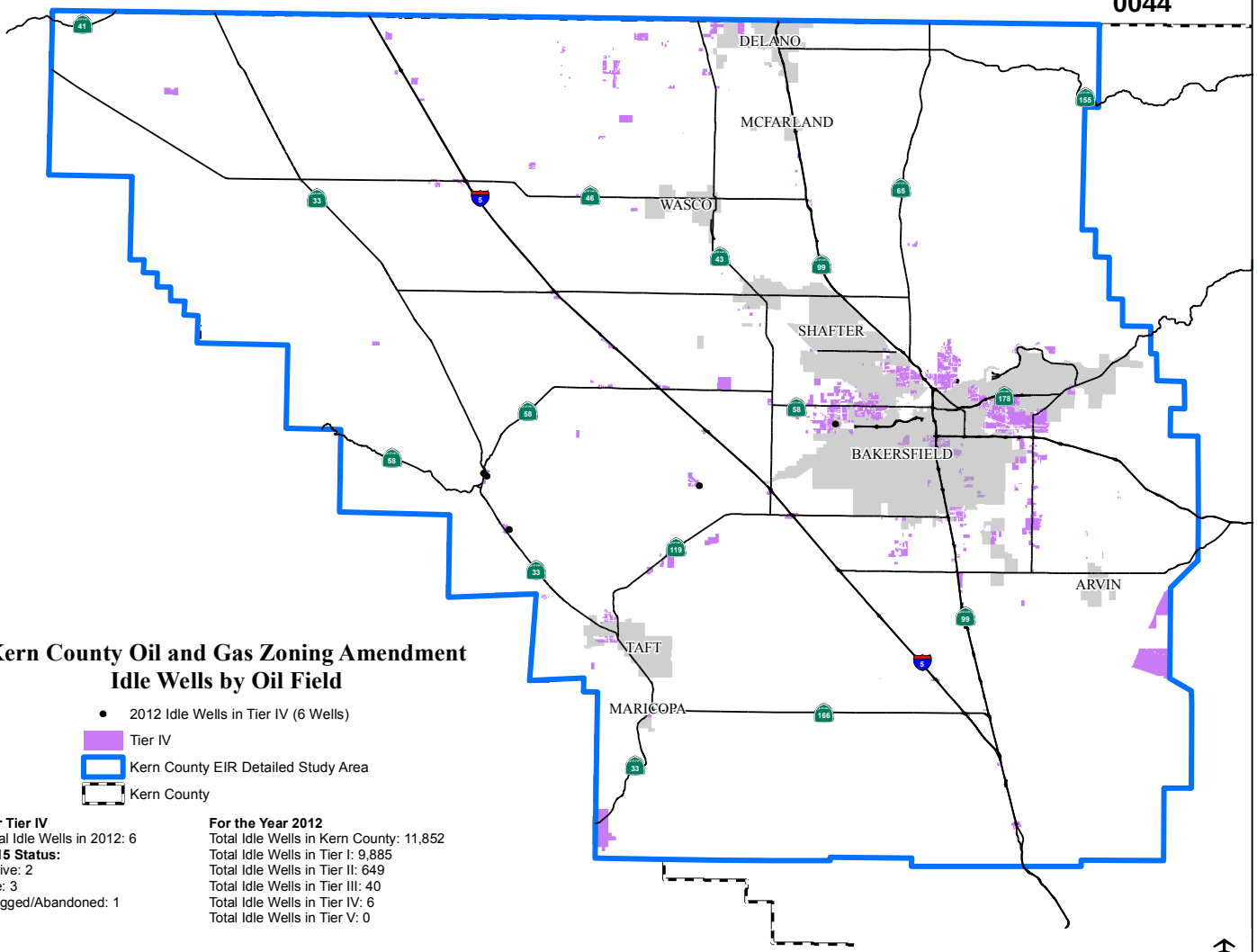
Source: DOGGR - 2012 Idle Wells data, 2015 Wells data

Map created by the Kern County
Planning and Community Development Department

08/13/2015 4:29:26 PM

0 3 6 12 Miles

Path: I:\GIS\projects\oil_gas\maps\idle_wells_tier3_2012.mxd



Kern County Oil and Gas Zoning Amendment
Idle Wells by Oil Field

- 2012 Idle Wells in Tier IV (6 Wells)
- Tier IV
- Kern County EIR Detailed Study Area
- Kern County

For Tier IV
Total Idle Wells in 2012: 6
2015 Status:
Active: 2
Idle: 3
Plugged/Abandoned: 1

For the Year 2012
Total Idle Wells in Kern County: 11,852
Total Idle Wells in Tier I: 9,885
Total Idle Wells in Tier II: 649
Total Idle Wells in Tier III: 40
Total Idle Wells in Tier IV: 6
Total Idle Wells in Tier V: 0

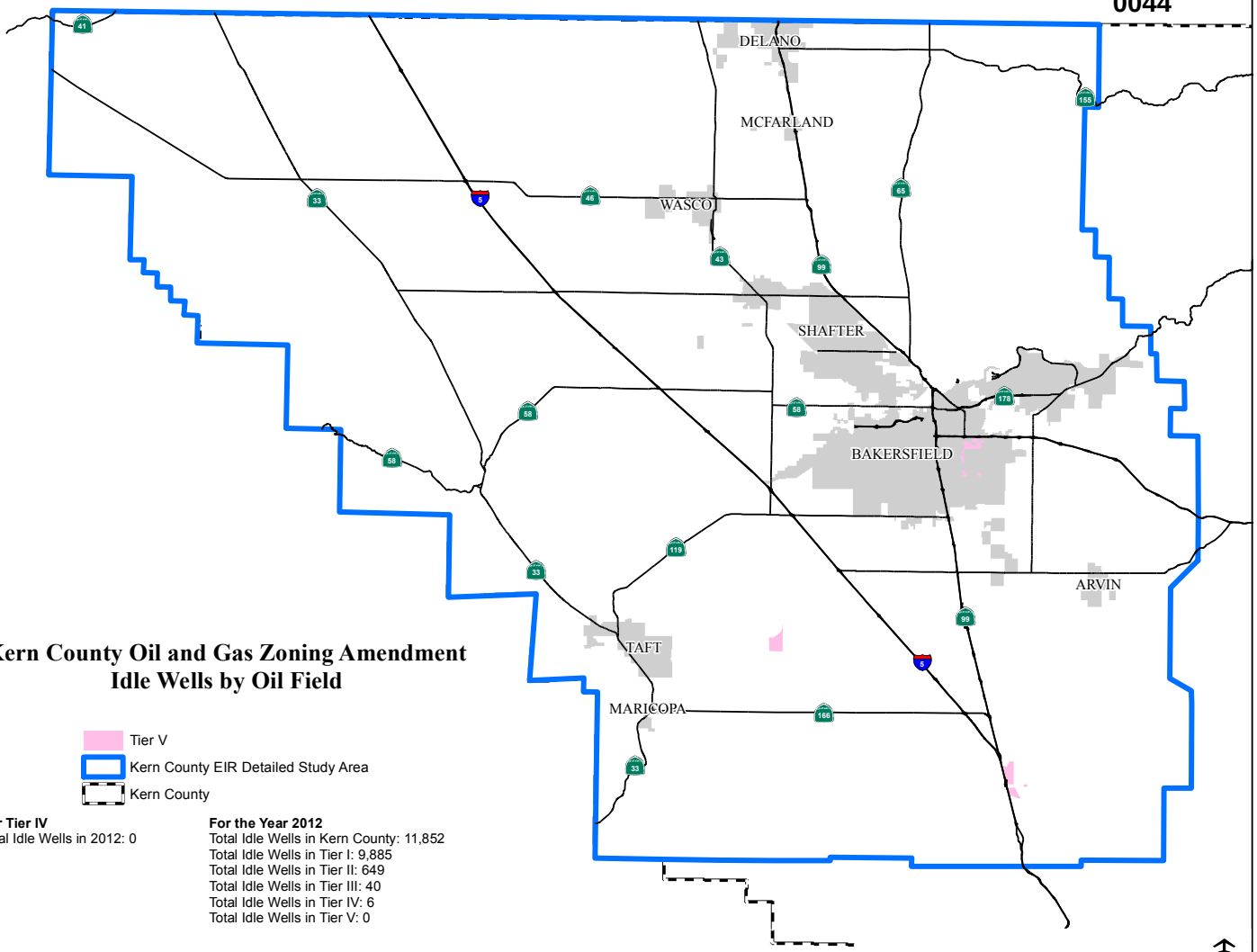
Source: DOGGR - 2012 Idle Wells data, 2015 Wells data

Map created by the Kern County
Planning and Community Development Department

08/13/2015 4:31:14 PM

0 3 6 12 Miles

Path: I:\GIS\projects\oil_gas\maps\idle_wells_tier4_2012.mxd



Kern County Oil and Gas Zoning Amendment
Idle Wells by Oil Field

Tier V
Kern County EIR Detailed Study Area
Kern County

For Tier IV
Total Idle Wells in 2012: 0

For the Year 2012
Total Idle Wells in Kern County: 11,852
Total Idle Wells in Tier I: 9,885
Total Idle Wells in Tier II: 649
Total Idle Wells in Tier III: 40
Total Idle Wells in Tier IV: 6
Total Idle Wells in Tier V: 0

Source: DOGGR - 2012 Idle Wells data, 2015 Wells data

Map created by the Kern County
Planning and Community Development Department

08/13/2015 4:38:01 PM

0 3 6 12 Miles

Path: I:\GIS\projects\oil_gas\maps\idle_wells_tier5_2012.mxd

45 Center for Biological Diversity

See Response in Volume IV of Chapter 7.



CENTER *for* BIOLOGICAL DIVERSITY *Because life is good.*

September 11, 2015

Via Overnight Mail and Email
Christopher B. Mynk, AICP
Supervising Planner
MynkC@co.kern.ca.us
Kern County Planning Department
Public Services Building
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

Re: Comments on the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance 2015 C

Dear Mr. Mynk:

On behalf of the Center for Biological Diversity and its members, I am writing to submit the following comments regarding the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance (the DEIR). 0045-1

The DEIR, which the County offers as a project-level EIR intended to take the place of all environmental review of oil and gas activity in the County for the foreseeable future, is contrary to basic environmental protections and public participation rights. Moreover, substantial, irreversible harm to our air, water, health, and climate will result from these activities. Rather than encourage the expansion of dangerous oil and gas activity through these amendments (written by the industry), the County should begin the transition toward a cleaner, safer, healthier economy. 0045-2

Time to Review Is Insufficient

Given the length of the DEIR and the improperly broad scope of the proposed Revisions to the Kern County Zoning Ordinance (the proposed Project), it is unreasonable to ask the public to provide comments in such a short time period. The Notice of Completion was issued July 8, 2015, and the Kern County Planning and Community Development Department originally gave only the statutory minimum of 45 days to respond. Calls from the public to allow for more time to review were initially rejected. Only after multiple requests for an extension were submitted did the County grant a limited, 15-day extension and allow comments to be submitted until September 11, 2015. Even with 60 days, the 1,800-page DEIR—together with the thousands of pages of appendices where much of the critical information is located—is nearly impossible to review and puts an unfair and prejudicial burden on those attempting to provide meaningful public comments. 0045-3

The Scope of the Project Is Improperly Broad

0045-4

The sum of all environmental impacts caused by all oil and gas activities for the indefinite future is far too broad to provide any meaningful review of the activities at issue. This is especially true where, as here, the County is proposing to process ministerial permits for many types of harmful activities, which would not be further reviewed by the County. In other cases, the County proposes that no permit at all be necessary. Given the broad array of potential and actual harms at each step of the oil and gas development process, and the variety of operations within Kern County, each individual well deserves close environmental scrutiny. The DEIR attempts to aggregate the various harms from construction, site preparation, drilling, well reworks and workovers, well completion, well stimulation, enhanced oil recovery, wastewater management, wastewater disposal, plugging and abandonment, and other ancillary activities. A single analysis cannot possibly be adequate to serve as a project-level analysis for all oil and gas activities for the foreseeable future.

0045-5

Further, the County improperly states that the EIR, once certified, will be used to satisfy the requirements of the California Enviornmental Quality Act (CEQA) for the following discretionary approvals: Kern County Ordinance amendments; Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) permitting; San Joaquin Valley Air Pollution Control District permitting for oil and gas equipment, Regional Water Board Waste Discharge Requirements (WDR), Department of Toxic Substances Control oversight of cleanups, Kern County Water Agency permits, Department of Transportation encroachment permits. To claim that no further environmental review is necessary for any of these activities is an untenable and incorrect interpretation of CEQA requirements.

0045-6

The County's justifications for a project-level DEIR for all oil and gas activity in Kern County does not withstand scrutiny. The DEIR states that it is able to analyze site-specific impacts, but the DEIR does no such thing. To cite just one example, the air quality impacts are based on just 9 air monitors, and only for a select number of air pollutants. There is no concrete data that would allow the public to understand what the likely local impacts would be.

0045-7

The DEIR also states that the project-level analysis would allow the public to review environmental harms at the time the County Ordinance is changed. This would be true of a programmatic EIR as well, and thus it is not an argument for attempting to conduct a project-level EIR that could foreclose future evaluation of oil and gas projects. The final reason offered for conducting a project-level EIR is that it would give other agencies more detailed analysis upon which they could rely when issuing discretionary permits. Again programmatic EIRs would do the same. Moreover, this DEIR does not provide the level of specificity necessary to make any informed determinations on the impact of individual wells and projects. Aside from the lack of specificity, it is also an extremely long document, making it virtually incomprehensible and unusable on a project-by-project basis.

0045-8

Kern County has failed to take a hard look at the health and environmental consequences of widespread oil and gas activity in the past. It cannot hope to analyze each and every concern in a single document, building upon no previous systematic review. Further, Kern County seems to indicate that this review would serve as the sole evaluation for all oil and gas development *ad infinitum* and would preclude future review of oil and gas projects. There is no assurance from the County that the environmental harms would be reevaluated at a certain point in the future. In a field

where new studies and information are constantly increasing our understanding of the relationship between the oil industry and environmental and health risks, it is certain that the EIR will need to be reevaluated. For instance, studies on the environmental health risks of hydraulic fracturing ("fracking") are rapidly informing the public about the true extent of the dangers of this extreme extraction technique.[1] Only a few years ago, many were unaware of the severity of the dangers associated with fracking and other forms of oil and gas extraction.

0045-8
Continued

The Alternatives Analysis Is Inadequate

0045-9

The DEIR does not adequately analyze feasible alternatives to the project.

0045-10

First, it fails to even consider certain feasible alternatives to the Project. These alternatives deliver real benefits to the environment and public health and deserve at least a comprehensive analysis so the public and decision-makers understand the full cost of allowing rampant oil and gas production.

0045-11

The DEIR rejected a ban on all drilling as infeasible. Not only is an end to drilling feasible, over the long term, it is necessary to avoid the effects of catastrophic climate change. Gov. Brown recently noted that one third of the world's oil must remain in the ground.[2] Climate experts have indicated that even a greater portion of oil must stay undeveloped. Kern County has an opportunity to set an example for the world by moving away from climate change-inducing fossil fuel development and phasing in a robust renewable energy sector. The environmental and health risks from the oil and gas industry, enumerated by the DEIR and those that were not, could be nearly eliminated by phasing out these dangerous practices in the County.

0045-12

Another rejected alternative was to have fewer operating wells over time. The DEIR incorrectly states that it is legally infeasible. This appears to be a result of a misunderstanding of local governments' authority to protect public health and safety. Local governments have the constitutional right to decide what land uses are compatible with their general plans where the decision is reasonably related to a matter of public health and safety. Indeed, San Benito County has enacted a ban on well stimulation and all new oil and gas in residential zones. Despite threats from the industry of legal action, the new ordinance went virtually unchallenged[3], a testament to its solid legal foundation. The California Supreme Court deemed it an "unquestioned right."[4] The State Attorney General has also opined that local governments may enact bans on oil and gas activity.[5] Given this broad local government authority, Kern County cannot use legal infeasibility as an excuse for dismissing alternatives that include much needed limits on oil and gas activity.

0045-13

The zero net gain alternative was also improperly rejected without an analysis. The DEIR mistakenly claims that it would not reduce any of the significant environmental harm of the Project. To the contrary, the DEIR itself describes the marginal harm resulting from the addition of thousands of

[1] See Center for Biological Diversity, Well Stimulation EIR Comments, Scoping; Center, Emergency Petition Requesting Immediate Moratorium on Fracking and Supporting Information.
[2] David Baker, "Gov. Brown wants to keep oil in the ground. But whose oil?" San Francisco Chronicle, Jul. 26, 2015.
[3] A complaint was temporarily filed before being withdrawn shortly after. The statute of limitation to facially challenge the ordinance has expired.
[4] *Beverly Oil Co. v. City of Los Angeles* (1953) 40 Cal.2d 552, 558.
[5] California Attorney General's Opinion (1976) 59 Ops. Cal. Atty. Gen. 461, 465.

wells per year. If an older well were decommissioned for every new well added, these marginal harms would decrease substantially. 0045-13 Continued

Among the alternatives considered, the option banning fracking and other well stimulation was improperly characterized as legally questionable due to pending litigation. At this time, there are no cases challenging the authority of a local government in California to ban fracking. As stated above, the San Benito County ban on fracking was not even challenged in court. Given the absence of legal barriers to a ban on fracking, the DEIR should fully consider this alternative. 0045-14

Any of these alternatives is feasible and environmentally superior to the proposed Project, and must be afforded a full analysis so the public can evaluate the true costs of the Project compared to the environmental benefits of the alternatives. 0045-15

The Baseline Calculation Is Unclear and Incomplete

The DEIR uses 2,697 new wells as an estimate in some places, but uses 4,083 and 3,647 in other places. The DEIR should be clear about which estimate is being used, and provide support for using that estimate. It is unclear whether the reactivation of idle wells is included in this tally. 0045-16

The number of projected well stimulation treatments is based on an outdated figure from fracfocus.org when disclosure was completely voluntary. Subsequent projections have predicted much higher numbers of annual well stimulation. For example, the California Council on Science and Technology (CCST) estimated that California as a state could average as many as 175 fracking events per month, and another 25 acidizing operations. In sum, this would mean 2,400 statewide well stimulations per year, double the DEIR's highest estimate for Kern County. Although not all well stimulation occurs in Kern County, the proportion is far greater than half. The DEIR fails to adequately explain why its estimation differs drastically from other surveys. 0045-17

The DEIR does not provide an estimate of how many pits and sumps would be required to meet the wastewater disposal demands of thousands of wells each year. The DEIR should include this figure and fully analyze its effect on soil, groundwater, air, and biological resources. 0045-18

The DEIR does not analyze the environmental effect of cogeneration facilities, yet states that 54 new cogeneration facilities will be necessary to supply energy to the expanded oil and gas industry.[6] 0045-19

The DEIR asserts that the environmental effect of enhanced oil recovery wells has been analyzed as though DOGGR has passed new regulations for EOR wells. But DOGGR has not even released a draft of these regulations, making it impossible to know how these new regulations will affect EOR operations in Kern County. Any analysis that attempts to predict how new regulations will affect EOR operations is entirely speculative. 0045-20

The Project Puts Public Health at Risk

A recent state-commissioned study by the CCST found that residents near active oil and gas wells are at higher risk of being exposed to harmful chemicals, and as a result have higher risk of 0045-21

[6] DEIR at 469.

0045-21 Continued

developing health problems. Significant exposures can occur at least as far as two miles from an active well.[7]

0045-22

The public health risk to California is serious. About 5.4 million Californians live within *one* mile of an active oil and gas well[8], within the distance scientifically shown to increase the risks to populations. Many more millions live within the 2-mile radius that studies have found to increase the risk to people's health. The risk is particularly serious for vulnerable populations more susceptible to developing health effects from pollution exposure, such as children, the elderly, or pregnant women.

0045-23

The risk also disproportionately affects minority populations. Four million people, a majority of those living within a mile of an active well (58 percent), are people of color.[9]

0045-24

Given the danger, the CCST study called for science-based setback distances that would help reduce the harm from oil and gas wells. But the DEIR's setbacks offer inadequate protection for these populations. The distances suggested in the DEIR are not far enough to protect nearby populations. Contrary to the County's determination, there are studies showing that wells within this radius of a well significantly raise the likelihood of harm.[10]

0045-25

The DEIR improperly ignores the health risks, and wrongly proposes minimum setback distances that would continue to put public health at risk. Under the proposed ordinance, the minimum distance between an active well and a residence would be 190 feet; the minimum setback from a school would be 300 feet; and the minimum distance from a commercial building would be 100 feet.[11] These distances are wholly inadequate to protect public health. They are inconsistent with peer-reviewed scientific studies that show significant risk at much greater distances.

0045-26

They are also inconsistent with the minimum setback the DEIR itself states are needed to avoid significant health effects. When the cumulative risk of multiple operations enters the equation, the DEIR admits that cancer risks are significant within 701 feet in the Western Subarea (and 625 feet and 478 feet in other areas).[12]

0045-27

In addition, the Health Risk Assessment that was conducted (Appendix M) is flawed and incomplete. Nowhere does the HRA even mention the risks of fracking and other well stimulation techniques. Where over half of new wells undergo some sort of well stimulation, this omission renders the HRA misleading and unusable. Furthermore, chemicals used in oil and gas development are not fully known or understood. Over 100 chemicals used in fracking have not been properly identified, including two of the top twenty most commonly used chemicals in fracking.[13] Two-thirds of the chemicals used in fracking have incomplete or no information on toxicity.[14] There are also no studies

[7] CCST at 414 (unless otherwise noted, all page references are to Volume II of the CCST SB 4 Well Stimulation report).
[8] Natural Resources Defense Council, *Drilling in California: Who's at Risk?*, Oct. 2014, available at http://www.nrdc.org/health/files/california-fracking-risks-report.pdf.
[9] Id.
[10] See, e.g., McKenzie et al "Human health risk assessment of air emissions from development of unconventional natural gas resources. (2012) Science of the Total Environment.
[11] DEIR at 135.
[12] DEIR at 501.
[13] CCST at 76, 100.
[14] CCST at 76.

on what chemicals are created as a result of well stimulation, after chemicals have reacted with one another and with the formation into which it was injected. Without more information on well stimulation chemicals, the HRA cannot provide a full picture of the harms to communities living near oil and gas wells. What information we do have indicates that public health is at risk. Fourteen chemicals used in fracking are among the most toxic substances in the world.[15]

0045-27 Continued

The paucity of data is not limited to fracking and other forms of well stimulation. Drilling muds, biocides used in enhanced oil recovery, acids used in well completion or well maintenance, and equipment cleaning solvents are just some of the many chemical-laden processes that are not reported or disclosed in any manner. For example, methylene chloride, a common solvent at well sites, which is an extremely dangerous chemical, is not mentioned in the HRA. Any HRA analysis must contain a full inventory and analysis of *all* chemicals used at the well site that may endanger nearby residents.

0045-28

Incredibly, the DEIR states that some wells have no significant health risks no matter how close they are to sensitive receptors. The DEIR also asserts, without any evidence, that the distances from wells at which significant health risk occur will shrink over time.[16] Given that we do not yet know the full extent of the dangers of the chemicals used in oil and gas development processes, it is wholly premature to conclude that oil and gas operations will become less dangerous to nearby communities over time.

0045-29

Both the HRA and DEIR fail to fully account for the cumulative effects of multiple wells operating over time. The projected 2,697 new production wells per year would certainly have a cumulative effect on air quality and public health. Yet the HRA is silent regarding the cumulative impact, and the DEIR's analysis is cursory and provides no real assessment of cumulative impacts to health.

0045-30

Furthermore, the setback requirements are not legally enforceable. The DEIR states that if setback distances cannot be met, the minimum distances condition may be waived.[17]

0045-31

The HRA was also based on just three locations. Health risks from oil and gas will vary from site to site based on factors such as the chemicals used in the process, where the sensitive receptors are relative to the well, how many other operations are in the vicinity, wind direction at that particular location, elevation and geography, and many other factors. The public cannot be informed of the true extent of the risks from a study of just three locations. Other than the unsupported claim that these sites are "representative," there is no assurance that these sites were representative of other sites in the Project area. Given that a common practice, well stimulation, was left out of the analysis, evidence suggests that these sites are not at all representative of the broader oil industry harms to public health. The HRA posted to the Kern County website is also missing critical appendices that should explain how the consultants reached their conclusions.

0045-32

The lack of specificity is an illustration of the shortcomings of the DEIR. It cannot accurately describe the harms and risks of each individual site, and in attempting to aggregate the "typical" site, only glosses over real dangers from oil and gas operations.

0045-33

[15] CCST at 79.
[16] DEIR at 500-501.
[17] DEIR at 504.

The Air Quality Analysis Is Inadequate

0045-34

Air quality impacts are significant and unavoidable. As discussed above, the identity, quantity, and toxicity of airborne chemicals is grossly understated or unknown in the DEIR. For air pollutants that are discussed in the DEIR, evidence indicates that the amount of air pollution from oil and gas sites in Kern County are seriously undercounted. The DEIR also admits that "the information used for evaluating well construction activities was obtained from detailed records compiled during the construction of ten new oil and gas production wells in 2010 and 2011."[18] Using such a small sample size, without any explanation of how those particular sites were selected among the thousands of potential sites, renders the analysis unreliable.

0045-35

A recent assessment of oxides of nitrogen (NOx) emitted from well sites showed that operator-reported numbers, based on false and unproven assumptions, are often drastically lower than what actual emissions could be.[19] It found that "in most cases, NOx emissions estimated by project proponents in Kern County are significantly lower on a comparable basis [to other jurisdictions]. Without appropriate actual field data and strong verification of claims made by project proponents…, it is not possible to simply rely on the claims of the proposed NOx emissions from oil[] and gas drilling activities in Kern County."[20]

0045-36

A number of DEIR calculations undercount emissions. For example , it is unclear why the DEIR excludes construction emissions from the calculations in Table 4.3-42. It only includes operational project emissions and ignores the second category of emissions, those from construction operations.

0045-37

The issue of local air pollution is entirely unexplored in the DEIR. Assessments of air quality impacts are based primarily on nine air monitors for the entire project area.[21] With so few data points, it is impossible for residents to read the DEIR and know how air pollution will affect their particular community.

0045-38

It appears that the DEIR only attempts to addresses 10 toxic air contaminants, when in fact many more toxic air contaminants are associated with oil and gas activity.[22] The DEIR must include a complete list of potential air pollutants and potential airborne byproducts of oil and gas operations and assess the harm caused by each in order to better assess the true extent of the damage caused by the oil and gas industry. Worker safety is also largely ignored in the DEIR. Silicosis and lung cancer can result from on-site exposure to dust particles from the sand used in fracking. The DEIR does not adequately analyze the projection of silica-related illnesses. Hydrogen sulfide and volatile organic compounds from storage tanks is also a substantial threat to air quality.

0045-39

The DEIR also does not credibly explain how the addition of 2,697 wells per year could be consistent with the Air District's air quality plan. San Joaquin Valley Air District is in nonattainment for multiple criteria pollutants, including ozone and particulate matter. The Air District also will be

[18] DEIR at 4.3-73.
[19] Dr. Ranajit Sahu "On the Underestimation of NOx from Oil Well Drilling in Kern County, CA" (2015)
[20] Id. at 7.
[21] DEIR at 400.
[22] DEIR at 412.

0045-39
Continued

submitting a new 8-hour ozone exposure plan in 2015. Compliance with these plans are highly doubtful given the amount of air pollution emitted from oil and gas sites. The DEIR states that oil and gas emissions "*could* conflict with or obstruct implementation of the applicable air quality plan or potentially be inconsistent with the General Plan Measures and therefore could be significant."[23] There should be no room for ambiguity—it will be impossible for Kern County and the Air District to meet air quality plans given the massive scale of the Project. The DEIR gives no legitimate explanation of how mitigation could lead to compliance with an air pollution control plan. The DEIR's own calculations show that estimated air pollution will exceed emission limits for almost every criteria pollutant by a substantial margin.[24] Assertions that per-well emissions will decrease in the future are speculative, and if proven incorrect, would mean that County-wide emissions are even higher.

0045-40

In addition, the emission calculations are flawed because they only show incremental air emissions from new wells drilled each year. For example, the emissions from a well drilled in year 1 do not cease in year 2. Emissions in year 2 would be the sum of wells drilled in year 2 *in addition to* the emissions of wells drilled in year 1 that continue to operate and emit harmful pollutants. Yet the DEIR seems to omit these emissions, as demonstrated in Table 4.3-27. The chart purports to show "total" emissions from the Project, but only shows the yearly incremental air pollution from new sources. The calculations should show an increase each year because older wells are still emitting while new wells are drilled. (Tables showing yearly emissions should also include a summation at the bottom of the chart)

0045-41

The assessment that the Project—2,697 new wells per year, combined with all existing oil and gas wells in Kern County—would not expose sensitive receptors to substantial pollutant concentrations is simply untrue. As stated above, wells would be allowed to operate dangerously close to sensitive receptors. Scientific studies show that living close to an active well leads to significantly higher risk of adverse health effects. Furthermore, offsets will not mitigate the localized harm of air pollution. Even if emission could be offset elsewhere[25],the residents nearby active oil and gas wells would still be suffering from the effects of air pollution. The mitigation measure, therefore, does not change the significant impact of air pollution, especially since there are no absolute setback requirements offered in the proposed ordinance. This applies to both the cumulative analysis, as admitted in the DEIR: Emissions "would not be counterbalanced by the above efforts to reduce emissions undertaken at the State and local levels."[26] It also applies to individual well sites. An offset does not relieve nearby communities of the disproportionate environmental and health risks of active oil and gas wells.

0045-42

The mitigation measure are vague and/or unenforceable and do not sufficiently mitigate the harm to air quality and public health.

The Greenhouse Gas Emissions Are Substantial

[23] DEIR at 461 (emphasis added).
[24] See DEIR 470.
[25] The DEIR admits it cannot offset emissions to net zero. (DEIR at 496)
[26] DEIR at 511.

0045-43

The Project's impact on greenhouse gas emissions is undeniable. Thousands of new wells, each extracting more and more fossil fuel for combustion, cumulatively counted over 20 or 25 years, would result in such a large quantity of greenhouse gas emissions that it can scarcely be denied that the impact is significant. When viewed cumulatively, together with all past and existing oil and gas activity in Kern County, the emissions are staggering.

0045-44

The analysis is inadequate in several ways. First, the ultimate step of oil and gas development—combustion—is omitted from greenhouse gas calculations, despite the fact that this is an inevitable result of oil and gas development. CEQA mandates that all direct and indirect impacts be included, so long as they are reasonably foreseeable. Here, combustion is the entire purpose of the production process, an easily foreseeable consequence of oil and gas development.

0045-45

Second, the true effect of methane emissions is incorrectly calculated. The DEIR uses an outdated coefficient for methane's global warming potential over a 100-year time horizon: 25. The International Panel on Climate Change has calculated that number to be 37.[27] Moreover the use of the long-term effect hides the global warming potential of methane over a shorter time period. In the first 20 years after a molecule of fossil methane is emitted, it is 87 times more powerful than a molecule of carbon dioxide.[28] Given the analysis is focused on the next 20-25 years of oil and gas development, it is illogical to use only the 100-year figure, especially one that is no longer scientifically supported.

0045-46

The mitigation measures are vague and unenforceable and do not sufficiently mitigate the harm of producing vast amounts of greenhouse gas.

The Assessment of Harm to Water is Inadequate.

0045-47

The proposed Project's damage to Kern County's water supply will be substantial. But the DEIR fails to adequately describe these harms.

<u>Wastewater and other oil and gas fluids contain harmful chemicals</u>

0045-48

The wastewater from oil and gas operations is a toxic mix of chemicals harmful to human health. A study of Kern County produced water showed high concentrations of benzene, a known carcinogen. In some samples, benzene concentrations were as high as 18.0 mg/L, thousands of times above safe levels for drinking water.[29] Water testing in this DEIR does not disclose benzene levels for a majority of samples.

0045-49

A review of fracking flowback fluid similarly found high levels of benzene, as well as other harmful chemicals such as hexavalent chromium, naphthalene, toluene, and ethylbenzene.[30] These tests do not fully capture the extent of the risk because drilling muds, well completion fluids, biocides, solvents, surfactants, well maintenance acids, corrosion inhibitors, lubricants, and other fluids also

[27] G. Myhre et al., *Anthropogenic and Natural Radiative Forcing*, in Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change IPCC Table 8.7 at 714 (Cambridge Univ. Press 2013)
[28] Id.
[29] DOGGR, *Benzene in water produced in Kern County oil fields containing fresh water* (1993).
[30] [Los Angeles Times, Center for Biological Diversity; DOGGR database.

contain a mix of harmful chemicals. Without full disclosure of these chemicals used throughout the oil and gas development process, it is impossible for the DEIR to accurately describe the full scope of threats to our water. The chemicals used and the manner in which it is handled will also vary from site to site, making a project-level EIR for all of oil and gas untenable. 0045-49 Continued

Spills and leaks occur will troubling regularity in California. One survey found that there were 575 spills of produced water from 2011 to 2014, and 18 percent of those spills affected waterways.[31] There were 31 chemical spills in oil fields, nine of them acid spills.[32] One acid spill ruptured beyond a secondary containment apparatus and spilled 5,500 gallons of hydrochloric acid.[33] These high rates of accidents illustrate that spills are unavoidable. The DEIR acknowledges that there have been 613 spills and 87 well leaks reported from 2009 through 2014. The number of incidents reported is likely smaller than the number of actual spills and leaks, either because they have not yet been discovered, or operators have not reported them. 0045-50

The data indicate that blowout rates of thermal EOR wells is four times higher than non-thermal recovery fields.[34] 0045-51

Shallow fracking is a serious threat.

A recent study found roughly 75% of fracking is conducted at shallow depths, the same depth as groundwater.[35] Because shallow fracking can occur at the same depth as groundwater, fracking in California is extremely dangerous, and the CCST report lists a number of potential pathways through which contaminants could migrate to groundwater. The distance between well activity and groundwater is much shorter than in other parts of the country, making this a particular concern in California. The DEIR does not adequately disclose this heightened risk. 0045-52

More concerning still, California's long history of oil and gas development means that older, unmapped wells may be in the vicinity. These wells can act as a conduit for chemicals when a new well is operating. Due to these unknown, unmarked wells, California's oil and gas activity may be riskier than in other states. 0045-53

The DEIR's statement that there have been no confirmed impacts to groundwater in the Project Area directly connected to well stimulation is misleading. The issue has not been studied; therefore, whether groundwater has been contaminated is unknown. But given confirmed cases in other states where fracking has occurred, and because fracking occurs *closer* to groundwater in California, the potential for groundwater contamination is significant. 0045-54

Water usage estimates fail to describe the extent of the threat to water supplies.

Besides the water being used directly, the chemicals used in the oil and gas industry have the potential to contaminate vast amounts of water, far beyond what the DEIR discloses. Water that is 0045-55

[31] CCST at 127
[32] CCST at 127.
[33] CCST at 128.
[34] DEIR at 1157.
[3535] CCST at 406.

used for oil and gas is also different from other uses for water in that it is mixed with soluble chemicals, both known and unknown, and make the water difficult to treat and dangerous to discharge.

0045-55 Continued

It is also unclear whether the full scope of water use was included. The DEIR states that it "primarily evaluated [water impacts] on the basis of the projected increase in production wells…"[36] But it is unclear whether other wells, such as injection wells, are included in water usage statistics. Injection wells, such as steamflooding and waterflooding wells, use substantial amounts of water and should not be excluded from the water analysis. The oil industry estimates a 37 percent increase in water needed for the oil and gas industry by 2035.[37] While this number is itself problematic for the County, it may very well underestimate the water needed. The County should conduct its *own* estimate for the amount of water needed to meet the demands of oil and gas activity. The industry, as applicants hoping to push through the Ordinance and minimize environmental risks, have an incentive to understate the amount of water needed. During a time of drought, the County has a responsibility to ensure that water is accurately accounted for, and that Kern County has enough water to sustain communities well into the future.

0045-56

The charts depicting water use projections are also uninformative and confusing. For example, Table 4.9-27 has subtotals for water use, oil and gas water demand, M&I produced water, and oil and gas produced water waste disposal. These subtotals do not add up to the "Total" amounts on the bottom row.

0045-57

<u>The risks of injection wells are not fully disclosed.</u>

Injection wells are clearly a threat to water resources in the state. Around the country, disposal wells have already been the cause of leaks and spills doing tremendous amounts of damage to groundwater and surface water.[38]

0045-58

Aside from accidental spills and leaks, there are a number of ways in which water is threatened by oil and gas activity. The DEIR falsely asserts that there "have been no confirmed reports of drinking or agricultural groundwater quality impacts as a result if injection activity."[39]Already, DOGGR has admitted that thousands of injection wells, mostly in Kern County, have been operating in aquifers that are supposed to receive protection under the federal Safe Drinking Water Act.

0045-59

These aquifers, which constitute underground sources of drinking water, have been receiving toxic oil industry wastewater, in some cases for decades, and may be irreparably harmed. In many cases, operators are continuing injection into these protected aquifers even after it has become clear that an aquifer should not be subjected to ongoing operations. As a result, what was once a viable source of drinking water may now be unusable. It is unclear why the DEIR does not describe these circumstances as groundwater contamination. These injections have been confirmed, and there is no doubt that harmful chemicals have been injected into underground sources of drinking water.

0045-60

[36] DEIR at 1210.
[37] DEIR at 1211.
[38] Flesher, Drilling boom means more harmful waste spills, Associated Press, Sept. 8, 2015, available at http://bigstory.ap.org/article/39786bbf509e412a9feb9b58a6534a36/drilling-boom-brings-rising-number-harmful-waste-spills
[39] DEIR at 1158.

0045-61

The DEIR's analysis of water does not estimate the volume of water that will be damaged through illegal injection, illicit dumping, and underground percolation and migration of chemicals into underground sources of drinking water. Without such an analysis, the DEIR is incomplete.

Wastewater pits and sumps are contaminating water already

0045-62

The DEIR admits that produced water, completion fluids, stimulation fluids have been discharged. Drilling muds and drill cuttings are also discharged into unlined pits. These practices allow toxic chemicals to percolate through the soil and into groundwater beneath the pits. The DEIR attempts to dismiss this harm, claiming that there are "no confirmed reports of impacts to surface water or groundwater quality associated with unpermitted discharges to drilling sumps in the Project Area."[40]

0045-63

This statement is inaccurate and misleading. The CCST report notes that there is "ample evidence of groundwater contamination from percolation pits in California and other states."[41] Although unpermitted sumps are a serious problem, permitted sumps can also cause harm to groundwater supplies. It is unclear whether the DEIR considered the harm for permitted sumps, but it should make clear that sumps, whether permitted or not, present a serious risk to groundwater supplies and in fact have already contaminated drinking water sources. To the extent that the County has not examined this readily available evidence, it is willfully ignoring data that would show the extent of the threat to groundwater. The DEIR also makes no attempt to estimate the number of pits that will be used in the future, nor the expected rate of spills, leaks and water contamination caused by those pits.

Using wastewater for irrigation is dangerous

0045-64

A portion of oil field wastewater is used for irrigation. But given that the oil industry fails to fully disclose the chemicals used at various stages of development, it is infeasible if not impossible to treat the water and provide assurance that harmful chemicals have been completely removed. Chemicals from drilling, well completion, or well maintenance may still be present in the wastewater, and without knowing what those chemicals or their post-reaction byproducts are, it is unclear how a treatment facility could remove all the possible contaminants before sending the water to crop fields.

0045-65

Already, wastewater from oil fields that have been recently fracked has been used for irrigation in at least two cases.[42] Removing fracking chemicals cannot be accomplished through usual treatment techniques. According to the CCST, "It is probable that standard practice for oil-water separation and treatment prior to reuse are unlikely to remove most well stimulation chemicals or their byproducts that may be found in produced water."[43]

0045-66

The DEIR correctly concludes that impacts to water would be significant.[44] But the DEIR incorrectly states that mitigation measures will change the impact on water to less than significant. The

[40] DEIR at 1156.
[41] CCST at 112.
[42] DEIR at 115.
[43] DEIR at 51.
[44] DEIR at 1231.

0045-66 Continued

mitigation measures are vague or unenforceable and do not substantially mitigate the harm to water resources.

The Evaluation of Geology and Soils Is Inadequate.

0045-67

The DEIR improperly discounts the existing science linking induced seismic activity to oil and gas activity. Numerous studies have concluded that such activity, in particular wastewater injection, causes earthquakes. The DEIR's assertion that California is at lower risk of induced seismicity is contradicted by recent peer-reviewed analysis. A study by the CCST found evidence of a link between injection well activity and a cluster of earthquakes in California.[45] The link is consistent with studies of other regions of the country that have experienced a sharp rise in seismic activity as oil and gas activities have proliferated near faults.

0045-68

The CCST report concluded that the risks of induced seismic activity is at least as high in California as it is elsewhere: "Based just on the observed depths of earthquakes relative to injection depths in the reported cases … it would appear that the overall potential for seismicity to be induced by wastewater injection may be at least as high in CA as in the center US."[46] The Report also states "Magnitude 5-6 events are observed to occur at relatively shallow depths in California, which suggests that induced earthquakes could be *at least as large as* those experienced to date in the continental interior."[47] The DEIR incorrectly states that earthquakes caused by oil and gas activity has not damaged structures. To the contrary, the M5.7 earthquake in Oklahoma was large enough to cause property damage to 14 homes.[48] California has yet to determine just how much seismic activity to attribute to oil and gas activity in the state, nor measure the increased risk of seismic activity in the future if injections continue. The DEIR's statement that the risks of earthquakes are less than significant after mitigation is not supported by the evidence. The mitigation measures do not prohibit injection or drilling near fault lines and thus do not adequately mitigate the risks of earthquakes.

0045-69

The DEIR also claims that DOGGR prohibits "over-pressuring" injection wells. This is not the case. DOGGR has admitted that Class II injection wells are routinely allowed to operate at pressures above the fracture gradient despite its own regulations prohibiting such dangerous practices.[49] The DEIR confirms that the maximum allowable pressure must be below the fracture pressure.[50] There is inadequate analysis of how injection wells operating above the fracture pressure will increase the likelihood of land subsidence, well failure, or the risk to water and soil.

Soils are also harmed by reckless waste discharge practices such as discharge into percolation ponds and sumps. The soil beneath these unlined pits is contaminated, perhaps permanently. In 2009, Aera Energy was ordered to pay $9 million to the owner of a cotton and nut farm after wastewater percolating from an unlined pit destroyed 2,000 acres of crops. The DEIR makes no mention of how

[45] CCST at 295.
[46] CCST at 280.
[47] CCST at 280 (emphasis added).
[48] Keranen (2013); see also Joe Eaton, "Scientists say oil industry likely cause largest Oklahoma Earthquake," National Geographic News, Mar. 29, 2013, available at http://news.nationalgeographic.com/news/energy/2013/03/130329-wastewater-injection-likely-caused-quake/
[49] 14 Cal. Code Reg. § 1724.10(i).
[50] DEIR at 1192.

or whether such soils could be remediated once a percolation pit has been used. In addition, some well operators have reported spraying wastewater into land. The DEIR does not include a study of these sprayed soils.

0045-70

Soils are also contaminated by discharging drilling muds and drill cuttings into unlined sumps, where remediation of the site entails covering it back up with soil. The DEIR inaccurately states that drilling muds are non-hazardous. Chemicals used in drilling are not disclosed and those at are known include hazardous chemicals.[51] The DEIR also acknowledges the use of chemical soil stabilizer, with no further explanation of how these compounds affect the natural chemistry of the soil.[52]

0045-71

Soil has also been contaminated by leaks and spills. An Associated Press analysis of data from leading oil- and gas-producing states found more than 180 million gallons of wastewater spilled from 2009 to 2014 in incidents involving ruptured pipes, overflowing storage tanks, deliberate dumping and other mishaps.[53] There were some 21,651 individual spills. And these numbers are incomplete because many releases go unreported.

0045-72

The mitigation measures are vague and unenforceable and do not sufficiently mitigate the harm to soils nor the risk of induced seismicity.

The DEIR's Evaluation of Noise Impact is Inadequate.

0045-73

Although "it is the policy of the state" to "[t]ake all action necessary to provide the people of this state with . . . freedom from excessive noise,"[54] the DEIR fails to adequately analyze and mitigate the significant impact of noise caused by well stimulation activities. Noise is not merely a nuisance, but is generally viewed as a biological stressor. Excessive exposure to noise may contribute to the development and aggravation of stress related conditions such as high blood pressure, coronary disease, ulcers, colitis and migraine headaches, as well as increasing susceptibility to viral infection and toxic substances.[55] It may also be related to birth defects and low birth-weight babies.[56]
First, the DEIR must more clearly explain the significance of the decibel (dBA) thresholds it discusses. It should include that the EPA identifies a 24-hour exposure level of 70 dBA as the level of environmental noise which will prevent any measurable hearing loss over a lifetime. [57] Further, Table 4.12-1 should be amended to include qualitative descriptions of the impacts of various noises on sleep interference and biological functioning.

0045-74

Secondly, while the DEIR identifies the stages of construction and operation of a well, it fails to consider that drilling operation is not restricted to daylight hours. Drilling operations often continues

[51] Colborn (2012)
[52] DEIR at 462.
[53] John Flesher, "Drilling boom brings rising number of harmful waste spills," Associated Press, Sept. 5, 2015, available at http://napavalleyregister.com/ap/state/drilling-boom-brings-rising-number-of-harmful-waste-spills/article_9d8e839f-ca70-5f8c-8b65-e4c9ddc78ccb.html
[54] Pub. Res. Code § 21001(b).
[55] McCawley, 2013. Air, Noise and Light Monitoring Results for Horizontal Gas Well Drilling Operations, 9.
[56] Hume, K. I. , Brink, M., and M. Basner. *Effects of environmental noise on sleep***.** Noise Health. 14(61):297-302. (2012), available at http://www.noiseandhealth.org/article.asp?issn=1463-1741;year=2012;volume=14;issue=61;spage=297;epage=302;aulast=Hume
[57]Environmental Protection Agency, *EPA Identifies Noise Levels Affecting Health and Welfare*, (Apr. 2, 1974), *available at* http://www2.epa.gov/aboutepa/epa-identifies-noise-levels-affecting-health-and-welfare

24 hours a day until completion, meaning that surrounding areas can be exposed to noise from drill rigs, air compressors, drill pipe connections and power generators during nighttime hours.[58] Thirdly, the DEIR fails to identify or quantify the noise impacts of venting and flaring. Flaring can continue 24 hours per day for up to months at a time. As a significant, long-term source of noise, the noise impact of flaring must be considered.

0045-75

The DEIR fails to explain the basis upon which mitigation of noise impacts to 65 dB was chosen. All sound testing undertaken for the DEIR used 60 dBA as the maximum measured volume. The DEIR must explain the basis for choosing as a maximum acceptable volume level a volume louder than was tested for., and which, according Table 4.12-1, is "annoying" and "intrusive."
Noise does not only affect humans living and working in proximity to oil and gas wells. It also affects wildlife. Noise pollution from energy facilities has been linked to lower densities and reproductive success of birds. Sound is an important sensory tool for animals and noise pollution from oil and gas production has been shown to alter their behavior, distribution, and reproductive rates.[59] Other studies on noise pollution impacts have found that songbirds that were found in areas near noiseless energy facilities had a total density 1.5 times higher than areas near noise-producing sites, indicating avoidance of noise producing infrastructure;[60] and that the reproductive success of ovenbirds was diminished by chronic background noise originating from wellpads.[61] Despite this, the DEIR completely fails to consider the impact of the noise from well construction, operation and abandonment activities, on wildlife populations in the County. The DEIR must be amended to consider, and therefore appropriate mitigation measures to reduce, the noise impacts upon wildlife. Mitigation Measure 4.12-1 fails to set out the decibel level to which noise must be reduced in order for the mitigation measure to be satisfied. While the implementation of mitigation measures to reduce noise impacts are important, such measures are rendered largely meaningless without any indication of the likely reduction in noise, or the volume to which noise must be reduced.

0045-76

Where noise reduction to the maximum determined acceptable volume (which should be lower than 65 dBA) is technologically infeasible, the well project should not be permitted to proceed. Mitigation Measure 4.12-2 requires that no new wells be constructed within 190 feet of a sensitive receptor. The basis for this setback is unclear and inadequate. According to the limited data in the DEIR of noise exposure levels, a setback of 190 feet means that, absent other mitigation measures, noise impacts from all stages of well construction, well stimulation and diesel-powered well production, will exceed 60 dB. The estimated noise from pumper trucks conducting hydraulic

0045-77

[58] New York State Department of Environmental Conservation, "Revised Draft SGEIS on the Oil, Gas and Solution Mining Regulatory Program, Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing in the Marcellus Shale and Other Low-Permeability Gas Reservoirs," September 2011, http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf.
[59] Blickley, J.L., Blackwood, D. and Patricelli, G.L., 2012b. Experimental evidence for the effects of chronic anthropogenic noise on abundance of Greater Sage-Grouse at leks. Conservation biology : the journal of the Society for Conservation Biology, 26(3), pp.461–71, *available at* http://www.ncbi.nlm.nih.gov/pubmed/22594595; Francis, C.D. et al., 2012. Noise pollution alters ecological services: enhanced pollination and disrupted seed dispersal. Proceedings of the Royal Society B, 279(1739), pp.2727–35. Available at: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3367785&tool=pmcentrez&rendertype=abstract
[60] Bayne E.M., Habib, L., and Boutin, S. 2008. Impacts of Chronic Anthropogenic Noise from Energy-sector Activity on the abundance of songbirds in the boreal forest. Conservation Biology 22(5):1186-93.
[61] Habib, L., Bayne E.M., and Boutin, S. 2007. Chronic industrial noise affects pairing success and age structure of ovenbirds Seiurus aurocapilla. Journal of Applied Ecology, 44(1):176-184.

fracturing would be between 85 and 104 dBA, a volume akin to a jet takeoff or car horn, and which comes close to the pain threshold for human hearing.[62]

0045-78

In contrast, a prohibition on construction of new wells within 1,500 feet of a sensitive receptor, would result in most well construction and operation activities being experienced at the nearest sensitive receptor at volumes of less than 50 dBA (well advancement and stimulation would still generate noise of between 55 and 60 dBA 1,500 feet from the well location; and the noise level of pumper strucks would be between 75 and 69 dBA).

0045-79

While the DEIR acknowledges that "Cumulatively significant noise impacts could occur even if noise levels associated oil and gas activities are under 65 dBA, depending on the location of another nearby project, its noise levels, and the distance to a sensitive noise receptor,"[63] it fails to set out any mitigation measures for addressing this cumulative impact. Given the manner in which the impact is described, it is clear that Mitigation Measures 4.12-1 and 4.12-2 will be inadequate to address this impact. The DEIR should include a Mitigation Measure prohibiting the construction of any new well if its noise impact will result in a cumulative impact of noise levels of 65 dBA or more at the external boundary of a sensitive receptor.

0045-80

Additionally, site-specific permit conditions additional to those identified in Mitigation Measure 14.2-1 should be implemented in order to further mitigate noise impacts. These may include requiring the measurement of ambient noise levels prior to beginning operations, specifying daytime and nighttime noise level limits, using noise reduction equipment, limiting certain noisy activities to specific hours, installing temporary sound barriers, providing advance notice of the drilling schedule to nearby receptors, and limiting hydraulic fracturing operations to a single well at a time.

The DEIR's Analysis of Traffic Impacts Is Inadequate

0045-81

Impact 14.6-1 identifies wear and tear on roadways bearing oil and gas development traffic as a significant impact. It goes on to analyze the need for pavement improvements like to be needed at various points during the anticipated lifetime of the DEIR. However, the analyses of traffic impacts and road wear and tear appear to exclude vehicle trips associated with workers driving to and from the project site. The DEIR must be amended to include this potentially significant source of traffic.

0045-82

Further, the DEIR fails to consider the significance of the fact that much of the increase in traffic caused by oil and gas development is truck trips. The useful life of a roadway is directly related to the frequency and weight of truck traffic using the roadway, and roadways consistently experiencing greater annual truck traffic will generally require reconstruction sooner than similar roadways with less truck traffic.[64]

0045-83

The damage to a road increases exponentially with vehicle weight.[65] In fact, because of the weight of water transport truck, the impact of water hauled to one site is the equivalent of nearly 3.5 million

[62] DEIR, Table 4.12-1.
[63] DEIR 4.12-30.
[64] Abramzon, Shmuel, et al. *Estimating the Consumptive Use Costs of Shale Natural Gas Extraction on Pennsylvania Roadways*, Journal of Infrastructure Systems (Mar. 2014), 2.
[65] *Id*.

0045-83 Continued

car trips.[66] Further, evidence from Pennsylvania suggests that natural gas operators run trucks that are carrying loads greater than the legal limit. In February 2010, an enforcement effort in Susquehanna County found more than half of the 194 trucks checked were over the weight limit.[67] One truck was even found to be carrying more than double its legally allowed load.[68]

0045-84

There is a variety of literature available that calculates the cost of road damage resulting from oil and gas production traffic. In Colorado, the cost of damage to roadways as a result of increased traffic from gas production was calculated to be as much as $18,762 per well.[69] The cost of additional heavy truck traffic on Pennsylvania state-maintained roadways resulting from Marcellus Shale gas production was calculated to be as much as $23,000 per well.[70] The Texas Department of Transportation has estimated that annually, the impact of oil and gas-related traffic in the Eagle Ford area has an annual cost of about $4 billion.[71] These calculations demonstrate the inadequacy of Mitigation Measure 4.16-1, which will impose a road maintenance mitigation fee on $1,500 on each permit.

0045-85

As well as being demonstrably inadequate, no explanation is given as to how Mitigation Measure 4.16-1 was decided upon. The DEIR does not even attempt to quantify the cost of the road repairs and upgrades the report concludes will be necessary due to the increase in traffic that oil and gas development will cause. Absent any justification as to how the permit fee was reached, it cannot be determined whether this mitigation measure will be sufficient to rectify the impacts of oil-and-gas-related traffic impacts.

0045-86

The DEIR must analyze the true impact on local roads of the increased truck traffic from well stimulation activities, and also must analyze the impacts on freeways, arterials and collector roads. The DEIR must take into account that truck traffic is far more damaging to roads that light vehicle traffic. The dollar value of the damage to roadways as a result of increased traffic should be calculated, and the mitigation measure set to reflect the actual cost of oil-and-gas-related traffic impacts.

0045-87

Currently, the traffic analysis portion of the DEIR analyzes traffic impacts only from a level of service ("LOS") framework. The DEIR is silent as to the greenhouse gas emissions impacts of increases in traffic. The DEIR should be amended to include consider greenhouse gas emissions from motor vehicles as a transportation and traffic impact. In September 2013, Governor Brown signed Senate Bill 743, which directs the Governor's Office of Planning and Research to propose changes to California Environmental Quality Act ("CEQA") analysis of transportation impacts in transit priority areas. Senate Bill 743 requires that the focus of transport analysis shift from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. In August 2014, the Office of Planning and Research circulated a draft of

---

[66] Based on an estimate of only 364 water truck round trips, using the Equivalent Single Axle Load formula. Randall, C.J. *Hammer Down: A Guide to Protecting Local Roads Impacted by Shale Gas Drilling* (Dec. 2010), 2.
[67] *Id*;
[68] Whong, Jason. *Truck bound for drilling site 49.7 tons overweight*, Star Gazette (Feb. 10, 2010), *available at* http://www.stargazette.com/article/20100210/NEWS01/2100367/Truck-bound-for-drilling-site-49.7-tons-overweight-company-fined-31-304.
[69] RPI Consulting LLC, *Road & Bridge Department Impact Fee Support Study for Rio Blanco County*, Colorado, Final Draft (Apr. 2008), 65.
[70] Abramzon, Shmuel, et al. *Estimating the Consumptive Use Costs of Shale Natural Gas Extraction on Pennsylvania Roadways*, Journal of Infrastructure Systems (Mar. 2014), 2, 6.
[71] United States Government Accountability Office, Oil and Gas Transportation: Department of Transportation is Taking Actions to Address Rail Safety, but Additional Actions are Needed to Improve Pipeline Safety (Aug. 2014), 56.

revisions to the CEQA Guidelines, to satisfy the requirements of SB 743. The draft proposed that the revisions apply not only in transit priority areas, but across California.

0045-88

Although the draft regulatory amendments are not final, the DEIR should still have analyzed traffic and transportation impacts from the perspective of the greenhouse gas emissions that they will produce. There is no prohibition on Kern County adopting the approach in the draft revisions. Adopting the approach that will be required in future under law will assist in ensuring the ongoing utility and relevance of the DEIR. An analysis prioritizing greenhouse gas emissions from traffic and transportation will also support the state's greenhouse gas emissions reduction targets and strategies.

The Assessment of Impacts to Biological Resources is Inadequate

0045-89

The impacts analysis and mitigation measures proposed in the Biological Resources section fail to meet CEQA's requirements in several key regards. As detailed below, the DEIR (1) improperly excludes many special-status species from analysis; (2) fails to adequately disclose and analyze the direct and indirect impacts of the Project; (3) proposes mitigation measures that are impermissibly vague, improperly deferred, and unenforceable; (4) fails to include feasible mitigation measures to reduce significant Project impacts; and (5) contains a flawed cumulative impacts analysis.

<u>The DEIR improperly excludes many special-status animal and plant species from analysis</u>

0045-90

CEQA guidelines require the analysis of habitat impacts to "species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service" as well as movement impacts to "any native resident or migratory fish or wildlife species."[72] However, the DEIR improperly excludes analyses of numerous species that meet these criteria. The DEIR specifically excludes 77 Category 3 species from analysis, which are species "identified during the literature review or by local experts as potentially occurring in the vicinity of the Project Area, and for which suitable habitat is present," and which "may also be present in the Project Area."[73] The DEIR states that these 77 Category 3 species were not analyzed because "they lack official status as a State of California or a federally threatened or endangered species."[74] However, an EIR must analyze impacts not only to ESA listed species, but also to sensitive, special-status, native resident, and migratory species, as required by CEQA guidelines. The DEIR errs in excluding species from analysis that are (1) state or federally listed and occur in the Project Area, such as the Southwestern willow flycatcher which occurs in the western subarea;[75] (2) identified as sensitive or special-status species by wildlife agencies and occur in the Project Area, such as Tracy's eriastrum which is classified as "rare" by CDFW and occurs in the western subarea;[76] and (3) identified as sensitive or special-status species in local or regional plans, such as the Conservancy fairy shrimp and Valley

[72] CEQA Guidelines, Appendix G, for Biological Resources, requires analysis of the following impacts: "Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the CDFW or USFWS; Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites."
[73] DEIR at 548.
[74] DEIR at 548.
[75] DEIR at 598.
[76] DEIR at 563.

elderberry longhorn beetle which are covered by the Kern Water Bank HCP. The DEIR also appears to exclude many special-status species from analysis because they are "not expected" in the Project Area (i.e., see Tables 4.4-26 and 4.4-36). However, the DEIR acknowledges that there is suitable habitat for these species in the Project Area, and the County should require on-the-ground surveys to determine their presence or absence before excluding them from analysis and mitigation requirements.

0045-91

<u>The DEIR fails to adequately disclose and analyze the direct and indirect impacts of the Project on biological resources</u>

0045-92

The DEIR is wholly inadequate in disclosing and analyzing the direct and indirect impacts of the Project on biological resources The Project involves a broad range of actual and potential harms from oil and gas exploration, development, and production activities in the Project Area involving the construction and operation of an estimated 67,425 new producing wells and 30,000 well stimulations over a 25 year period. Each year the Project proposes an average of 2,697 new producing wells, 48 water disposal wells, 158 water flood injectors, 381 non-cycle idle wells, 56 observation wells, 304 steam flood injectors, 5 gas disposal wells, 1,645 cyclic wells, 1,200 well stimulations, and 2,221 plugged and abandoned wells.[77]

0045-93

The DEIR fails to adequately disclose and analyze the direct and indirect impacts from Project construction and operation including but not limited to: (1) habitat fragmentation, edge effects, and density effects; (2) declines and extirpations of animal and plant populations; (3) well stimulation impacts; (4) oil and chemical spills; (5) noise pollution; (6) reduced water quantity; and (7) reduced water quality. Each of these deficiencies is detailed below.

0045-94

(1) Habitat fragmentation, edge effects, and density effects: The DEIR fails to disclose and analyze the significant impacts of habitat fragmentation, edge effects, and density effects that will result from the construction and long-term operation of the proposed 67,425 new producing wells and associated infrastructure. Numerous scientific studies demonstrate that habitat fragmentation from the construction of oil and gas infrastructure such as well pads, roads, pipelines, and other linear corridors negatively affects species by impeding movement and dispersal, reducing home range size, reducing patch size below what is needed for foraging and life history activities, increasing habitat isolation, altering physical characteristics such as light, moisture, and temperature, facilitating the spread of invasive species, and altering species dynamics including interactions and abundance.[78] Fragmentation also increases the proportion of disturbed edge habitat to undisturbed interior habitat which can increase the likelihood of predation, parasitism, and human disturbance. For example, in the Marcellus shale, while each drilling pad and associated infrastructure results in the clearing of 8.8 acres of forest, each drilling pad affects 30 acres of forest after accounting for ecological edge effects.[79] Similarly, in the Big Piney-LaBarge field in Wyoming, a study found that while the overall

[77] DEIR at Table 3-5.

[78] Brittingham, M.C. et al. 2014. Ecological risks of shale oil and gas development to wildlife, aquatic resources and their habitats. Environmental Science and Technology 48: 11034-11047; Souther, S. et al. 2014. Biotic impacts of energy development from shale: research priorities and knowledge gaps. Frontiers in Ecology and the Environment 12: 330-338; Allred, B.W. et al. 2015. Ecosystem services lost to oil and gas in North America. Science 348: 401-402.

[79] Johnson, N. 2010. "Pennsylvania energy impacts assessment: Report 1: Marcellus shale natural gas and wind," Nature Conservancy – Pennsylvania Chapter, http://www.tcgasmap.org/media/PA%20Assessment%20of%20Gas%20Impacts%20TNC.pdf, (accessed June 26, 2012)

area of oil and gas infrastructure covered 4% of the total area, 97% of the total area fell within one-quarter mile of oil and gas infrastructure.[80] As a result, oil and gas infrastructure impacted all the habitat of the greater sage-grouse in the area and road densities adversely affected elk. Numerous studies have also documented density effects whereby wildlife species decrease use of preferable habitat areas or avoid habitat areas altogether in areas with increasing densities of oil and gas development, leading to indirect habitat loss.[81] For example, mule deer are significantly less likely to occupy areas in proximity to well pads than those farther away.[82] One study found that mule deer have a significantly lower likelihood of using habitat within 2.7 to 3.7 kilometers of well pads, concluding that "indirect habitat losses may be substantially larger than direct habitat losses."[83] In addition, changes in habitat selection appeared to be immediate with no evidence of acclimation, leading to increasing use of non-preferred habitats.

In the Project Area, a recent study of habitat suitability for the San Joaquin kit fox found that kit foxes are unable to persist in highly fragmented habitat and called for the "urgent need to focus protection efforts on high suitability habitat and to do so in a manner that increases patch size of protected lands and reduces fragmentation."[84] Another study in the saltbrush scrub habitat of the San Joaquin Valley similarly found that a number of native species are unable to persist in areas with high levels of habitat disturbance: LeConte's thrashers, burrowing owls, San Joaquin antelope squirrels, short-nosed kangaroo rats, American badgers, and San Joaquin kit foxes.[85] 0045-95

Despite these well-documented impacts, the DEIR fails to analyze the effects of habitat fragmentation, edge effects, and density effects on special-status species. The DEIR includes only one analysis of the habitat impacts of the Project that severely underestimates impacts. For a subset of special-status species, the DEIR calculates the amount of new land disturbance resulting from projected oil and gas development in each subarea. The DEIR estimates these habitat impacts using land disturbance factors provided in Appendix F, Table 11. However, these factors include only the direct footprint of oil and gas infrastructure (i.e., the direct footprint of well pads, roads, etc) and fail to include the indirect footprint of habitat loss due to edge effects and density effects (i.e., areas adjacent to infrastructure may no longer provide suitable habitat). These factors also fail to include the effects of habitat fragmentation, meaning that areas that are heavily crisscrossed and disrupted by 0045-96

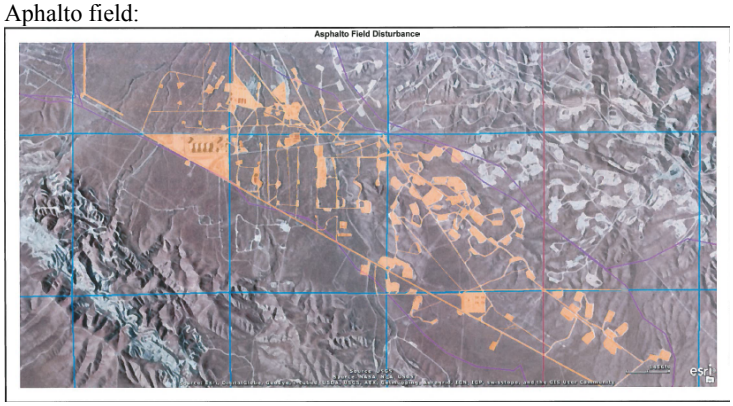
[80] Weller, C. et al. 2002. Fragmenting Our Lands: The Ecological Footprint from Oil and Gas Development. The Wilderness Society 80221(303):1-30.
[81] Beckmann, J.P. et al. 2012. Human-mediated shifts in animal habitat use: Sequential changes in pronghorn use of a natural gas field in Greater Yellowstone. Biological Conservation 147(1): 222-3; Dzialak M.R. et al. 2011. Prioritizing conservation of ungulate calving resources in multiple-use landscapes. Plos One 6(1): e14597; Doherty, K.E. et al. 2008. Greater sage-grouse winter habitat selection and energy development. Journal of Wildlife Management 72: 187-195.
[82] Sawyer, H. et al. 2006. Winter habitat selection of mule deer before and during development of a natural gas field. Journal of Wildlife Management 70(2): 396–403; Sawyer, H. et al. 2010. Influence of well pad activity on winter habitat selection patterns of mule deer. Journal of Wildlife Management 73: 1052-1061, page 1058 (*citing* Bureau of Land Management. 2006. Supplemental environmental impact statement for the Pinedale Anticline Oil and Gas Exploration and Development Project. Wyoming State Office, Cheyenne, USA.)
[83] Sawyer, H. et al. 2006.
[84] Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.
[85] Fiehler, C.M. and Cypher, B.L. 2011. Ecosystem Analysis of Oilfields in Western Kern County, California: Prepared for the U.S. Bureau of Land Management, by the California State University, Stanislaus Endangered Species Recovery Program.

infrastructure are not included in the calculation of disturbed land. As a result, the analysis significantly underestimates the amount of habitat loss and modification resulting from the Project.

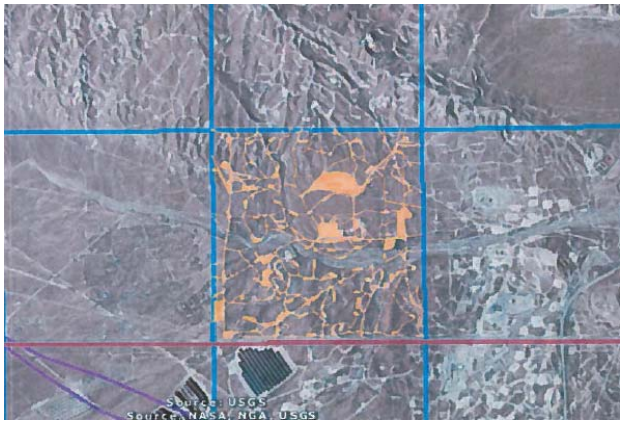
0045-97

To provide two illustrations below, total land disturbance is calculated as the sum of the orange-highlighted areas where infrastructure is present. However, in the Asphalto field, the total area of habitat disturbance is obviously much greater if fragmentation, edge effects, and density effects are considered. In the Buena Vista field, for example, the DEIR calculates the total land disturbance as 123 acres (e.g., the sum of the orange-highlighted areas),[86] but the disturbed area is closer to ~590 acres, or about 5 times larger, if the entire square of fragmented habitat is considered.

Aphalto field:



Buena Vista field:



[86] DEIR, Appendix F at 53.

0045-98

(2) Declines and extirpations of animal and plant populations: The DEIR fails to disclose that declines in abundance and local extirpations of birds, mammals and fish have been linked to oil and gas development.[87] In the heavily impacted saltbrush scrub habitat of the San Joaquin Valley, one study found that native species decline with increasing oil field development, and most were not detected in areas with high levels of development (generally 70% habitat disturbance), including LeConte's thrashers, burrowing owls, San Joaquin antelope squirrels, short-nosed kangaroo rats, American badgers, and San Joaquin kit foxes.[88]

0045-99

(3) Well stimulation impacts: The DEIR fails to disclose and analyze the impacts associated with well stimulation, including fracking-enabled habitat loss and fragmentation, harms from toxic chemicals used in well stimulation, and increased noise pollution from fracking operations, although these risks are well-documented. The CCST reports that fracking has led to increased habitat loss and fragmentation in Kern County by enabling oil and gas development in previously unexploited natural habitat and by increasing well densities in developed areas. Kern County has experienced the vast majority (61%) of the habitat loss and fragmentation attributable to fracking-enabled production in the state, estimated at 13,400 hectares of altered natural habitat and 6,700 hectares of other altered land areas.[89] Fracking has become an increasingly important driver for enabling oil and gas production in the state: 20% of the land area that was newly developed for oil and gas production between October 2012 and September 2014 was attributed to fracking.[90] Fracking-enabled activity exerts high local impacts on habitat in the southwestern San Joaquin Valley "where frequently stimulated fields overlap with high-quality habitat for rare species."[91]

0045-100

The DEIR also fails to disclose and analyze the impacts from the toxic chemicals used in well stimulation. One comprehensive study found that 40 percent of the chemicals added to fracking fluids have been found to have ecological effects, indicating that they can harm wildlife.[92] Studies have documented that fracking fluid discharges into streams have killed aquatic invertebrates and fish, including federally listed species;[93] fracking fluid applications to forest lands have caused

---

[87] Walker, B.L. et al. 2007. Greater sage-grouse population response to energy. Journal of Wildlife Management 71(8): 2644-54; Harju, S.M. et al. 2011. Thresholds and time lags in effects of energy development on greater sage-grouse populations. Journal of Wildlife Management 74: 437-448; Gilbert, M.M. and A.D. Chalfoun. 2011. Energy development affects populations of sagebrush songbirds in Wyoming. The Journal of Wildlife Management 75(4): 816-824; Dale B.C. et al. 2008. Abundance of three grassland songbirds in an area of natural gas infill drilling in Alberta, Canada. Proceedings of the Fourth International Partners in Flight Conference: Tundra to Tropics 4: 194-204; Hamilton L.E. et al. 2011. Effects of disturbance associated with natural gas extraction on the occurrence of three grassland songbirds. Avian Conservation and Ecology 6: 7; Ingelfinger, F. and A. Anderson. 2004. Passerine response to roads associated with natural gas extraction in a sagebrush steppe habitat. Western North American Naturalist 64: 385-395; Wyoming Game and Fish Department. 2010. Recommendations for development of oil and gas resources within important wildlife habitats: Wyoming Game and Fish Department.12; Green, J.J. et al. 2012. Examining community level variables of fishes in relation to natural gas development. Southeastern Fishes Council, Annual Meeting Program, November 8-9, 2012, New Orleans, Louisiana.

[88] Fiehler, C.M. and Cypher, B.L. 2011.

[89] CCST at 365.

[90] CCST at 366.

[91] CCST at 366.

[92] Colborn, T. et al. 2012. Natural gas operations from a public health perspective. Human and Ecological Risk Assessment 17: 1039-1056.

[93] Papoulias, D.M. and A.L. Velasco. 2013. Histopathological analysis of fish from Acorn Fork Creek, Kentucky, exposed to hydraulic fracturing fluid releases. Southwestern Naturalist 12 (Special Issue 4): 92-111.

widespread mortality of trees and damage to surface soil;[94] and exposure to fracking activity has caused negative health effects and death to wildlife and domestic animals.[95]

0045-101

(4) Oil and chemical spills: The DEIR fails to adequately disclose and evaluate the impacts of spills of oil, fracking fluids, produced water, and other chemicals on species and ecosystems. Oil and chemical spills can have well-known catastrophic ecological impacts due to their toxic effects, the potentially large volume of spills, and the difficulty of containment and clean-up (i.e., produced water spills cannot be contained by traditional oil spill response methods.) The CCST reports that oil and gas development in Kern County has resulted in chronic spills. According to the Office of Emergency Services, between January 2009 and December 2014, a total of 575 produced water spills and 31 chemical spills were reported, equivalent to 99 produced water spills per year.[96] Kern County has the highest concentration of produced water spills (55%) and chemical spills (42%) of any county in the state.[97] Moreover, nearly 18% of produced water spills and 10% of chemical spills affected waterways.[98] Yet the DEIR fails to analyze the impacts of these chronic spills on species and ecosystems.

0045-102

(5) Noise pollution: The DEIR fails to adequately disclose and analyze the impacts of noise pollution on species and ecosystems. Oil and gas exploration, development and production create significant intermittent and chronic noise pollution due to construction, drilling, fracking, truck transport, compressors, human activity, and other noise sources. Noise pollution from drilling and well stimulation is particularly significant.[99] Although the DEIR does not report the specific decibel levels of oil and gas activities, DOGGR reports the noise from pumping during a frack job at 107 decibels[100] while noise from pumping during acid matrix stimulation can range between 75 to 100 decibels.[101] Numerous studies demonstrate that noise pollution from oil and gas-related activities can cause wildlife to alter their spatial distributions and temporarily or permanently abandon habitat areas[102] and negatively impacts abundance, stress levels, and behaviors.[103] For example, in areas where sage grouse were exposed to intermittent anthropogenic sounds associated with natural gas drilling and roads, male attendance at leks decreased up to 73%.[104] Importantly, the noise levels associated with drilling and fracking are even greater that those shown to disturb wildlife and

---

[94] Adams, M.B. 2011. Land Application of Hydrofracturing Fluids Damages a Deciduous Forest Stand in West Virginia. Journal of Environmental Quality 40: 1340-1344.

[95] Bamberger, M. and R.E. Oswald. 2015. Long-term impacts of unconventional drilling operations on human and animal health. Journal of Environmental Science and Health, Part A 50: 447-459.

[96] CCST at 345.

[97] CCST at 345.

[98] CCST at 345.

[99] DEIR at Appendix V, Table X.

[100] SB4 DEIR at 7-30.

[101] SB4 DEIR at 7-37.

[102] Bayne E.M. et al. 2008. Impacts of chronic anthropogenic noise from energy-sector activity on the abundance of songbirds in the boreal forest. Conservation Biology 22: 1186-1193; Francis, C.D. and J.R. Barber. 2013. A framework for understanding noise impacts on wildlife: an urgent conservation priority. Frontiers in Ecology and the Environment 11: 305-313.

[103] Patricelli, G.L. et al. 2013. Recommended management strategies to limit anthropogenic noise impacts on greater sage-grouse in Wyoming. Human-Wildlife Interactions 7: 230-149.

[104] Blickley, J.L. et al. 2012a. Experimental evidence for the effects of chronic anthropogenic noise on abundance of greater sage-grouse at leks. Conservation Biology 26:461-471.

ecosystem processes.[105] The DEIR attempts to avoid any analysis of noise impacts on biological resources by claiming that they are discussed in other sections.[106] However, nowhere does the DEIR assess the impacts of Project noise pollution on species and ecosystems, making disclosure and analysis inadequate.

0045-102 Continued

(6) Reduced water quantity: The DEIR fails to adequately disclose and evaluate the impacts of Project activities on water availability for species and ecosystems. The DEIR must acknowledge that oil and gas development and production activities can decrease water availability for species due to pumping from groundwater and surface sources. Water withdrawals can harm species by reducing surface or soil water availability at wildlife drinking water sources, and at wetlands, riparian, and other aquatic habitats. The DEIR must evaluate the local and regional impacts of past, current, and future surface and ground water withdrawals on species and ecosystems, particularly in areas where wells are concentrated and well owners/operators permanently remove millions of gallons of water from fresh surface and sub-surface supplies. The DEIR must also examine these impacts in the context of limited water availability due to drought conditions and competing agricultural, industrial, and municipal water needs.

0045-103

(7) Reduced water quality: The DEIR fails to adequately disclose and evaluate the impacts of Project activities on water quality. The DEIR only briefly acknowledges the impacts on water quality through disruption of local surface hydrology and increased erosion: "indirect impacts to habitat could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport."[107] The DEIR must disclose and analyze the full range of impacts to water quality such as (1) clearing and grading of well pads that increase sediment runoff; (2) construction, maintenance, and/or use of access roads that elevate runoff rates, increase sedimentation and turbidity in receiving water bodies, and alter timing and volume of stream flow, water chemistry, and stream channel morphology; and (3) construction, maintenance, and/or use of culverts, pipelines, and other structures that alter water flow.[108] In addition, the DEIR must disclose and analyze the impact of spills of fracking chemicals, produced water, oil, and other toxins that can result in temporary and permanent habitat reduction and degradation.[109]

0045-104

<u>Mitigation measures are impermissibly vague, improperly deferred, and unenforceable</u>

Many of the mitigation measures proposed by the DEIR are impermissibly vague and improperly deferred. These measures are also effectively unenforceable because there is no clear mechanism in the Proposed Ordinance to ensure that future permits comply with the mitigation measures. These measures offer no assurance that the significant impacts of the project will be mitigated, making them invalid under CEQA.

0045-105

[105] Blickley, J.L. et al. 2012a; Blickley, J.L. et al. 2012b. Experimental chronic noise is related to elevated fecal corticosteroid metabolites in lekking male greater sage-grouse (*Centrocercus urophasianus*). PLoS ONE 7(11): e50462; Francis, C.D. et al. 2012. Noise pollution alters ecological services: enhanced pollination and disrupted seed dispersal. PNAS 279:2727-2735; Patricelli, G.L. et al. 2013.

[106] DEIR at 695: "Impacts related to dust, emissions, light, noise and accidental spills and hazards are discussed in Sections 4.1, Aesthetic and Visual Resources; 4.3, Air Quality; and 4.8, Hazards and Hazardous Materials/Public Health Risks of this DEIR."

[107] DEIR at 688.

[108] Brittingham, M.C. et al. 2014.

[109] Brittingham, M.C. et al. 2014.

Examples of vaguely defined and deferred mitigation measures, which are "cursorily described," are "nonexclusive, undefined, untested and of unknown efficacy," and create "no objective criteria for measuring success" (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 93), include but are not limited to the following: 0045-106

MM 4.4-1, which provides that that the purpose is to confirm the presence or absence of special status wildlife species and "identify and implement feasible avoidance and minimization measures for such species." 0045-107

MM 4.4-3, which provides that exclusion barriers and buffers "may be used, where effective and feasible" to avoid take of protected species and minimize take of sensitive species. 0045-108

MM 4.4-5, which provides that if an active bat maternity roost cannot feasibly be avoided, USFWS and CDFW must be contacted "to identify appropriate impact minimization measures prior to initiating any disturbance." 0045-109

MM 4.4-7, which provides that if an active badger maternity den cannot feasibly be avoided, CDFW must be contacted "to identify appropriate impact minimization measures prior to initiating any disturbance." 0045-110

MM 4.4-10, which provides that in the case of behavioral changes of nesting birds, USFWS and CDFW "should be consulted for additional avoidance and minimization measures." 0045-111

MM 4.4-12, which provides that "all detected plant populations of Protected Species and Sensitive Species shall be identified in the field during the surveys with temporary flags or other appropriate materials to avoid and minimize impacts to the plant populations from any disturbance activities." 0045-112

<u>The DEIR fails to include feasible mitigation measures to reduce significant project impacts</u>

(1) First, as detailed in these comments, a large body of scientific research demonstrates that many harms to species and habitats from oil and gas exploration, development, and production activities are permanent and significant—including impacts from habitat loss, habitat fragmentation, degradation of water quantity and quality, and oil and chemical spills,—and cannot be reduced to a less-than-significant level even with feasible mitigation. 0045-113

(2) The DEIR incorrectly asserts that mitigation measures MM 4.4-1 to 4.4-16 will mitigate the significant adverse impacts on habitat to a less than significant level. However, none of the 16 mitigation measures requires habitat avoidance for special-status species, or sets any limit on the cumulative allowable habitat loss and fragmentation for special-status species over the 25 years of the Project (i.e., the surface disturbance from oil and gas activities cannot exceed 10% of habitat). As such, the DEIR provides no assurances that habitat losses will be reduced from the significant levels projected in its analysis. To correct this deficiency, the EIR should require that development and production are sited outside of the boundaries of identified habitat for special-status species, including scientifically defensible buffer zones surrounding these habitat areas that account for the sensitivities of affected species to noise pollution, light pollution, human activity, and other human 0045-114

disturbance resulting from the Project. No development should be permitted within high and moderate suitability habitat for special-status species, movement corridors, or designated critical habitat (i.e., Buena Vista Lake ornate shrew, California condor, red-legged frog, and California tiger salamander).

0045-114 Continued

A recent study by Cypher et al. (2013) illustrates the importance of requiring avoidance of important habitat for special-status species. Persistent kit fox populations occur only in areas with relatively large patches of high suitability habitat or a mix of high and medium suitability habitat, and kit foxes are unable to persist in areas with high fragmentation or areas with primarily medium suitability habitat. The study estimated that most of the San Joaquin kit fox's historic habitat has already been lost: only 4,267 km^2 of high suitability habitat and 5,569 km^2 of medium habitat suitability remain. The largest remaining areas of high suitability habitat (51%) and medium suitability habitat (41%)) are located in Kern County. The study warned that there is an "urgent need to focus protection efforts on high suitability habitat and to do so in a manner that increases patch size of protected lands and reduces fragmentation," providing a clear scientific basis for mitigation measures that require protection of all remaining high suitability and medium suitability habitat in the Project Area from further oil and gas development and production.

0045-115

Finally, where oil and gas infrastructure is permitted, the EIR should include specific mitigation measures that require that previously disturbed areas and existing roads are used; infrastructure is consolidated and co-located to reduce disturbance; and pipelines are routed along existing roads and elevated to minimize surface disturbance and allow wildlife to pass underneath, in addition to the full range of other feasible mitigation.

0045-116

(3) MM 4.4-2 incorrectly states that incidental take of Fully Protected Species under the California Fish and Game Code would be allowed with a permit. However, as summarized by the California Department of Fish and Wildlife, "no Section 2081(b) permit may authorize the take of "fully protected" species and "specified birds" (Fish and Game Code Sections 3505, 3511, 4700, 5050, 5515, and 5517). If a project is planned in an area where a fully protected species or a specified bird occurs, an applicant must design the project to avoid all take; the Department cannot provide take authorization for the species under CESA."[110] Thus, mitigation measures must specify that incidental take of the Fully Protected species in the Project Area is forbidden, such that take of the blunt-nosed leopard lizard, ringtail, golden eagle, bald eagle, and white-tailed kite, all of which occur in the Project area, must be completely avoided.

0045-117

(4) MM 4.4-15a fails to include feasible mitigation measures to avoid adverse effects from roads and vehicles, including road mortality, acoustic masking, and negative population-level effects.[111] Road mortality is a major factor affecting the conservation status of state and federally listed species in California, including the San Joaquin kit fox and blunt-nosed leopard lizard. Studies of San Joaquin kit foxes in the Elk Hills oil field reported that the proportion of fox deaths due to road accidents was four times greater in developed areas versus undisturbed areas, and that vehicle-related mortality rates were approximately double in oil-developed areas versus undeveloped areas.[112] Roads can

0045-118

[110] CDFW, https://www.wildlife.ca.gov/Conservation/CESA/ITP-Review-Standards
[111] Fahrig, L. and T. Rytwinski. 2009. Effects of roads on animal abundance: an empirical review and synthesis. Ecology and Society 14: 21.
[112] CCST at 351 citing O'Farrell et al. 1986 and Cypher et al. 2000.

cause particularly high mortality and negative population-level effects on amphibians, and mitigation techniques do not have a track record of protecting amphibian populations over the long-term.[113] Category 1 and 2 amphibian species occurring in the Project Area include the Tehachapi slender salamander, western spadefoot, California red-legged frog, California tiger salamander, Kern County slender salamander, and yellow-blotched salamander.[114]

0045-118 Continued

The DEIR projects that the Project will generate the equivalent of 19,300 trips per day by 2035, which includes worker trips and truck trips delivering equipment and materials.[115] MM 4.4-16 states: "all vehicles shall observe a 20-mile-per-hour speed limit in all areas of disturbance and on unpaved road unless otherwise posted." However, this measure fails to evaluate whether this speed limit would be protective of sensitive wildlife, and fails to include other feasible mitigation measures such as road closures during critical periods such as breeding, dispersal, and migration, and wildlife crossings and under-road tunnels.[116] Roads should also be prohibited from crossing wetlands, riparian areas, and perennial or seasonal watercourses.

0045-119

(5) The DEIR fails to include feasible mitigation measures to avoid adverse effects of light pollution on special-status species. Oil and gas activities can lead to significant amounts of light pollution. Drilling sites are lighted at night to allow for 24-hour operation of the drill rig, and that well drilling lasts an average of 23 days but can continue for more than 60 days.[117] Light pollution has been shown to disrupt animal foraging, breeding, and migratory behaviors; cause disorientation; disrupt natural day-night cycles of plants; lead to mortality and predation; and change community composition.[118] MM 4.4-15b briefly states that "night time disturbance activity for drilling purposes shall use directed lighting, shielding methods, or reduced lumen intensity." However, this measure should also specify that site lighting should be directly downward and internally, avoiding site casting, uplighting, wall washes, and lighting where the bulb protrudes from the fixture. Other mitigation measures should be required such as scheduling activities that require night lighting outside of important periods for affected species.

0045-120

(6) MM 4.4-16, which provides for compensatory mitigation for ground disturbance, is inadequate to offset or compensate for the destruction of native vegetation and habitat. The DEIR proposes a mitigation ratio of 1:0.5 (i.e., one acre of new disturbance requires a half acre of mitigation) for Tier 1 area that contain existing disturbance of 70% or greater, a 1:1 mitigation ratio in most other areas, and no mitigation for ground that has been previously disturbed such as vegetation clearing, unpaved roads, and unvegetated well pads. However, many Tier 1 areas contain high-quality habitat for federally or state listed species and special-status species, and previously disturbed habitats can provide important habitat for native species if allowed to revegetate.[119] There is no justification for why the mitigation ratio for these habitat areas should be so low. Indeed, regional mitigation ratios are much higher. The BLM's Resource Management Plan for the Bakersfield Field Office requires a

0045-121

[113] Beebee, T.J. 2013. Effects of road mortality and mitigation measures on amphibian populations. Conservation Biology 27: 657-668.
[114] DEIR at Table 4.4-36.
[115] DEIR at 1488.
[116] Glista, D.J. et al. 2009. A review of mitigation measures for reducing wildlife mortality on roadways. Landscape and Urban Planning 91: 1-7.
[117] DEIR at 232.
[118] CCST at 350.
[119] CCST at 363.

0045-121 Continued

compensation ratio for San Joaquin Valley species of 3:1 for permanent impacts and 1.1:1 for temporary impacts on previously disturbed habitat, with higher ratios for some species and sensitive habitats such as a 9:1 for permanent impacts and 6:1 for temporary impacts on known populations of the Kern mallow. [120]

0045-122

Although no loss of special-status species habitat should be permitted, the EIR must also require that land used for compensation must be of equal or greater value than the land impacted, and that it support the species targeted for compensation. The EIR must also include performance metrics to ensure that restoration and compensation techniques in MM 4.4-16 can effectively replace the value, structure, and function of native habitats that are destroyed and require a timeline for when mitigation must be completed.

0045-123

(7) The DEIR fails to mitigate the effects on biological resources from noise pollution. Neither the Biological Resources or Noise sections includes any mitigation measures for noise that take species and ecosystems into account. The EIR should require feasible mitigation measures to reduce noise pollution from oil and gas activities, such as installing sound-dampening devices, walls, and/or insulation around pumpjacks, compressor stations, and other infrastructure; switching from diesel and gas engines to electric engines; switching from conventional pumps to quieter pump designs (pneumatic pumps or progressive cavity pumps); co-locating infrastructure to a central location rather than disparate locations to minimize the sources of noise pollution (i.e., using a central compressor with sound barrier walls rather than compressors at individual wells); requiring infrastructure with design features that reduce noise; and seasonally restricting activity in areas with sensitive species such as during migration, breeding, and dispersal.

0045-124

(8) The DEIR fails to mitigate the effects on biological resources from surface and ground water reductions and adverse effects on water quality such as oil and chemical spills. The mitigation measures in Sections 4.8 (Hazards and Hazardous Materials) and 4.9 (Hydrology and Water Quality) have no requirements to avoid adverse effects on species and habitats. For example, in the case of an oil or chemical spill, the DEIR has no requirement to demonstrate an ability to effectively protect wildlife species and habitats and rehabilitate affected individuals.

0045-125

(9) The DEIR does not mitigate the harms to wildlife from lined and unlined wastewater pits and sumps which have been documented to cause injury and mortality of numerous wildlife species.[121] Wastewater pits can contain numerous contaminants, including volatile organic compounds, benzene, and radioactive materials, that can harm wildlife.[122] In the San Joaquin Valley, giant kangaroo rats, blunt-nosed leopard lizards, and San Joaquin kit foxes have been found drowned in wastewater.[123] The Central Valley Regional Water Quality Control Board found that 36% of 843 known evaporation-percolation ponds in Kern County were unpermitted,[124] and an independent

[120] BLM, 2014. Bakersfield Field Office Approved Resource Management Plan (ARMP). http://www.blm.gov/ca/st/en/fo/bakersfield/Programs/planning/caliente_rmp_revision.html#armp
[121] Ramirez, P. Jr. 2010. Bird Mortality in Oil Field Wastewater Disposal Facilities. Environmental Management 46(5): 820-6; Trail, P. 2006. Avian mortality at oil pits in the United States: a review of the problem and efforts for its solution. Environmental Management 38: 532-544; Rattner, B.A. et al. 1995. Exposure and Effects of oilfield brine discharges on Western Sandpipers (*Califris mauri)* in Nuecs Bay, Texas. Bull. Environ. Contam. Toxicol. 54: 683-689.
[122] CCST at 344.
[123] CCST at 343.
[124] CCST at 344.

0045-125 Continued

investigation by the CCST found that three-quarters (76%) of sampled ponds with fluid in Kern County had no netting in place.[125] The DEIR must require mitigation measures prohibiting the storage of oil and gas-related fluids in pits and sumps, and requiring netting over all existing pits and sumps.

0045-126

(10) The DEIR fails to mitigate the impacts to species from air pollution. Oil and gas development and production emit pollutants that are harmful to species including nitrogen oxides (NO*x*), sulfur dioxide (SO_2), carbon monoxide (CO), volatile organic compounds (VOCs), and particulate matter.[126] For example, NOx and VOCs have direct toxicity and contribute to ozone (O_3) formation which is a significant pulmonary and respiratory irritant in mammals[127] and negatively affects growth, reproduction, and survival of plants.[128] However, the DEIR has no mitigation measures specifically for reducing these harms to species.

0045-127

(11) The DEIR fails to mitigate impacts to wildlife from the proliferation of linear corridors and elevated structures like transmission poles and power lines that can facilitate increased predation and parasitism.[129]

0045-128

(12) The DEIR provides no mitigation measures to ensure that oil and gas activities do not interfere substantially with wildlife movements, corridors, and nursery sites. The DEIR asserts without basis that implementation of the biological resources mitigation measures "would reduce wildlife movement impacts." Although it identifies science-based wildlife movement corridors in the Project Area (i.e., Section 4.4.2 and Figure 4.4-11), it provides no mitigation measures to ensure that these important corridors are not developed. The EIR should require that oil and gas development and production be cited outside of these important identified movement corridors.

<u>The cumulative impacts analysis for biological resources is flawed</u>

0045-129

An adequate cumulative impacts analysis requires a thorough assessment of the incremental significance of the Project's impacts over time in consideration of other "other projects causing related impacts."[130] However, the DEIR fails to list other projects or ongoing activities that cause cumulative impacts to biological resources in the Project Area, rendering the analysis inadequate.

0045-130

The DEIR concludes that the Project will cause significant and unavoidable cumulative impacts even with the application of proposed mitigation measures. However, the DEIR fails to conduct an analysis to support this conclusion, in violation of CEQA's substantial evidence standard. The DEIR also fails to propose feasible mitigation measures to reduce significant cumulative impacts such as avoiding oil and gas development and production in special-status species habitats, important movement corridors, and sensitive natural communities, and setting limits on cumulative habitat loss for the ~164 special-status species and 15 sensitive natural communities in the Project Area in light of other projects.

---

[125] CCST at 345.
[126] Souther, S. et al. 2014.
[127] Souther, S. et al. 2014.
[128] Souther, S. et al. 2014.
[129] Brittingham, M.C. et al. 2014.
[130] Guidelines, <u>§ 15130, subd. (a)(1)</u>.

0045-131

The failings of the cumulative impacts analysis are particularly troubling because many native species in Kern County are already at risk of extinction, and natural habitat areas are already heavily and fragmented by oil and gas development and production. More than a third (37%) of the land area in California developed for oil and gas production occurs in Kern County.[131] As revealed by the DEIR, the Project would eliminate much of the remaining habitat for special-status species, for example, the loss of 18% of high-quality habitat and 3% of moderate to poor quality habitat for the endangered San Joaquin kit fox; 28% of high-quality habitat and 5% of moderate to poor quality habitat for the endangered giant kangaroo rat; and 26% of high-quality habitat and 4% of moderate to poor quality habitat for the San Joaquin antelope squirrel. At present, the significant, long-lasting, and inadequately mitigated impacts from the Project's proposed oil and gas development threaten to preclude the recovery of listed species, degrade sensitive natural communities, and further imperil special-status species.

CONCLUSION

0045-132

For the above reasons, the DEIR is flawed, violates the law, and fails to allow meaningful input from the public to address harmful oil and gas activity.

Respectfully submitted,



Hollin Kretzmann
Center for Biological Diversity
1212 Broaday, Suite 800
Oakland, CA 94612

0045-133

[131] CCST at Table 5.3.4.

0045-1

The comment is a general introduction. No response is necessary and it is noted for the record.

0045-2

The comment is a general introduction. No response is necessary and it is noted for the record.

0045-3

Please see GR-17.

0045-4

Please see GR-2.

0045-5

Please see GR-1 and GR-2.

0045-6

Please see GR-2, GR Air-1, and Air-3 – Air-4.

0045-7

Please see GR-2.

0045-8

Please see GR-2 and GR-3.

0045-8 cont'd

0045-9

This introductory comment is noted. Please see Responses 0045-10 through 0045-15.

0045-10

Chapter 6 of the Draft EIR identified and fully evaluated a reasonable range of six potentially feasible alternatives to the Project: No Project Alternative (Alternative 1); CUP Alternative (Alternative 2); Reduced Ground Disturbance Alternative (Alternative 3); No Hydraulic Fracturing

Alternative (Alternative 4); Low-Emission Enhanced Oil Recovery (EOR) Technology Alternative (Alternative 5); Recycled Water Alternative (Alternative 6).

0045-11

It is assumed that the comment's reference to a "ban on all drilling" alternative is meant to refer to the Drilling Ban on All Lands Alternative described on page 6-12 of the Draft EIR. Please see Global Response Alt-1.

The comment's claims regarding statements made by Governor Brown and unidentified climate experts are noted.

The comment's suggestion that Kern County work to phase in a robust renewable energy sector is noted. In fact, Kern County is a leader in the promotion of renewable energy development. According to the California Energy Commission, as of June 30, 2015, Kern County has 100 renewable energy facilities online, providing 4,372 megawatts renewable capacity (CEC, 2015). These numbers far exceed any other county in California.

The comment's claims regarding the potential benefits of phasing out oil and gas production in Kern County are noted.

0045-12

It is assumed that the comment's reference to a "fewer operating wells over time" alternative is meant to refer to the Fewer Wells Within the Project Footprint Alternative described on page 6-13 of the Draft EIR. Please see Global Response Alt-1.

0045-13

Please see Global Response Alt-1.

0045-13 cont'd

0045-14

It is assumed that the commenter's reference to a "banning fracking and other well stimulation" alternative is meant to refer to Alternative 4, the No Hydraulic Fracturing Alternative, described on Draft EIR pages 6-23 through 6-24. Please see Global Response Alt-2.

0045-15

Please see Global Responses Alt-1 and Alt-2.

0045-16

Please see GR-8.

0045-17

Please see GR-8.

0045-18

Please see GR Water-1 and GR Air -11.

0045-19

Please see GR Air-12.

0045-20

The comment states that the EIR's impacts’ analysis assumes DOGGR's proposed enhanced oil recovery (EOR) regulations have taken affect. If the comment is meant rot refer to the well stimulation treatment (WST) regulations promulgated pursuant to SB 4, those regulations became effective July 1, 2014. Please see GR 10: DOGGR Regulations, for further analysis of the SB 4 regulations. If the comment is referring to the current rulemaking underground injection control (UIC), which is inclusive of EIR activities, the EIR did not assume these proposed regulations were in affect when undertaking the impact analysis as it would be improper to speculate concerning the contents of these forthcoming regulations.

0045-21

Please see GR-12, GR Air-8 and GR Air-10.

0045-21 cont'd

0045-22

Please see GR Air-3 and GR Air-7.

0045-23

Please see GR Air-3 and GR Air-7, which explain the sufficiency of the EIR's Health Risk Assessments. The modeling in the HRA analysis evaluates receptor locations, which include residences, schools, hospitals, day care facilities, senior living facilities and the like. The HRA model is set up to assume that the person(s) exposed are those with higher susceptibility to toxic air pollutants, but the model (which is consistent with the most recent OEHHA and CARB guidance) does not require any information about what groups those individuals may be in.

0045-24

Please see GR Air-10.

0045-25

Please see GR Air-10.

0045-26

Please see GR Air-10.

0045-27

Please see GR Air-8 and Air-9.

0045-27 cont'd

0045-28

Please see GR Air-8.

0045-29

Please see GR Air-3, GR Air-7, GR Air-8 and GR Air-10.

0045-30

Please see GR Air-5.

0045-31

Please see GR Air-10.

0045-32

Please see GR Air-3 and GR Air-7.

0045-33

Please see GR Air-3.

0045-34

The commenter states that the identity, quantity, and toxicity of airborne chemicals is grossly understated or unknown in the DEIR. The commenter is incorrect. The DEIR accurately estimated Project emissions and mitigated for those emissions. Please see GR Air-1, GR Air-3, GR-Air-4, GR-Air-5, and GR Air-6 for discussions of the adequacy of the air quality analysis in the DEIR.

0045-35

Please see GR-Air-4 regarding air quality methodology and emission estimates. All emissions, including both construction and operation, were included in the totals generated in the DEIR.

0045-36

Table 4.3-42 contains only operational emissions but the conclusion is that the Project would have a cumulatively considerable impact on air quality in any event. DEIR at 4.3-20.

0045-37

The comment states that the issue of local air pollution is unexplored in the DEIR and challenges the number of air monitors. Existing monitors are used for the SJVAPCD's air quality planning and monitoring, and are sited in accordance with federal regulations to provide representative sampling of air quality in the region. With mitigation, including setbacks if feasible and applicable or risk management or other measures, impacts from the Project are considered less than significant. Project emissions are not expected to have significant local air quality impacts. Estimated acute and chronic risks associated with drilling, oil processing, and gas processing are below the hazard index standard in each Project subarea. Tables 4.3-36 and 4.3-37; see DEIR at 4.3-103, et seq. and Appendix M (Health Risk Assessment, CATC 2015), performed following OEHHA, Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA 2015).

0045-38

The HRA prepared for the Project includes all relevant sources of toxic air contaminants for the Project. Please see GR Air-3 and GR Air-6 for a discussion of the HRAs. Please see GR Air-8 for a discussion of why WST emissions are not included in the air quality analysis.

The commenter also states that worker safety is ignored in the DEIR and that silicosis and lung cancer can result from on-site exposure to dust particles from the sand used in fracking.

For the reasons outlined below, the use of silica-containing proppant does not pose a risk to non-workers or other offsite persons and industry practices already address potential health risks of silica-containing proppant for workers.

What is Silica-Containing Proppant?

Silica-containing sand is used as a "proppant", *i.e.*, to hold open the fractures created by the hydraulic fracturing process with sufficient pore space to allow oil and gas to flow. Silica proppant is processed so that it is close as possible to spherical and contains a small range of particle sizes. Sizes of proppant depend on specific needs but are generally in the range of about 0.4 to 0.8 millimeters average diameter. Smaller particles may become airborne during transportation and handling, and workers can be exposed if they inhale the particles.

The Use of Silica-Containing Proppant Does Not Pose a Risk to Offsite Persons / Non-Workers

The use of silica-containing proppant creates a potential risk that is localized to well sites and specific to potential exposure in the work environment. The U.S. Occupational Health and Safety Administration (OSHA) and National Institute of Occupational Safety (NIOSH) have issued a "Hazard Alert: Worker Exposure to Silica during Hydraulic Fracturing." The Hazard Alert states that a "combination of engineering controls, work practice, protective equipment, and product substitution where feasible, along with worker training, is needed to protect workers who are exposed to silica during hydraulic fracturing operations." NIOSH identified seven primary points of silica dust exposure during hydraulic fracturing operations:

Dust ejected from access ports on top of sand movers during refilling operations while the machines are running; Dust ejected through open side fill ports on sand movers during refilling operations; Dust generated by on-site vehicle traffic; Dust released from the transfer belt under the sand movers; Dust created as sand drops into, or is agitated in, the blender hopper and on transfer belts; Dust released from operations of transfer belts between the sand mover and the blender; and Dust released from the top of the end of the sand transfer belt on sand movers.

Crystalline silica is a natural component of silica sand. Worker-related health concerns are related to the tiniest crystalline silica particles, less than 10 micrometers in aerodynamic diameter, which if inhaled are small enough to enter the gas-exchange regions of the lungs. At sufficient concentrations and exposure durations, respirable crystalline silica inhalation can lead to silicosis (inflammation of tissue around trapped silica particles) and lung disorders. Respirable crystalline silica particles are listed by the California Office of Environmental Health Hazard Assessment (OEHHA) as a chemical known to the state to cause cancer.

All of the potential exposure points identified by NIOSH are centered on the well undergoing well stimulation or the immediate site area surrounding such well. In addition, respirable crystalline silica inhalation can be harmful, but only where a person is exposed to certain concentrations over long durations, which is unlikely for individuals not working at a well site.

Because the use of silica-containing proppant does not pose a risk to offsite persons or non-workers, it was not necessary to consider its potential use in the Health Risk Assessment analysis.

Industry Practices to Address Health Risks of Silica-Containing Proppant

If air samples show levels above OSHA's calculated Permissible Exposure Limit (PEL) for crystalline silica, approximately 0.1 milligrams per cubic meter ($mg/m^{3)}$,employers are required to take actions to reduce worker exposures. In addition, OSHA and NIOSH recommend that employers take the following actions to further reduce worker exposures below the NIOSH Recommended Exposure Limit (REL) of 0.05 mg/m^3:

Work practice and procedural changes:

Cap unused fill ports on sand movers to help reduce the dust released, especially during filling; Reduce the drop height between the sand transfer belt and T-belts and blender hoppers; Limit the distance that sand falls through the air to help reduce dust; Limit the number of workers, and the time workers must spend in areas where dust and silica levels may be elevated, and consider ways to perform dusty operations remotely; and Apply fresh water to roads and around the well site to reduce the dust.

Practices that involve equipment changes:

Enclose points where dust is released. Install thick plastic stilling or staging curtains around the bottom sides of the sand movers to limit dusts released from belt operation. Enclosures can also be added along and at the ends of the sand transfer belt; Where possible, use enclosed cabs or booths; Consider configuring operator cabs and booths with High Efficiency Particulate Arrestance (HEPA) filtration and climate controls; Use local exhaust ventilation to collect silica-containing dusts and prevent dust escape. Install dust collection systems onto machines or equipment that can release dust; and Replace transfer belts with screw augers on sand movers in new designs or retrofits. Moving sand through an auger system rather than a belt will help contain the sand and reduce dust release.

OSHA's Hazard Communication standard requires that employers provide workers with training and information about hazardous chemicals used in the workplace, including crystalline silica.

In addition, the National STEPS Network (Service, Transmission, Exploration and Production Safety), which promotes safety, health and environmental improvement in the oil and gas industry, organized the "Respirable Silica Focus Group" which issued a list of "Quick Fix Suggestions" (September 2, 2013) to mitigate respirable silica exposure in hydraulic fracturing. The practices include:

Exposure reduction work practices and procedures, such as capping unused fill ports, minimizing sand fall distances during transfer operations, and using enclosed cabs/booths; Repiratory protection requirements; Decontamination/hygiene requirements; Exposure monitoring; Informing management about silica hazards and company actions to reduce exposure; Worker silica awareness training; Signage identifying the seven points of silica dust exposure identified by NIOSH (listed above); Identifying the proppant used and reviewing material safety data sheets in pre-job safety meetings; Signage identifying potential silica exposure in or near exposure zones; Limiting non-essential workers in potential exposure zones; Ensuring that workers required to wear respirators are provided appropriate equipment and properly trained; Requiring workers to wash hands and face before eating, drinking, smoking and leaving location; Instructing workers on cleaning silica from clothing or change clothes at the end of the shift, and on handling silica-contaminated clothing; and Cleaning enclosed worker congregation areas if the area becomes contaminated with silica dust. When engineering and work practice controls are not feasible or do not reduce silica levels below OSHA PELs, employers must provide workers with respirators. However, under some workplace conditions, effective respirator use is difficult to achieve and may present other safety concerns; for example, respirators may limit vision and communication. Because respirators are less reliable than engineering and work practice controls and may create other problems, OSHA believes that primary reliance on respirators to protect workers is generally inappropriate when feasible engineering and work practice controls are available.[2]

Engineering and work practice controls provide consistent levels of protection to a large number of workers, allow for predictable performance levels. Engineering controls that reduce the risk of worker exposure also have the effect of reducing off-site emissions of silica dust that could expose off-site receptors. In addition, Mitigation Measure MM 4.3-2 in the Draft EIR requires implementation of a fugitive dust control plan, in compliance with San Joaquin Valley Air Pollution Control District regulations for fugitive dust suppression. Dust control measures required to be implemented include stabilizing of on-site unpaved using water or chemical soil stabilizers, and covering of haul trucks (including those hauling sand) with tarps or other enclosures to reduce fugitive dust emissions. Compliance with these requirements will serve to ensure that health risks to workers and offsite receptors are minimized.

The commenter's statement with regard to hydrogen sulfide and volatile organic compounds from storage tanks is unsubstantiated. Gases in storage tanks containing hydrocarbons are collected and controlled in compliance with strict SJVAPCD regulations (RULE 4623 STORAGE OF ORGANIC LIQUIDS)[1][1]. As such emissions to the atmosphere of H_2S as well as VOCs will be virtually eliminated and thus will not affect air quality.

[2] http://safetydailyadvisor.blr.com/2013/10/preventing-silica-exposure-engineering-controls-vs-ppe/#sthash.dM5O0Xuw.dpuf.

[1][1] https://www.valleyair.org/rules/currntrules/r4623.pdf

0045-39

The comment states that the County and SJVAPCD will be unable to meet air quality plans given the scale of the Project and questions the effectiveness of Project mitigation. While the DEIR recognizes that the District is in nonattainment for multiple criteria pollutants and that emissions exceed significance thresholds, mitigation specified in the DEIR will reduce all emission increases to net zero.[2][2] Please see GR-Air-1 and GR-Air-2, and GR-16 regarding mitigation measures generally. Thus, the DEIR determined that although oil and gas activities that would be authorized under the Project have the potential to obstruct implementation of the applicable air quality plan or potentially be inconsistent with the General Plan measures, after mitigation these impacts are less than significant. The SJVAPCD's thresholds of significance for criteria pollutants are based on District Rule 2201 (New Source Review) offset requirements. The District's attainment plans demonstrate that project-specific net emissions increase below New Source Review (NSR) offset requirements will not prevent the District from achieving

attainment. Consequently, emission impacts from sources permitted consistent with NSR requirements are not individually significant or cumulatively significant. Nonetheless, since the County does not have legal authority over air quality planning, and is also relying on the SJVAPCD for achievement of certain air quality mitigation, the County is conservatively finding that potential cumulative impacts are significant and unavoidable. However, this finding does not result from inadequate mitigation. As described in GR-Air-1 and GR-Air-2, the Project's operational emissions are required to be fully offset under the suite of Air Quality Mitigation measures. In addition, per-well emissions will decrease in the future due to phase-in of CARB engine emission standards and fleet turnover. See, e.g., DEIR pp. 4.3-36, 4.3-102.

[2][2] The commenter states the SJVAPCD will be submitting a new 8-hour ozone exposure plan in 2015; however, as described in this response, Project emissions will be mitigated to net zero and would not conflict with a new plan.

0045-39 cont'd

0045-40

The comment suggests emission calculations are flawed because they fail to show total emissions from the Project and instead only show yearly incremental emissions from new sources. The commenter states tables showing yearly emissions should also include a summation. Table 4.3-27 shows total estimated emissions from both construction and operational activities for the Project in tons per year. The annual emissions from operation of permitted equipment have been calculated by dividing the projected change in the permitted equipment emissions at Project build out in 2035 by the number of Project years from 2015 to 2035 (i.e., 21 years). In addition, Table 4.3-28 presents the total estimated emissions from the Project from construction and operation, including equipment and mobile sources, and excluding the permitted emissions requiring offsets under SJVAPCD regulations. Because the baseline year of 2012 also included construction of 3,392 new wells and other construction and operational Project activity, Table 4.3-29 shows the incremental new emissions from the Project compared to 2012. Table 4.3-29 presents the total estimated incremental increase in emissions from the same Project non-permitted equipment and activities in tons per year as for Table 4.3-28. Average annual incremental emissions are also shown.

The tables, thus, show estimated annual incremental emissions increases, which is a reasonable methodology for the Project at issue. As explained in the DEIR at p. 4.3-101, the number of well permits issued annually will vary based on a variety of factors. Air emissions modelling used in the DEIR conservatively assumed a higher well count (maximum 4,083) than the Project maximum 3,647. The estimated incremental emission is provided in Table 4.3-32, which shows the next 21 years of permitting and the emissions each year for an individual well. The emission totals include all Project-related construction and operational activities that are not subject to the SJVAPCD's stationary source permitting and emission offset rules, such as mobile sources like construction equipment, maintenance trucks, employee automobile trips, construction of access roads and well pads, drilling, accessory activities, well operation, and eventual abandonment. Emissions from idled wells are also included. The annual totals also include mandatory emission reductions from existing legal requirements, such as federal and state mandated changes for certain types of engines which will cause NOx emissions to increase slightly while PM10 declines. These Project-related construction and operational emissions that are not required to be offset under SJVAPCD stationary source permitting rules are then averaged for all wells over a 20-year period to illustrate how the OG-ERA will generate totals.

In addition, the DEIR methodology of treating construction of all new wells as new emissions rather than summing against current (pre-project) annual drilling emissions is highly conservative from a CEQA perspective and actually overstated impacts. Please see also GR-6, GR-8.

0045-41

Please see GR-Air 3 regarding the sufficiency of the Health Risk Assessment, GR-Air-5 regarding cumulative air effects, GR-Air-6 regarding the revised Health Risk Assessment and SJVAPCD methodology, and GR-Air-11 regarding emissions from sumps, ponds, and pits. Please see Response to comment 30 above regarding the enforceability of MM 4.3-5.

0045-42

This general comment is noted. Please also see GR-16.

0045-43

Comment noted. Please see GR GHG-1.

0045-44

Please see GR Air-12 regarding lifecycle analysis, and GR GHG-1.

0045-45

Please see GR GHG-1.

0045-46

Please see GR GHG-1 regarding the adequacy of GHG mitigation measures, and GR-16 regarding mitigation measures generally.

0045-47

The comment is a general introduction. No response is necessary and it is noted for the record.

0045-48

Benzene is a naturally occurring constituent of the oil bearing formations from which produced water comes. The potential for impacts related to benzene and other naturally occurring constituents in produced water depends on the use to which the produced water is put. Produced water that is disposed of by underground injection must be injected into formations that are not suitable sources of drinking, e.g., containing hydrocarbons or very high salinity, or otherwise exempt aquifers. Please see GR Water-02. Produced water that is treated for reuse in oil and gas operations is injected back into petroleum formations for enhanced oil recovery. Produced water may not be disposed of in percolation ponds if it constitutes hazardous waste. Please see RTCs 02-11 – 02-12. Finally, produced water treated for agricultural irrigation has been found to meet all regulatory and permit limits for such use. Please see GR Water-8.

The comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-49

The comment states that the DEIR fails to disclose and analyze the impacts from chemical used during oil and gas activities.

The Draft EIR identifies representative potentially hazardous materials used in Kern County oil and gas drilling and production in 2014 (excluding chemicals used in well stimulation treatments). DEIR, pp. 4.8-4 – 4.8-5, Table 4.8-1. Table 4.8-3 sets forth representative WST chemicals used in Kern. The Draft EIR also identifies maximum daily onsite volumes of such hazardous materials as reported to Kern County Environmental Health Division (KCEH). Though the total number of wells drilled in a given year could increase compared to baseline under the Project (see GR 9 – Well Projections), the well sites themselves are anticipated to be similar in size and intensity to past industry practices. Thus, it is reasonably foreseeable that the types and volumes of hazardous materials used in oil and gas fields will remain substantially the same as those disclosed in the DEIR.

Further, the EIR imposes various mitigation measures that reference and implement industry standards concerning oil management of hazardous materials at oil and gas production sites. The standards include Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book (Bureau of Land Management 2007), Environmental Protection for Onshore Oil and Gas Production Operations and Leases (American Petroleum Institute 2009), or equivalent standards. See MM 4.8-6 - 4.8-7. Mitigation Measures 4.8-10 – 4.8-14 also address spill and release prevention and response. With these measures, as well as implementation of DOGGR regulations concerning WST activities (see GR-10), the EIR correctly concludes that potential impacts for use, storage and transport of hazardous materials are less than significant.

Further, the chemicals used in WST fluids must be disclosed as part of the new SB 4 regulations promulgated by DOGGR, effective July 1, 2015. Please see GR 10 – DOGGR Regulations. To further address uncertainties regarding well stimulation fluid content and transport, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

Finally, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-49 cont'd

The comment states that the DEIR fails to disclose and analyze the impacts from chemical used during oil and gas activities.

The Draft EIR identifies representative potentially hazardous materials used in Kern County oil and gas drilling and production in 2014 (excluding chemicals used in well stimulation treatments). DEIR, pp. 4.8-4 – 4.8-5, Table 4.8-1. Table 4.8-3 sets forth representative WST chemicals used in Kern. The Draft EIR also identifies maximum daily onsite volumes of such hazardous materials as reported to Kern County Environmental Health Division (KCEH). Though the total number of wells drilled in a given year could increase compared to baseline under the Project (see GR 9 – Well Projections), the well sites themselves are anticipated to be similar in size and intensity to past industry practices. Thus, it is reasonably foreseeable that the types and volumes of hazardous materials used in oil and gas fields will remain substantially the same as those disclosed in the DEIR.

Further, the EIR imposes various mitigation measures that reference and implement industry standards concerning oil management of hazardous materials at oil and gas production sites. The standards include Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book (Bureau of Land Management 2007), Environmental Protection for Onshore Oil and Gas Production Operations and Leases (American Petroleum Institute 2009), or equivalent standards. See MM 4.8-6 - 4.8-7. Mitigation Measures 4.8-10 – 4.8-14 also address spill and release prevention and response. With these measures, as well as implementation of DOGGR regulations concerning WST activities (see GR-10), the EIR correctly concludes that potential impacts for use, storage and transport of hazardous materials are less than significant.

Further, the chemicals used in WST fluids must be disclosed as part of the new SB 4 regulations promulgated by DOGGR, effective July 1, 2015. Please see GR 10 – DOGGR Regulations. The Final EIR has proposed a new MM 4.8-16 to require toxity testing for WST fluids. This measure will further mitigate potential impacts from chemicals used during oil and gas activities.

Finally, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-50

The comment summarizes the CCST Study's findings concerning spills and leaks from oil and gas activities. The County recognizes the CCST study discusses spills that have occurred within Kern County and finds that "oil and gas development within Kern County has resulted in chronic spills." It is expected a higher percentage of spills will occur within Kern County compared to the remainder of California since the vast majority of California oil and gas production occurs within Kern County. In 2012, Kern County produced 80 percent of the on-shore oil and gas produced in California (Kern County 2015), yet from January 2009 to December 2014 attributed only 55 percent of the produced water release events and only 42 percent of the chemical release events; hardly chronic in nature. CCST at 127. Section 4.8 of the Draft EIR evaluates the nature of spills within Kern County oilfields over the previous five years. During the CCST study period (January 2009 through December 2014), of the 31 chemical spills reported within California, "none of the reported spills contained chemicals used for hydraulic fracturing." CCST at 127.

A 2015 report cited by another commenter (see Comment 47-132 – 47-135) analyzing the number of spills in Kern County and other areas throughout the state found that the number of spills in Kern County has generally decreased over recent years. Caryotakis et al 2015. The study also found that Kern County had the lowest number of spills per year compared to other counties studied. In addition, the cited report

shows that most hazardous substance spills in California were of non-petroleum substances, such as sewage, that are unrelated to oil and gas production. The study further shows that most spills are properly reported and contained per existing regulations. For example, the study notes:

On average, only about10% of total spills that occurred in California were not contained; of the spills that affected waterbodies, only about 16% were not contained over the period studied.

In California overall, over 73% of spills were either cleaned-up or didn’t require clean-up.

This EIR also includes has numerous mitigation requirements concerning reporting and clean-up of contamination. MM 4.8-1 requires a Worker Training Awareness Program to implement all mitigation measures; MM 4.8-2 requires that the transportation, storage and disposal of hazardous materials be done in accordance with the Hazardous Materials Transportation Act; MM 4.8-3 requires implementation of eight (8) specific measures related to storage and cleaning up of hazardous materials; MM 4.8-4 has been modified by this Final EIR to include new reporting and relocation requirements for pipeline leaks (see FEIR section 7.1.4); MM 4.8-5 requires reporting, testing, and, where necessary, clean up of contamination discovered during grading or excavation work; MM 4.8-6 requires implementation of 15 measures to prevent the release or accidental spillage of wastes, including oil and other petroleum products consistent with American Petroleum Institute (API) or other accepted environmental standards; and MM 4.8-7 requires that all exploration and development activities be conducted consistent with API or other environmental standards, including secondary containment standards and implementation of spill contingency plans consistent with DOGGR regulations. The remaining mitigation measures identified in DEIR Ch. 4.8 also contribute to the containment and clean-up of hazardous materials.

0045-51

The comment is a citation to the DEIR. No response is necessary.

0045-52

Please see GR Water-6.

0045-53

The comment states that "older, unmarked wells … can act as a conduit for chemicals when a new well is operating." The comment has not cited any evidence to support this statement. Further, new WST wells are subject to significant regulations promulgated pursuant to SB 4, which became effective July 1, 2015, including requirements for well casings and other protection that mitigate the risk of chemical migration. Please see GR 10 – DOGGR: Regulations. Finally, idle well, whether mapped or not, are part of the environmental baseline and are not an impact of this Project. Please see GR Haz-2 – Idle Wells.

0045-54

Please see GR-12 and GR-13.

0045-55

Please see GR-12, GR-13 and GR Water-6.

0045-55 cont'd

Please see GR-12, GR-13 and GR Water-6.

0045-56

Please see the revised Water Supply Assessment included in Appendix T-1 of the FEIR.

0045-57

The comment is noted and included in the record.

0045-58

The referenced newspaper article describes data relating to spills during oil and gas production activities. MMs 4.8-1 – 4.8-9 will reduce potential impacts associated with spills to less than significant.

0045-59

The referenced statement in the DEIR is correct. *See also* DOGGR 2015c at 2 ("To date, the analytical data from the water supply wells that the State ordered to be tested have not shown any contamination of the water supply wells by oil and gas injection activities."). Please also see GR Water-2.

0045-60

Please see GR Water-2.

0045-61

Please see GR Water-2.

0045-62

Please see GR Water-1.

0045-63

Please see GR Water-1.

0045-64

Please see GR Water-8.

0045-65

Please see GR Water-8.

0045-66

Please see GR Water-8.

0045-66 cont'd

Please see GR Water-8.

0045-67

Please see GR Water-6.

0045-68

Please see GR-12, GR-13 and GR Water-6.

0045-69

Commenter references a regulation (14 CCR 1724.10(i)) from DOGGR's UIC program for the premise that DOGGR has admitted that Class II injection wells are routinely allowed to operate at pressures above the fracture gradient. To the contrary, that regulation actually states that step-rate tests are required to determine the maximum allowable surface injection pressure for UIC wells, but that the requirement for a step-rate test (not the requirement to operate below a certain pressure) may be waived if DOGGR "determines that surface injection pressure for a particular well will be maintained considerably below the estimated pressure required to fracture the zone of injection." Therefore, Class II injection wells are always required to operate with a pressure below the fracture gradient.

It is the case that production wells sometimes inject cyclic steam at or above fracture pressure. Such operations are not regulated under the UIC program. However, please see response to DOGGR comment letter, comments 63-57 and 63-58 for an explanation of how such practices are regulated, and how any potential impacts are mitigated in this EIR.

0045-70

Please see RTC 00045-49 for a discussion of the Hazards and Hazardous Materials mitigation Please see GR Water-1.

0045-71

Please see GR Water-1.

0045-72

The referenced newspaper article describes data relating to spills during oil and gas production activities. MMs 4.8.1 to 4.8.9 will reduce potential impacts associated with spills to less than significant.

0045-73

The EIR imposes various mitigation measures that reference and implement industry standards concerning oil management of hazardous materials at oil and gas production sites. The standards include Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book (Bureau of Land Management 2007), Environmental Protection for Onshore Oil and Gas Production Operations and Leases (American Petroleum Institute 2009), or equivalent standards. See MM 4.8-6 - 4.8-7. Mitigation Measures 4.8-10 – 4.8-14 also address spill and release prevention and response. With these mitigation measures, risks to soils from leaks and spills are mitigated to the less than significant level. Please see GR-16 – Mitigation Measures, for a discussion concerning the level of specificity and feasibility of the proposed mitigation measures. Please see GR Geo-1 - CCST: Produced Water and Earthquake Risk, for a discussion of the lack of risk of induced seismicity from oil and gas activities.

0045-74

Please see GR Noise-1.

0045-75

The comment states that the DEIR fails to identify and quantify noise impacts from venting and flaring. According to the Applicant, flare noise levels are similar to other measured equipment sources in DEIR, Appendix V - Environmental Noise Assessment. Existing vents and flare are part of the environmental baseline, and noise from such vents and flares are not a function of this Project. Any newly constructed flares would be subject to MM 4.12-1 for construction noise (please see FEIR, Appendix V-1 and FEIR section 7.1.4 - Revised Summary of Impacts, Mitigation Measure & Significance Conclusions for revisions to MM 4.12-1). Operation of new flares would be subject to the County's noise ordinance, which requires sound levels to be at 65db DNL regardless of distance, as well as MM 4.12-2, which requires a minimum of a 190-feet setback from the closest sensitive receptor. For remaining noise comments, please see GR Noise-1.

0045-76

Please see GR Noise-1.

0045-77

Please see GR Noise-1.

0045-78

Please see GR Noise-1.

0045-79

Please see GR Noise-1.

0045-80

Please see GR Noise-1.

0045-81

Please see GR Noise-1.

0045-82

Please see GR TR-1.

0045-83

Please see GR TR-1.

0045-83 cont'd

Please see GR TR-1.

0045-84

Please see GR TR-1.

0045-85

Please see GR TR-1.

0045-86

Please see GR TR-1.

0045-87

Please see GR TR-1.

0045-88

Please see GR TR-1.

0045-89

Please see GR-TR-1.

0045-90

The comment is a summary of the comments that follow concerning Biological Resources. Please see RTCs 91-132.

0045-91

The comment states that the "DEIR specifically excludes 77 Category 3 species from analysis." Page 4.4-36 of the Draft EIR explains that Category 3 species were not analyzed because they either do not occur in the region or they are not considered to be a sensitive species within the Project Area. This determination was based on a screening analysis conducted by the County. This screening analysis included a search of the CNDDB for known special-status species to occur in the Project Area, followed by a review of qualified biologists to determine those warranting further study. Species were screened from further consideration based on the following criteria:

a. No records for a species were found in the Project Area and suitable habitat is not present or not expected;

b. Species occurrence in the Project Area is migratory or transient, with little or no chance of impact from Project activities; and

c. Occurrence data for species within Project Area was found to be erroneous.

In addition, species considered on "watch lists" were included in Category 3 unless the review of their distribution and status indicated that the portion of the species distribution within the Project Area warranted further consideration of Project impacts. Furthermore, most wildlife species are migratory, with some wildlife species traveling a longer distance such as birds versus smaller mammals that do not travel as far. Thus, occurrence of species in the Project Area that are known to be migratory or transient, with little or no chance of impact from Project Area activities, or occurrence data for species within Project Area that was found to be erroneous, were not analyzed. DEIR, Appendix N - Biological Resources Species Modeled Figures and Category 3 Species Review.

The comment mentions four specific species that were excluded from analysis:

As explained in Table 4.4-36, the Southwestern willow flycatcher nests in riparian vegetation, willows, and coast live oak. Due to the lack of dense riparian tree and shrub communities associated with rivers, lakes, and swamps in the San Joaquin Valley Floor portion of Kern County, Southwestern willow flycatcher was not included in the Category 3 species for detailed analysis.

As explained in Table 4.4-26, Tracy's eriastrum usually occurs in chaparral habitats at elevations from 1,000 to 5,500 feet. Chaparral habitat in Kern County is generally found in the higher elevations of the Pacific Coast Range and Sierra Nevada. As shown in Table 4.4-86, there is a total of approximately 8 acres of mixed chaparral habitat that could be affected by the Proposed Project. Given the limited area of anticipated impact, Tracy's eriastrum was not included in the Category 3 species for detailed analysis.

As explained in Table 4.4-36, the Conservancy fairy shrimp is not a stated listed species nor is it expected to be found in the Project Area. Thus, Conservancy fairy shrimp was not included in the Category 3 species for detailed analysis.

As explained in Table 4.4-36, the Valley elderberry longhorn beetle is not a stated listed species nor is it expected to be found in the Project Area. Thus, Valley elderberry longhorn beetle was not included in the Category 3 species for detailed analysis.

The comment further states that the "County should require on-the-ground surveys to determine their presence or absence before excluding them from analysis and mitigation requirements." The suite of biology-related mitigation measures starts with pre-disturbance surveys (MM 4.4-1, 4.4-5, 4.4-8, 4.4-10, 4.4-11, 4.4-12, and 4.4-17). The mitigation measures specify that surveys must be completed by qualified biologists in accordance with approved protocols. Where pre-disturbance surveys reveal the presence of sensitive species or habitats, the mitigation measures stress avoidance. In addition to general directives to avoid sensitive species, the mitigation measures establish species-specific buffer distances (MM 4.4-4, 4.4-5, 4.4-6, 4.4-7, 4.4-8, 4.4-9, and 4.4-10), exclusion fencing (MM 4.4-3), and other species-specific exclusion or avoidance strategies.

Please see FEIR section 7.1.4 for text revisions to various mitigation measures.

0045-92

The comment, which states a legal conclusion, is noted.

0045-93

The comment, which states conclusions concerning the potential scope of the Project, is noted. Please see RTCs 95-105.

0045-94

The comment summarizes the issues raised in comments 95-105 and is noted. Please see RTCs 95-105.

0045-95

The comment states that the DEIR fails to disclose and analyze the effects of habitat fragmentation, edge effects, and density effects that will result from the Project.

Generally, as described in the EIR, oil & gas field development in Kern County does not displace wildlife or interfere substantially with wildlife movement in the same manner as other development activities such as agricultural or urban development. Existing regional conservation documents such as the San Joaquin Valley (SJV) Recovery Plan acknowledge that oil & gas production retains more habitat value for special-status species of the southern San Joaquin Valley compared to agricultural lands (USFWS, 1998). Initial oil & gas field development in natural lands affects small patches of land (e.g., well locations) and results in some linear disturbance (e.g., access roads and pipelines), but the ability of wildlife to utilize adjacent habitat and traverse active oil & gas field areas is less impeded than it is for more intensive development types such as agriculture and urban lands. This conclusion is demonstrated by the documented use of oil and gas field production areas by species such as the San Joaquin kit fox (Fiehler and Cypher, 2011). Please see RTC 116.

The effects of habitat disturbance and fragmentation as a result of oil & gas development have been an ongoing subject of study in the San Joaquin Valley. *The Ecosystem Analysis of Oil Fields in Western Kern County*, California study conducted for BLM in 2008-2010, found that native species (including some special-status species) persist in areas of oil & gas field development up to a "medium level of disturbance" (ranging from 15 percent to 70 percent of the area disturbed). The study found that species such as Le Conte's Thrasher, San Joaquin antelope squirrel, and short-nosed kangaroo rat were present on all but the most disturbed study plots, and at high levels of oil/gas field development (Fiehler and Cypher, 2011). The vast majority of oil field areas of moderate to high disturbance occur within the DOGGR-delineated productive zones, which are variously subject to current or proposed conservation planning by Bureau of Land Management (BLM) or Habitat Conservation Plans, which seek to minimize the effects of habitat disturbance and fragmentation.

The effects of oil and gas field development disturbance in other habitat types, such as hardwood forests or sagebrush scrub, are not an accurate predictor of the effects on special status wildlife species in Kern County. The majority of the upland special-status species that occur within the southern San Joaquin Valley lands require dry, open grassland or habitats with scattered shrubs (USFWS, 2010b; USFWS, 2010c; USFWS, 1998). Dense herbaceous vegetation in uplands of the southern San Joaquin Valley (largely due to the growth of non-native grasses) may decrease habitat suitability for many of these species. Germano et al., 2012. The creation of small barren areas (unpaved access roads and well pads) can create open areas that are used by species such as blunt-nosed leopard lizard and giant kangaroo rats, especially in areas of previously dense non-native vegetation. In addition, roads and pipeline rights-of-way are utilized by San Joaquin kit fox for movement and foraging. The avoidance and minimization measures included in the DEIR provide additional protection for special status species that utilize active oil/gas fields.

The persistence of special-status species in Kern County oil & gas fields is attributed to their "permeability" for movement and dispersal. Medium levels of disturbance and below provide for habitat connectivity for movement and dispersal as documented by Fiehler and Cypher (2011). For example, San Joaquin kit foxes are relatively common in the oil & gas fields of western Kern County, and appear to be tolerant of oil & gas field development (Cypher et al 2013). Please see RTC 116. A study conducted in the former Naval Petroleum Reserves in California (NPRC) found that conversion of 30 percent of the native habitat to oil & gas field development did not impact movements and home ranges of San Joaquin kit foxes in the area. San Joaquin kit foxes within the NPRC have smaller home ranges when compared to the size of home ranges in other portions of the geographic range of the species, indicating that NPRC lands provide some of the highest quality habitat remaining for kit foxes in the San Joaquin Valley (Zoellick et al., 2002). Unlike highways, agricultural fields, and urban areas, which may present an insurmountable barrier to many species, the development associated with oil & gas fields (i.e. dirt access roads, utility ROW, and well pads) is generally porous

to most wildlife.

The mitigation lands that will be provided pursuant to MM 4.4-16 will include the dedication of regionally important wildlife habitats identified in large scale, regional conservation plans, such as the Lokern HCP or Elk Hills HCP, or acquisition of credits from agency-approved mitigation banks or other similar entity that are protecting habitat of regional importance for special status species. The regional HCPs and mitigation banks include lands that have been identified in recovery goals established for special status species (i.e., recovery goals established in the SJV Recovery Plan) and seek to protect land in large blocks to minimize edge effects, increase the likelihood that ecosystem functions will remain intact, and facilitate management. Such planning also seeks to connect blocks of conservation lands, allowing greater movement of wildlife between blocks. For example, future conservation lands identified in the Lokern HCP and the Elk Hills HCP would expand existing contiguous areas of intact habitat along the western side of the southern San Joaquin Valley that will further enhance the value of existing conservation lands by providing habitat connectivity and wildlife movement corridors.

Finally, the comment includes references to, but has not provided the County copies of, numerous studies concerning habitat fragmentation caused by oil and gas activities in other regions of the country and/or in other habitat types (e.g., impacts to forest regions near the Marcellus shale in Pennsylvania). Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and concluded that the Kern-specific analysis relied upon in the EIR is more appropriate.

References:

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

U.S. Fish and Wildlife Service (USFWS). 2010b. San Joaquin kit fox (Vulpes macrotis mutica) 5- Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 2010c. Tipton kangaroo rat (Dipodomys nitratoides nitratoides) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0045-96

Please see comment 95.

0045-97

The comment references two graphics from Appendix F of the DEIR. The information presented in Appendix F of the Draft EIR describes the methodology used to estimate the acreage of land disturbance that, on average, occurs per producible well. This methodology accounts for well pad size and ancillary disturbance variability (such as tanks, roads, and administrative facilities) that reflects construction and operational conditions. The information presented in Appendix F was not intended to be used as a tool to measure habitat fragmentation or edge effects.

There are several recent research efforts that evaluate the effects of new development on sensitive biological resources, including the effects of oil and gas activities. Most notable is the “Ecosystem Analysis of Oil Fields in Western Kern County, California” (Fiehler and Cypher 2011), which is an in-depth analysis of sensitive biological resources in Kern County. This research effort found that oil & gas field

development in Kern County does not displace wildlife or interfere substantially with wildlife movement in the same manner as other development activities such as agricultural or urban development. Other notable sensitive biological resources studies found similar findings, including the “Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development” (Zoellick et al. 2002), “Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications” (Cypher 2013), “Urban carnivores: ecology, conflict, and conservation” (Cypher 2010), and the SJV Recovery Plan (USFWS 1998). The analyses in the EIR and these reports provides substantial evidence supporting the County’s analysis and determinations concerning impacts to biological resources, including habitat fragmentation and related topics.

References

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0045-98

The comment states that the DEIR fails to disclose that declines in abundance and local extirpations of birds, mammals and fish linked to oil & gas production activities.

Page 4.4-222 of the Draft EIR states that development of oil and gas activities “with more than 70% disturbance could reduce species movement, and potential impacts to wildlife movement in higher density locations would be significantly impacted by project activities without mitigation.” For this reason, the County-developed a suite of biology-related mitigation measures that start with pre-disturbance surveys (MM 4.4-1, 4.4-5, 4.4-8, 4.4-10, 4.4-11, 4.4-12, and 4.4-17). The mitigation measures specify that surveys must be completed by qualified biologists in accordance with approved protocols. Where pre-disturbance surveys reveal the presence of sensitive species or habitats, the mitigation measures stress avoidance. In addition to general directives to avoid sensitive species, the mitigation measures establish species-specific buffer distances (MM 4.4-4, 4.4-5, 4.4-6, 4.4-7, 4.4-8, 4.4-9, and 4.4-10), exclusion fencing (MM4.4-3), and other species-specific exclusion or avoidance strategies. Please see FEIR section 7.1.4 for revisions to mitigation measures.

Page 4.4-134 of the Draft EIR states the “5-year review of the San Joaquin kit fox listing found that the most robust kit fox populations occur in the portions of the Project Area that are most heavily used for oil and gas production” (USFWS 2010b). The San Joaquin kit fox is identified as an “umbrella species” in the SJV Recovery Plan, meaning that it is a good indicator for numerous other sensitive species to co-exist. Also, pages 4.4-134 and 4.4-135 of the Draft EIR state “The SJV Recovery Plan indicates that oil and gas production may provide greater opportunities for potential connectivity and conservation than agricultural land uses (USFWS 1998).” Please see RTC 45-115.

The Project includes economic and regulatory incentives to focus oil and gas activities in areas that have already been previously developed which are not located within established sensitive communities. It is also expected that the conformity review process authorized by the Revised Amended Ordinance, along with enforcement programs (please see GR-19), are designed to ensure that new development is compatible with and complements existing land uses.

Finally, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

References:

U.S. Fish and Wildlife Service (USFWS). 2010b. San Joaquin kit fox (Vulpes macrotis mutica) 5- Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California (SJV Recovery Plan). Region 1, Portland, Oregon.

0045-99

Relying primarily on the CCST Study, the comment states that the DEIR fails to analyze the impacts of well stimulation treatment (WST) activities on habitat loss and fragmentation. According to the CCST Study, impacts related to habitat loss, hazardous materials, and noise “are not directly caused by the process of well stimulation, but are common to any form of oil and gas production.” CCST at 311. “Oil and gas production contribute to habitat loss and fragmentation through the construction of well pads and support infrastructure and related land disturbance, not directly by hydraulic fracturing itself.” CCST at 321. “In California, it is difficult to isolate the impact of hydraulic fracturing on habitat from the impacts of oil and gas production in general. This is because most hydraulic fracturing is occurring on lands that would be used for oil and gas production regardless of hydraulic fracturing.” CCST at 321. Thus, the impacts of WST activities are coextensive with the impacts from oil and gas activities, generally. As described in GR Bio-1, the mitigation program implemented by the EIR adequately mitigates impacts from oil and gas activities authorized by the Project to less than significant. Please see FEIR section 7.1.4 for revisions to the mitigation measures.

References:

California Council on Science and Technology (CCST). 2015. Well Stimulation Technologies and their Past, Present, and Future Use in California, An Independent Scientific Assessment of Well Stimulation in California. Volume II, July 2015, 481p.

0045-100

Relying primarily on the CCST Study, the comment states that the DEIR fails to analyze the impacts of well stimulation treatment (WST) activities on habitat loss and fragmentation. According to the CCST Study, impacts related to habitat loss, hazardous materials, and noise "are not directly caused by the process of well stimulation, but are common to any form of oil and gas production." CCST at 311. "Oil and gas production contribute to habitat loss and fragmentation through the construction of well pads and support infrastructure and related land disturbance, not directly by hydraulic fracturing itself." CCST at 321. "In California, it is difficult to isolate the impact of hydraulic fracturing on habitat from the impacts of oil and gas production in general. This is because most hydraulic fracturing is occurring on lands that would be used for oil and gas production regardless of hydraulic fracturing." CCST at 321. Thus, the impacts of WST activities are coextensive with the impacts from oil and gas activities, generally. As described in GR Bio-1, the mitigation program implemented by the EIR adequately mitigates impacts from oil and gas activities authorized by the Project to less than significant. Please see FEIR section 7.1.4 for revisions to the mitigation measures.

References:

California Council on Science and Technology (CCST). 2015. Well Stimulation Technologies and their Past, Present, and Future Use in California, An Independent Scientific Assessment of Well Stimulation in California. Volume II, July 2015, 481p.

0045-101

The comment states that the DEIR fails to adequately disclose the impacts of spills from oil and gas activities on biological resources, citing the CCST Study. The County recognizes the CCST study discusses spills that have occurred within Kern County and finds that “oil and gas development within Kern County has resulted in chronic spills.” It is expected a higher percentage of spills will occur within Kern County compared to the remainder of California since the vast majority of California oil and gas production occurs within Kern County. In 2012, Kern County produced 80 percent of the on-shore oil and gas produced in California (Kern County 2015), yet from January 2009 to December 2014 attributed only 55 percent of the produced water release events and only 42 percent of the chemical release events; hardly chronic in nature. CCST at 127. Section 4.8 of the Draft EIR evaluates the nature of spills within Kern County oilfields over the previous five years. During the CCST study period (January 2009 through December 2014), of the 31 chemical spills reported within California, “none of the reported spills contained chemicals used for hydraulic fracturing.” CCST at 127.

A 2015 report cited by another commenter (see Comment 47-132 – 47-135) analyzing the number of spills in Kern County and other areas throughout the state found that the number of spills in Kern County has generally decreased over recent years. Caryotakis et al 2015. The study also found that Kern County had the lowest number of spills per year compared to other counties studied. In addition, the cited report shows that most hazardous substance spills in California were of non-petroleum substances, such as sewage, that are unrelated to oil and gas production. The study further shows that most spills are properly reported and contained per existing regulations. For example, the study notes:

On average, only about10% of total spills that occurred in California were not contained; of the spills that affected waterbodies, only about 16% were not contained over the period studied.

In California overall, over 73% of spills were either cleaned-up or didn’t require clean-up.

This EIR also includes has numerous mitigation requirements concerning reporting and clean-up of contamination. MM 4.8-1 requires a Worker Training Awareness Program to implement all mitigation measures; MM 4.8-2 requires that the transportation, storage and disposal of hazardous materials be done in accordance with the Hazardous Materials Transportation Act; MM 4.8-3 requires implementation of eight (8) specific measures related to storage and cleaning up of hazardous materials; MM 4.8-4 has been modified by this Final EIR to include new reporting and relocation requirements for pipeline leaks (see FEIR section 7.1.4); MM 4.8-5 requires reporting, testing, and, where necessary, clean up of contamination discovered during grading or excavation work; MM 4.8-6 requires implementation of 15 measures to prevent the release or accidental spillage of wastes, including oil and other petroleum products consistent with American Petroleum Institute (API) or other accepted environmental standards; and MM 4.8-7 requires that all exploration and development activities be conducted consistent with API or other environmental standards, including secondary containment standards and implementation of spill contingency plans consistent with DOGGR regulations. The remaining mitigation measures identified in DEIR Ch. 4.8 also contribute to the containment and clean-up of hazardous materials. These measures serve to reduce the impacts of spills on species and ecosystems.

References

California Council on Science and Technology (CCST). 2015. Well Stimulation Technologies and their Past, Present, and Future Use in California, An Independent Scientific Assessment of Well Stimulation in California. Volume II, July 2015.

Caryotakis, A., Davies, I., Hafiz, S., Niketen, J., Noakes, D., Wang, R., and Wu, A. 2015. An Analysis of Hazardous Materials Spills with a Focus on Oil and Gas Production: A 2015 Undergraduate Practicum Project for the UCLA Institute of the Environment and Sustainability. Report prepared for the Natural Resources Defense Council.

Kern County. 2015. Draft Environmental Impact Report, SCH #2013081079, Revisions to the Kern County Zoning Ordinance – 2015 (C). Planning and Community Development Department. July 2015.

0045-102

The comment states that the “DEIR fails to adequately disclose and analyze the impacts of noise pollution on species and ecosystems.” Impact 4.12-3: A Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Project, and Impact 4.12-4: A Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity Above Levels Existing Without the Project, evaluated the effects of noise in the oil and gas fields associated with the Proposed Project. Both MM 4.12-1 and MM 4.12-2 were developed to reduce anticipated effects on sensitive receptors; though not specifically crafted for biological resources, the effect of these measures will be to reduce noise impacts overall, including for biological resources.

Oil and gas activities have been ongoing in Kern County for over 100 years, and the noise associated with those activities is generally part of the ambient condition. Wildlife species have long since adapted to the ambient noise conditions in Kern County, and any such changes to their spatial distribution, abundance, stress levels, or behaviors occurred long ago. As described in DEIR Ch. 4.12 – Noise, the Project will not significantly alter the noise patterns currently experienced, as the Project is a continuation of activities that are already occurring and would continue to occur even without the Project, though now subject to the conformity review process and related mitigation requirements. Over the last 100 years, the technological advances in oil and gas extraction has afforded the industry the ability to reduce the quantity of infrastructure required to operate the oil and gas fields as well as centralize the processing and distribution activities that ultimately benefit wildlife species by concentrating noise in fewer locations versus 100 years ago.

Finally, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-102 cont'd

0045-103

The EIR includes a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the Water Supply Assessment (Appendix T) and as further updated in GR Water 5. Based on supply and demand estimates developed from the detailed water management plans and reports, the WSA concluded that there is no surplus water in the Project Area and that the Kern County Subbasin is in an existing overdraft condition. This information was incorporated into the analysis of available groundwater supplies for purposes of the EIR. While this consideration did not expressly take into consideration the effect of existing and ongoing overdraft and drought conditions on biological resources, the EIR does fully disclose that available groundwater supplies are a significant issue for the Project Area and results in a significant and unavoidable impact. CEQA analysis requires reasonable disclosure based on best available information, but does not require “perfect” information; please see GR 21.

It should also be noted that, as part of implementation of the Sustainable Groundwater Management Act (SGMA), local groundwater management authorities are being established to further define groundwater resources; establish sustainable groundwater use rates; and allocate groundwater among users. See GR Water-3 regarding the SGMA. The SGMA will play a significant role in future supply estimates. The County is required to participate in the Kern groundwater sustainability effort underway, and the basin has now been designated by the Department of Water Resources as being in critical overdraft. SGMA will require that agricultural, municipal, and industrial activities account for current and future uses of water and create sustainable plans for managing the resource. Pursuant to California Water Code section 10933(a)(8), this effort will also take into account “adverse impacts on local habitat and local streamflows.” While the EIR finds that oil and gas activity uses very little groundwater compared to other uses, significant impacts to groundwater supply are identified and mitigation measures are proposed. MM 4.17-2 and 4.17-3 require the Applicant to work with the County to increase the re-use of produced water from oil and gas activities. These measures are intended to help reduce the industry’s dependence on groundwater, which will contribute to alleviating stress on this limited resource in the future. These measures will also insure that impacts to habitat and species are considered as part of any groundwater planning exercise.

0045-104

The DEIR includes extensive analysis of the Project’s impacts to water quality, as well as a suite of mitigation measures designed to reduce these impacts to less than significant. These measures include 4.9-1 – 4.6-6. Implementation of these measures will water quality generally, including indirect effects to habitat and species that might arise from the Project as disclosed in the DEIR, p. 688.

0045-105

The comment, which states a legal conclusion concerning the adequacy of various mitigation measures, is noted. Please see GR 1 – Ministerial Permit Process and GR 19 – Mitigation Monitoring and Reporting Program, for discussion of enforceability of mitigation measures.

0045-106

The comment, which states a legal conclusion concerning the adequacy of various mitigation measures, is noted. Please see GR 1 – Ministerial Permit Process and GR 19 – Mitigation Monitoring and Reporting Program, for discussion of enforceability of mitigation measures.

0045-107

These comments restate excerpts from MMs 4.4-1, 4.4-3, 4.4-5, 4.4-7, 4.4-10 and 4.4-12. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implemented, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR. Specifically, MMs 4.4-1, 4.4-3 and 4.4-12 have been modified. Please see GR 16 – Mitigation Measures.

0045-108

Please see response to 107.

0045-109

Please see response to 107.

0045-110

Please see response to 107.

0045-111

Please see response to 107.

0045-112

Please see response to 107.

0045-113

Please see RTCs 90 to 105.

0045-114

Please see GR Bio-1 - Mitigation Measures, Mitigation Criteria and Ratios and GR 16 – Mitigation Measures, for a discussion concerning the adequacy of the EIR's mitigation measures for Biological Resources. The Final EIR has also made revisions to numerous mitigation

measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implemented, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR.

0045-114 cont'd

0045-115

Habitats used by the San Joaquin kit fox are typically grassland and saltbush scrub in areas of flat or rolling topography (Cypher et al. 2013). However, this taxon is quite tolerant of human-caused impacts and will, to a varying extent, utilize urban areas, oil fields and cultivated agricultural lands (Fiehler and Cypher 2011). For example, the San Joaquin kit fox is known to use oil fields, even those with intensive impacts, for all life-history activities such as foraging, cover, reproduction, and traveling (CEC, 1996). A study conducted in the former Naval Petroleum Reserves in California (NPRC) found that conversion of 30 percent of the native habitat to oil/gas field development did not impact movements and home ranges of San Joaquin kit foxes in the area (Zoellick et al. 2002). San Joaquin kit foxes within the NPRC have smaller home ranges when compared to the size of home ranges in other portions of the geographic range of the species, indicating that NPRC lands provide some of the highest quality habitat remaining for kit foxes in the San Joaquin Valley (Zoellick et al., 2002). It is notable that remaining suitable habitat for San Joaquin kit fox is currently concentrated on the west side of the southern San Joaquin Valley Floor from the Lokern Natural Area to Maricopa (Cypher 2013), which overlaps with areas where oil and gas activities have been focused for over a century.

The comment notes recent studies by Cypher et al (2013) that emphasize the need to protect high suitability habitat for San Joaquin kit fox. The cited study by Cypher emphasizes that the historic losses of habitat are largely due to agricultural conversion and urban development. As described above, the largest blocks of remaining suitable habitat are located in the area of the southern San Joaquin Valley that is also associated with more than 100 years of intensive oil and gas development. The blocks of contiguous habitat in Kern County include lands that are proposed for conservation in regional plans such as the Lokern HCP and the Elk Hills HCP that will be important for the long-term survival and recovery of the species by protecting core populations identified in the SJV Recovery Plan (USFWS, 1998). Please see GR Bio-1 - Valley Floor HCP, LoKern HCP, and Elk Hills Hills HCP. Mitigation Measure 4.4-16 in the DEIR will provide a mechanism for the dedication and conservation of wildlife habitats, including lands in the Lokern area, the Elk Hills area, and other lands along the west side of the southern San Joaquin Valley that are considered highly suitable for San Joaquin kit fox (Cypher et al 2013).

San Joaquin kit foxes in the southern San Joaquin Valley occur in and adjacent to several urban areas including the cities of Taft (Zoellick et al. 2002), Tulare, Visalia, and Porterville (USFWS 1998), and Bakersfield, where kit foxes have been observed throughout the city (Frost 2005). Additionally, urban kit foxes have been found to den close to human activities and structures, including water sumps (catchment basins) and landscaped areas in and adjacent to urban development in Bakersfield (Frost 2005). Frost (2005) concluded that urban habitat can support viable kit fox populations when sufficient food and den sites are available, mortality is minimal, and reproduction occurs at reasonable rates, then (Frost 2005). As noted by Cypher et al. (2013), several hundred kit foxes may inhabit the City of Bakersfield in Kern County despite the general absence of natural habitat. This urban population of kit fox is persistent and stable (Cypher and Frost 1999, Cypher 2010).

In 2005, a study was undertaken to investigate the effects of roads on urban kit fox populations. The study found that arterial roads accounted for 72.9% of kit fox strikes and approximately 90% of road kill were retrieved from roads with posted speed limits of greater than 45 mph (Bjurlin et al. 2005). These data contrast with all other studies on San Joaquin kit fox outside of urban areas in which vehicle strike rarely exceeded 10% of mortalities and was not considered a significant influence on fox demographics or population ecology (Bjurlin et al. 2005). Based on this information, Mitigation Measure 4.4-11, which places a speed limit of 10 mph on dirt access roads, should be reasonably sufficient to prevent vehicle strikes of San Joaquin kit fox.

As described in Global Response BIO – 1, the avoidance and minimization requirements in the mitigation measures are modelled after measures typically required by the USFWS or CDFW to reduce potential effects to ESA and CESA-listed species With their incorporation as conditions of the Project, these measures would be applied to all oil and gas activities under the purview of the County, including entities that do not typically undertake Section 7 or Section 10 consultation for ESA-listed species or Section 2081 for CESA-listed species. Where complete avoidance is not possible, Mitigation Measures 4.4-2, 4.4-11 and 4.4-12 prohibit take of listed species such as San Joaquin kit fox without authorization from the USFWS or CDFW.

Finally, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

References

Bjurlin, Curtis D., Brian L. Cypher, Carie M. Wingert, and Christine L. Van Horn Job. 2005. Urban Roads and the Endangered San Joaquin Kit Fox. Prepared by the California State University, Stanislaus, Endangered Species Recovery Program for California Department of Transportation.

California Energy Commission (CEC), 1996. Studies of the San Joaquin Kit Fox in Undeveloped and Oil-Developed Areas. August 1996 Staff Report. Sacramento, California.

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Cypher, B.L. and Frost, N. 1999. Condition of kit foxes in urban and exurban habitats. Journal of Wildlife Management. 63:930-939.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Frost, Nancy. 2005. San Joaquin Kit Fox Home Range, Habitat Use, and Movements in Urban Bakersfield

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O’Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.

0045-116

The comment states that the EIR should provide “specific mitigation measures that require that previously disturbed areas and existing roads are used; infrastructure is consolidated and co-located to reduce disturbance; and pipelines are routed along existing roads and elevated to minimize surface disturbance and allow wildlife to pass underneath, in addition to the full range of other feasible mitigation.”

Impact 4.4-1 of the Biological Resources section recognizes that 90.1% (2,430) of the annual number of future production wells subject to the Revised Amended Ordinance’s conformity review process (2,697) would be located in Tier 1 areas, which are currently subject to the highest level of existing disturbance from prior oil and gas exploration and production activities. (DEIR, at pp. 4.4-173 – 4.4.174.) Despite these projections, the DEIR conservatively anticipated that new disturbance would occur on land not currently undergoing active disturbance. DEIR, at p. 4.4-174. To minimize impacts to undisturbed land, the DEIR includes a comprehensive biological mitigation framework that requires applicants to use previously disturbed areas for future oil and gas extraction activities to the extent feasible. Specifically, MM 4.4-15, subdivision (l) states that “[a]ll activity shall use previously disturbed areas to the maximum extent feasible to minimize the amount of new disturbance.” MM 4.4-15, subdivision (m) also provides assurances to limit vehicle disturbance: “Vehicle, equipment, and material storage must be limited to previously disturbed areas. . .” The existing mitigation is consistent with the comment’s suggested avoidance measures.

With regard to impacts to the movement of migratory fish or wildlife species, as discussed in DEIR Impact 4.4-4, oil and gas exploration and production activities maintain wildlife movement to a greater extent than urban development and some agricultural uses that modify surface vegetation, soils and irrigation. DEIR, at p. 4.4-222. The DEIR recognizes that even moderately developed oilfields retain capacity for wildlife movement. Implementing MM 4.4-15, subdivision (l) and (m), described above, would further reduce any impacts to wildlife movement.

The suggestion that the County require elevation of pipelines above grade as mitigation is legally infeasible because it would conflict with federal jurisdiction over pipeline design and pipeline safety regulations. Specifically, hazardous liquid pipelines are under the jurisdiction of the U.S. Department of Transportation (USDOT) and are subject to the regulations in 49 CFR Part 195, as authorized by the Hazardous Liquid Pipeline Safety Act of 1979 (49 USC Sections 60101–60133). Other important federal requirements are contained in 40 CFR Parts 109, 110, 112, and 113 under the Oil Pollution Act of 1990 requiring Oil Spill Prevention, Control; Countermeasures (SPCC) Plans; and 49 CFRs 191, 192, and 199 [“Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards”], which identify safety regulations for natural gas pipelines. Collectively, these regulations are intended to ensure adequate protection for the public, pipeline workers, contractors, and employees and to prevent pipeline accidents and failures.

Public Resources Code section 21002 prohibits an agency from approving a project without requiring the implementation of any feasible mitigation measures. However, “an EIR need not analyze ‘“‘every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects.’”’ [Citation.]” (*Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056.) The Project’s robust biological mitigation framework addresses the commenter’s concerns and is consistent with CEQA’s mandates.

Please see GR 10 – Mitigation Measures and FEIR section 7.1.4 for revisions to mitigation measures made in this Final EIR.

0045-117

MM 4.4-2 does not authorize the incidental take of any species, but rather states that appropriate regulatory authorizations must be obtained before the take of any identified category of species is authorized. If no authorization is forthcoming, no incidental take could occur. Please see FEIR section 7.1.4 for text revisions to MM 4.4-2.

0045-118

Please see RTC 45-115. Further, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-118 cont'd

0045-119

Please see RTC 45-116. Further, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-120

The comment states that the DEIR fails to include feasible mitigation measures to avoid adverse effects of light pollution on special-status species. The comment further states that MM 4.4-15, subdivision (b) specify “that site lighting should be directly downward and internally, avoiding site casting, uplighting, wall washes, and lighting where the bulb protrudes from the fixture” and that other mitigation measures should be required such as scheduling activities that require night lighting outside of important periods for affected species.

Under the current regulatory framework, oil and gas exploration and production operations and related facilities are exempt from the outdoor lighting requirements of Chapter 19.81.050 of the existing Kern County Zoning Ordinance. However, the Project would apply Chapter 19.81 of the Zoning Ordinance, known as the “Outdoor Lighting – Dark Skies Ordinance” to future oil and gas extraction activities. DEIR, Project Description Attachment A, at pp. 14-16. This chapter of the Kern County Zoning Ordinance provides requirements for outdoor lighting within specified unincorporated areas of Kern County.

The comment proposes mitigation that is already captured by the County’s existing Dark Skies Ordinance. Consistent with the requirements of Chapter 19.81, all new temporary or permanent outdoor lighting fixtures associated with oil and gas extraction activities would have to meet the following requirements outlined by Section 19.81.040 of the Revised Amended Ordinance:

Site lighting should be directed downward and internally. Revised Amended Ordinance, § 19.81.040(A). Uplighting is only allowed where: (1) the light is effectively contained by the structure; (2) no glare is visible from off site; and (3) the fixture is fully shielded so that none of the light which is emitted above the horizontal plane crosses over the property line of the parcel where the subject light is located. Revised Amended Ordinance, § 19.81.040(F). All lighting must be fully shielded, installed, and aimed properly to comply with the Dark Skies Ordinance. Revised Amended Ordinance, § 19.81.040(E). All facilities must comply with Hours of Operation (Curfew) and Security Lighting schedules. Revised Amended Ordinance, § 19.81.040(J).

Furthermore, the DEIR’s extensive biological mitigation scheme (MM 4.4-1 to MM 4.4-20) assures that impacts to special-status species are minimized. For example, MM 4.4-1 requires pre-disturbance surveys for each application and consultation and concurrence by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service. MM 4.4-2 prohibits incidental take of special status species without a permit or other written authorization from state or federal regulatory agencies. The Project’s robust biological mitigation framework is consistent with CEQA’s mandates. See Pub. Resources Code, § 21002 [prohibiting an agency from approving a project without requiring implementation of feasible mitigation measures]; *Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056 [“an EIR need not analyze ‘“‘every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects.’”’ [Citation.]”].

The County is cognizant of its legal obligation under CEQA to substantially lessen or avoid significant environmental effects to the extent feasible. (Pub. Resources Code, § 21002.) However, the County’s expert staff and environmental consultants have determined that the proposed Project contains ample provisions to ensure that adverse effects of light pollution on special status species will be avoided. Accordingly, no additional mitigation is required. (See Pub. Resources Code, § 21100(b)(3); CEQA Guidelines, § 15126.4(a)(1) [mitigation measures must be designed to minimize significant environmental impacts, not necessarily eliminate them].)

0045-121

Please see GR Bio-1 - Mitigation Measures, Mitigation Criteria and Ratios. Further, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-121 cont'd

0045-122

Please see GR Bio-1 - Mitigation Measures, Mitigation Criteria and Ratios. Further, the comment includes references to, but has not provided the County copies of, various technical studies. Documents that are simply named in a comment letter, or named along with a reference to a general Web site, have not been made readily available to the public agency and, therefore, are not submitted pursuant to Cal. Pub. Res. Code § 21167.6, subd. (e)(7). *Consolidated Irrigation Dist. v. Superior Court* (2012) 205 Cal. App. 4th 697. However, the County has reviewed the referenced documents and considered them in formulating responses to comments.

0045-123

Please see RTC 45-120.

0045-124

Please see RTC 45-103.

0045-125

The comment states that the DEIR does not mitigate the harms to wildlife from lined and unlined wastewater pits and sumps which have been

documented to cause injury and mortality of wildlife species. The comment states that the DEIR should require mitigation measures prohibiting the storage of oil and gas-related fluids in pits and sumps, and requiring netting over all existing pits and sumps.

The DEIR recognizes potential harms to wildlife from lined and unlined wastewater pits and sumps and includes several mitigation measures to minimize impacts to wildlife. As provided by MM 4.1-3 of the DEIR, “[s]umps and ponds shall be permitted only to the extent authorized by the Central Valley Regional Water Quality Control Board (via waiver, Waste Discharge Requirements, or other form of authorized written documentation) and shall comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation or evapotranspiration ponds for produced water.” DEIR, at pp. 1-29, 4.1-41.

Consistent with MM 4.1-3, all oil and gas extraction activities under the Project will be required to comply with California Code of Regulations, title 14, section 1770, which provides strict guidance regarding the siting and location of sumps so as to not be a hazard to “people, livestock, or wildlife including birdlife.” Cal. Code Regs., tit. 14, § 1770, subd. (b). Specific protections include the following:

(1) To protect people, sumps in urban areas shall be enclosed in accordance with Section 1778 (a) or (e) and (c).

(2) In non-urban areas, to protect people and livestock and to deter wildlife, an enclosure shall be constructed around sumps in accordance with Section 1778 (b) or (e).

(3) Any sump, except an operations or drilling sump, which contains oil or a mixture of oil and water shall be covered with screening to restrain entry of wildlife in accordance with Section 1778(d).

(4) A sump need not be individually fenced if the property or the production facilities of which the sump is a part is enclosed by proper perimeter fencing.

This regulation is further augmented by the requirements of California Code of Regulations, title 14, section 1778, which identifies detailed enclosure specifications. Cal. Code Regs., tit. 14, § 1778. Requiring greater restrictions for the storage of oil and gas-related fluids would be legally infeasible because they would conflict with the state’s jurisdiction over sump design and safety regulations.

MM 4.4-9 provides further assurances that sumps constructed pursuant to the Project minimize effects to wildlife by requiring “[a]ll tanks, liquid storage facilities, and any open area containing water or other liquid materials, including drilling sumps . . . be covered or otherwise shielded in a manner that prevents . . . intrusion and potential entrapment.” (DEIR, at pp. 1-38, 4.4-9.) Although specifically geared towards minimizing impacts to California condor, other special-status species will benefit from this requirement.

The Project’s biological mitigation framework addresses the commenter’s concerns and is consistent with CEQA’s mandates. (See Pub. Resources Code, § 21002 [prohibiting an agency from approving a project without requiring implementation of feasible mitigation measures]; *Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056 [“an EIR need not analyze ‘“‘every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects.’”’ [Citation.]”].) Accordingly, no additional mitigation is required. Please see GR 16 – Mitigation Measures.

0045-125 cont'd

0045-125 cont'd

0045-126

MM 4.3-8 requires the Applicant to fund emission reduction programs through the San Joaquin Valley Air Pollution Control District that will avoid “any net increase” in oxides of nitrogen, reactive organic gases, and particulate matter of 10 microns or less. While this measure has not been specifically drafted to reflect its positive benefit to non-humans, the “no net increase” performance standard will ensure that species benefit.

0045-127

The comment states that the DEIR fails to mitigate impacts to wildlife from the proliferation of linear corridors and elevated structures like transmission poles and power lines that can facilitate increased predation and parasitism.

As noted in the DEIR, construction of new transmission lines is not within the scope of the Project. DEIR, at p. 40. However, for the purposes of the DEIR’s analysis, it was assumed that for each well, 467 feet of distribution line would be constructed. The DEIR assumed the following for distribution lines constructed as a part of the Project:

Distribution lines are assumed to be suspended from wooden poles 30 feet tall. Electrical conductor (wire that conducts electricity) is 12 kV and is stepped down to 480 volts before being connected to individual motors. Electrical distribution poles are typically approximately 200 feet apart and would be scattered throughout the site, depending upon the number of wells or other equipment requiring electricity. Distribution poles are assumed to be constructed along the existing access road rights-of-way (ROWs) or within the well pad area. Therefore, ground disturbance for distribution line construction was assumed to be included in the new oil and gas well disturbance acreages.

Recognizing potential impacts generated by distribution or transmission lines, the DEIR included MM 4.4-9, subdivision (f), which places limitations on the installation of transmission lines. Specifically, “[n]o overhead transmission lines may be used at the site without the prior approval of the United States Fish and Wildlife Service and the California Department of Fish and Wildlife.” Although specifically geared towards minimizing impacts to California condor, other special-status species will benefit from this consultation requirement. MM 4.2-2, subdivision (h) provides additional safeguards to wildlife by requiring overhead electrical or communication lines to be aligned to the greatest extent possible with existing access roads.

No specific mitigation has been proposed for County consideration. However, the Project’s existing biological mitigation framework addresses the comment’s concerns and is consistent with CEQA’s mandates. (See Pub. Resources Code, § 21002 [prohibiting an agency from approving a project without requiring implementation of feasible mitigation measures]; *Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056 [“an EIR need not analyze ‘“‘every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects.’”’ [Citation.]”].) Accordingly, no additional mitigation is required.

Please see GR 16 – Mitigation Measures.

0045-128

Please see GR-16 - Mitigation Measures.

0045-129

The comment states that the DEIR fails to provide a thorough assessment of the Project's impacts over time by failing to list other projects or ongoing activities that cause cumulative impacts to biological resources in the Project Area.

CEQA requires that an EIR evaluate a project's cumulative impacts. Cumulative impacts are the project's impacts combined with the impacts of other related past, present, and reasonably foreseeable future projects. (CEQA Guidelines, § 15355, subd. (b).) As set forth in the CEQA Guidelines, the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. (*Ibid*.) Public Resources Code, Section 21083, subdivision (b)(2) further provides that "a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable."

As further defined by Section 15355 of the CEQA Guidelines:

"Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

The individual effects may be changes resulting from a single project or a number of separate projects.

The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

An adequate discussion of cumulative impacts will use one of the following methods, known respectively as the "list" approach and the "plan/projections" approach:

A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect . . .

(CEQA Guidelines, § 15130, subd. (b)(1); see also *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 276-279 (*Preserve Wild Santee*).)

For the purposes of the DEIR's cumulative effects analysis, the plan/projection approach was used to determine whether the Project would result in cumulative impacts. As stated in the DEIR:

An adequate discussion of significant cumulative impacts must include either a list of past, present, and probable future projects producing related or cumulative effects, or a summary of projections from an adopted local, regional, or statewide plan, related planning document, or related environmental document that describes conditions contributing to the cumulative effect (CEQA Guidelines Section 15130(b)(1)). This cumulative analysis uses the plan/projection approach, and includes both the KCGP and the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) approved in 2014.

(DEIR, at p. 3-80.)

The decision to rely on the KCGP and RTP/SCS was due, in part, to the large size of the Project area where the proposed ordinance amendment would take effect. Please see RTC 43-132 and RTC 43-169.

The DEIR recognized that future oil and gas extraction activities could contribute to a significant cumulative impact on Project area biological resources because the County does not regulate all lands within its boundaries. DEIR, at pp. 4.4-229 – 4.4-230. Given the scope of the Project, the EIR's cumulative analysis of Biological Resources is adequate under a "practical and reasonable standard." See *Preserve Wild Santee, supra,* 210 Cal.App.4th at pp. 276-279 [upholding a plan/project cumulative analysis methodology for biological resources].

Cumulative Mitigation

The comment states that the DEIR fails to propose feasible mitigation measures to reduce significant cumulative impacts such as avoiding oil and gas development and production in special-status species habitats, important movement corridors, and sensitive natural communities, and setting limits on cumulative habitat loss for the 164 special-status species and 15 sensitive natural communities in the Project area.

As mentioned above, the DEIR recognized that future oil and gas extraction activities could contribute to a significant cumulative impact on Project area biological resources because the County does not regulate all lands within its boundaries. DEIR, at pp. 4.4-229 – 4.4-230. Accordingly, the DEIR called for the implementation of MM 4.4-1 through MM 4.4-20 to minimize cumulative impacts generated by the proposed Project. DEIR, at p. 4.4-230.

The comment proposes mitigation that is already captured by the existing Biological Resources mitigation framework. For example, MM 4.4-15, subdivision (l) states that "[a]ll activity shall use previously disturbed areas to the maximum extent feasible to minimize the amount of new disturbance." MM 4.4-15, subdivision (m) also provides assurances to limit vehicle disturbance: "Vehicle, equipment, and material storage must be limited to previously disturbed areas. . ." The existing mitigation is consistent with the commenter's suggested avoidance measures. To the extent commenter suggests limits on habitat disturbance, such limits would be logistically infeasible.

With regard to impacts to the movement of migratory fish or wildlife species, as discussed in DEIR Impact 4.4-4, oil and gas exploration and production activities maintain wildlife movement to a greater extent than urban development and some agricultural uses that modify surface

vegetation, soils and irrigation. DEIR, at p. 4.4-222. The DEIR recognizes that even moderately developed oilfields retain capacity for wildlife movement. (*Ibid.*) Implementing MM 4.4-15, subdivision (l) and (m), described above, would further reduce impacts to wildlife movement.

Under CEQA, "an EIR need not analyze ‘"‘every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects.’"’ [Citation.]" (*Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056.) The Project's robust biological mitigation framework addresses the commenter's concerns and is consistent with CEQA's mandates.

Please see GR 16 – Mitigation Measures.

0045-130

See RTC 129.

0045-131

See RTC 129.

0045-132

The comment is a general conclusion. No response is necessary and it is noted for the record.

0045-133

CBD submitted a compact disk received by the County on September 15, five days after the deadline for submitting comments.

The compact disk included most of the documents referenced in the footnotes included in CBD's 30-page comment letter. Missing from the compact disk was a 1953 judicial opinion (Beverly Oil Co. v City of Los Angeles, 40 Cal.2d 552, 558) and a 1976 Attorney General Opinion (59 Ops. Cal. Attn. Gen. 461, 465), a statutory reference (Pub. Res. Code 21001(b)) and two regulations (CEQA Guidelines section 15130 and 14 Cal. Code. Reg. 1724).

All of these footnote reference documents, and the missing legal authorities, were reviewed as within the context of responding to the CBD comment letter. No additional responses are warranted for these materials.

CBD also submitted an additional 144 documents on its CD. The CBD submittal did not include a list or index of these additional documents, nor did it include any explanation as to the CBD's intended use of these documents or their relevance to the EIR. A list of these unreferenced documents has been prepared, numbered and is attached to this response.

The additional non-indexed materials were reviewed for relevance to the Draft EIR. 87 documents are scientific reports, news articles, fragments of studies and opinion pieces about oil and gas development outside California. 23 documents (numbered 7, 34,47, 51,52,53,61,63,64,65,68,72,73, 89,92,97, 104,105,106, 109, 125,129,135 relate to oil and gas development and potential seismic issues related to well stimulation and drilling in Oklahoma, Arkansas, Texas, Ohio, Colorado, Canada and generally in the United States and Europe. The relationship between potential seismic activity being triggered or intensified by oil and gas activities in Kern County is discussed in the DEIR in chapter 4.5 Geology and Soils. The conditions and events outside California have been noted for the record but are not relevant, based on both very different geological formations as well as well stimulation practices to impacts in Kern County. The differences between oil and gas production in Kern County and other states, with respect to well stimulation practices, is addressed in Appendix [U] of the Draft EIR. The conditions, events and evaluation of potential impacts described in these documents in not relevant to the DEIR and the commenter did not provide any explanation of the relevance for review. 30 documents relate to oil and gas development in the Marcella Shale in Pennsylvania (numbered 32,33,67,74,75,87,90,99, 130) and New York (numbered11,42,43,44,45,57,59,66,77,85,88,96,98,100,101,103,113,119,127,128,138) that are scientific reports, news articles, fragments of studies and statements and opinion pieces. 5 documents (numbered 6, 54,116,136, 140) are scientific studies on impacts to wildlife from oil sands production in Canada. The studies look at specific species of birds and impacts from tailings ponds, reclaimed wetlands after oil sands extraction and other associated activities. Oil sands , such as natural bitumen /tar sands in Canada, do not exist in extractable quantities in Kern County and no oil sand extraction or practices are occurring or authorized in California. The differences between oil and gas production in Kern County and other states, with respect to well stimulation practices, is addressed in Appendix [U] of the Draft EIR. The mission and conduct of regulators from other states is not relevant to the EIR. The conditions,events and evaluation of potential impacts described in these documents in not relevant to the DEIR and the commenter did not provide any explanation of the relevance for review. 10 documents(numbered 9,10,58,62,102,115,131,133,139,132) are scientific reports, news articles, fragments of studies and statements and opinion pieces regarding impacts from natural gas and shale oil extraction in Wyoming, primarily focused on Coalbed Methane development. Coalbed methane production is a form of natural gas extracted from coal beds. The US Department of Energy

EIA website shows that zero production of natural gas from coal beds has ever occurred in California. (http://www.eia.gov/dnav/ng/ng_prod_coalbed_s1_a.htm). The conditions,events and evaluation of potential impacts described in these documents in not relevant to the DEIR and the commenter did not provide any explanation of the relevance for review. 6 documents (numbered 5,41,50,124, 134,141) are scientific, technical reports and a conference program notes for analysis of specific impacts on specific instances of exposure of fish and wildlife to specific oilfield development in Kentucky, West Virginia, Pennsyvalnnia and New York. The differences between oil and gas production in Kern County and other states, with respect to well stimulation practices, is addressed in Appendix [U] of the Draft EIR. The conditions,events and evaluation of potential impacts described in these documents in not relevant to the DEIR and the commenter did not provide any explanation of the relevance for review. 11 documents (numbered 35,36,37,46,60,69,70,83,93,137,144) are scientific reports, news articles, fragments of studies , statements and opinion pieces regarding potential health impacts on human and animal health from oil and natural gas extraction. The site specific studies are for Colorado communities. The Draft EIR comprehensively details the potential impacts to health from the specific oil and gas activities conducted in Kern County. Detailed analysis and site specific Health Risk Assessment have been included and mitigation measures included to reduce the health impacts on both workers and people living near oilfield and construction activities. The conditions,events and evaluation of potential impacts described in these documents in not relevant to the DEIR and the commentor did not provide any explanation of the relevance for review. 1 document (numbered 86) is the MIT Study on the Future of Natural Gas with a focus on shale gas development. The document is noted for the record. 1 document (numbered 121) is a US EPA report from 2012 on Ocean Discharge for Oil and Gas Exploration Facilties in Alaska. Kern County has no coastal proximity (over 40 miles away) and therefore, no impacts to the ocean environment. The conditions,events and evaluation of potential impacts described in these documents in not relevant to the DEIR and the commentor did not provide any explanation of the relevance for review.

57 documents are scientific reports, State, Federal and Air District correspondence, presentations and regulatory reports, news articles, fragments of studies and opinion pieces about oil and gas development in California.

15 documents (numbered 1218,19,21,22,23,24,25,26,31,91,117,118,122,126) are public correspondence, powerpoint presentations and transcripts from the State of California legislative hearings, Department of Conservation and Division of Oil and Gas and Geothermal Division, Cal EPA and US Environmental Protection Agency on the UIC program, and proposed monitoring programs for Well Stimulation regulations. The comments are noted for the record. 9 documents (numbered 16,17,39,40,84,108, 110,120,123) are scientific abstracts or studies down on San Joaquin Kit Fox and Giant Kangaroos Rats in Kern County oilfield areas (Elk Hills and LoKern) and Western Spadefoot Toads and California Condors generally in Kern County. These studies were already in the record for the biological analysis completed for the Draft EIR. No further comment is warranted. 3 documents (numbered 80, 81,82) are reports on the potential impacts of oil production on fish species in southern California from off-shore oil platforms, mussels in Monterey Bay and the Sespe Oil Field in Ventura County. Kern County has no coastal proximity (over 40 miles away) and therefore, no impacts to the ocean environment. The described Sespe Oil Field is not under the jurisdiction of the Kern County Board of Supervisors or within the boundary area of the Draft EIR. The conditions, events and evaluation of potential impacts described in these documents in not relevant to the DEIR and the commenter did not provide any explanation of the relevance for comment.

One document (numbered 107) titled " On the Underestimation of NOx Emissions from Oil Well Drilling Activities in Kern County, CA " by Dr. Sahu was submitted as with EarthJustice comment Letter and a response has been provided.

6 documents (numbered 13,14,20, 56,112,142) include a August 6, 2015 Map on overdrafted groundwater basins, website pages on State wide oil production in 2011and wastewater disposal a public update on the Drought Response from the State of California, a San Joaquin Air District permit approval and an abstract of a paper presented at a conference on induced and triggered Earthquake Theory`. These are noted for the record. 2 documents ( numbered 38, 143) are unlabeled data without cover sheets which have no location or explanation of relevance or provenance. 21 documents ( numbered 1,2,3,4,8,15,27,28,29,30,48,49,55,71`,76,78,79,94,95,111,114) are news articles on various allegations by the public on environmetntal damage from oil and gas production and well stimulaiton, private environmental organizations statements and requests to Governor Brown for a moratorium on Fracking, public outreach materials from private environmental organizations on the dangers of continued fossil fuel use and production and copies of filed lawsuits that are still in litigation proceedings. These are noted for the record.

46 The Center on Race, Poverty & the Environment

CENTER ON RACE, POVERTY & THE ENVIRONMENT
1012 JEFFERSON STREET, DELANO, CA 93215 TEL 661-720-9140 FAX 661-720-9483
1999 HARRISON STREET, SUITE 650, OAKLAND, CA 94612 TEL 415-346-4179 FAX 415-346-8723
WWW.CRPE-EJ.ORG

September 11, 2015

Via Hand Delivery and Email
Kern County Planning and Community Development Department
Attention: Christopher B. Mynk, AICP
MynkC@co.kern.ca.us
2700 M Street, Suite 100
Bakersfield, CA 93301

Re: Comments on Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting

Dear Mr. Mynk:

The Center on Race, Poverty & the Environment submits these comments on behalf of itself, Committee for a Better Arvin, Committee for a Better Shafter, Delano Guardians Committee, and Greenfield Walking Group. The Draft Environmental Impact Report ("DEIR") for this project does not comply with the California Environmental Quality Act ("CEQA")[1] and the proposed project violates state civil rights law. The Legislature enacted CEQA to protect the environment of California, to protect the environmental health of Californians, to prevent the elimination of plant and animal species due to man's activities, to create and maintain ecological and economic sustainability, and to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the State."[2] 0046-1

The purpose of an EIR is "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be 0046-2

[1] Cal. Pub. Res. Code § 21000 et seq.
[2] *Id* at 21000 (a), (b), (d), (g); 21001 (a), (b), (e).

mitigated or avoided," before a project is approved.[3] Each public agency must mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever feasible.[4] Moreover, the "purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment."[5]

0046-2 Continued

The DEIR is improperly drafted as a project level EIR, fails to fully inform the County and the public of the environmental consequences of the zoning revisions, has not provided adequate opportunities for public participation, fails to require all feasible mitigation, fails to adequately identify and analyzes impacts, and fails to analyze and adopt feasible alternatives. Accordingly, the County must substantially revise the DEIR and recirculate it for public comment.

0046-3

I. THE COUNTY FAILED TO ADEQUATELY CONSIDER ENVIRONMENTAL JUSTICE

Environmental justice ensures that all people, regardless of race, color, national origin, or income, have the right to live, work, and play in a clean and healthy environment. The San Joaquin Valley has a long history of marginalizing its low income communities and communities of color. Unfortunately, the County's proposed zoning amendments and corresponding DEIR continue this trend by perpetuating the disparate impacts of oil and gas development in the County, inadequately considering the cumulative impacts of this project, and limiting the ability of Spanish speaking residents to participate in the CEQA review process.

0046-4

A. This Project Perpetuates and Fails to Remedy the Historical Disparate Impacts of Oil and Gas Permitting in Kern County.

California's anti-discrimination statute, Government Code section 11135, prohibits the state, its agencies, and recipients of any state funds from intentional or unintentional discrimination on the basis of race, color or national origin. The statute's implementing regulations define discrimination to include practices that result in disparate impacts and prohibit practices that "utilize criteria or methods of administration that have the purpose or effect of subjecting a person to discrimination."[6] According to the California Code of Regulations, it is a discriminatory practice for an agency "to make or permit selections of sites or locations of facilities: that have the purpose or effect of excluding persons from, denying them benefits of, or otherwise subjecting them to discrimination under any program or activity."[7] As a recipient of state funding, Kern County must abide by section

0046-5

[3] *Id* at 21002.1(a).
[4] *Id* at 21002.1(b).
[5] CEQA Guidelines § 15201.
[6] Cal. Code Regs., tit. 22, § 98101, subd. (i)(l) (emphasis added)
[7] Cal. Code Regs., tit. 22, § 98101, subd. (j)(l)

11135 and ensure that its actions do not have a disparate impact on communities of color in the County.

0046-5 Continued

If the County approves the proposed zoning ordinance amendments, it will violate section 11135 because the amendments result in a significantly adverse or disproportionate impact on minorities. As acknowledged by the DEIR, the project will have significant and unavoidable impacts. The project's significant and unavoidable air quality impacts and toxic exposure risks will impact residents near oil and gas activities permitted under the zoning ordinance to a greater degree than other populations. The close proximity of oil and gas operations and constant threat of accidental toxic releases negatively impacts nearby residents' mental health and sense of safety and well-being. These impacts will disproportionately affect Latinos and other people of color.

0046-6

In California, 5.4 million people live within one mile of the approximately 82,000 oil and gas wells in California listed as new and/or active by DOGGR.[8] Forty-five percent of those people are Hispanic or Latino.[9] Compare that to the fact that the Hispanic or Latino population makes up only 38% of California's total population.[10] This disparity holds true for African Americans as well; eight percent of people living within one mile of an oil and gas well are African American as compared with six percent of the population statewide.[11] The disparities become even more pronounced when you consider communities identified as most vulnerable by the California Office of Environmental Health Hazard Assessment's CalEnviroScreen 2.0. Nearly ninety two percent of Californians within both a mile of an oil and gas well and in a vulnerable community are people of color.[12] In Kern County, 76 percent of people living both within a mile of a well and in a vulnerable community are people of color.[13]

0046-7

Statistical trends show that as the number of Latino and students of color in a school or school district increases, so does the number of oil and gas wells found in the district and near the schools. The top 11 school districts with the highest well counts are located in the San Joaquin Valley.[14] Ten of those school districts are located in Kern County, the other is located in Fresno County.[15] Taft Union High School District in Kern County has 33,155 oil and gas wells within its

0046-8

[8] Drilling in California: Who's at Risk?, NRDC (Oct. 2014), p. 9, available at http://www.nrdc.org/health/files/california-fracking-risks-report.pdf.
[9] *Id* at p. 9 figure 1.
[10] *Id.*
[11] *Id.*
[12] *Id.*
[13] *Id* at 15.
[14] Kyle Ferrar, Hydraulic Fracturing Stimulations and Oil Drilling Near California Schools and Within School Districts Disproportionately Burdens Hispanic and Non-white Students, FracTracker Alliance, *available at* http://www.fractracker.org/a5ej20sjfwe/wp-content/uploads/2014/11/Fractracker_SchoolEnrollmentReport_11.17.14.pdf.
[15] *Id.*

0046-9

0046-9
Continued

boundaries, the highest of all California school districts.[16] Kern Union High School District in Kern County has 19,800 oil and gas wells within its boundaries, the second highest of all California school districts.[17] Sequoia Elementary School in Shafter is the only school in California located within a half mile of three separate stimulated wells.[18] One stimulated well, API 403043765, is less than 1200 feet from the school.[19] Over 800 students attend Sequoia Elementary with 89.5% students of color and 86% Latino students.[20] A Latino student is 20.4% more likely to attend a school within 1.5 miles of an active well than a non-Latino student.[21] A student of color is 24.7% more likely to attend a school within 1.5 miles of an active well than a white student.[22] By perpetuating and not including mechanisms in its zoning amendments to remedy this disparity, the County has violated section 11135.

B. The County Failed to Adequately Analyze Cumulative Impacts.

0046-10

Environmental justice communities are often overburdened by multiple sources of pollution. Cumulative impacts are of particular concern in Kern County where the air basin is in extreme non-attainment for harmful air contaminants and where 55 census tracts – 330,000 Kern residents – are listed as some of the most vulnerable communities by the CalEnviroScreen 2.0.[23] Thirty-five percent Kern County's population, more than 290,000 residents, live within one mile of an oil or gas well. 122,000 Kern County residents live close to an oil and gas well *and* are in a vulnerable community according to CalEnviroScreen 2.0.[24] Shafter and Wasco rank in the 98.8 percentile for communities most exposed and burdened by PM2.5 in California.[25] A solid analysis of the cumulative impacts caused by this ordinance should be a top priority for the County, however, for reasons detailed in Center for Biological Diversity's ("CBD") and Earthjustice's comment letters, the DEIR's cumulative impact analysis is woefully inadequate.

0046-11

[16] *Id.*
[17] *Id.*
[18] *Id.*
[19] *Id.*
[20] *Id.*
[21] *See Romo v. Brown, et al.*, Complaint for Injunctive and Declaratory Relief, Sacramento County Superior Court, Case No. 34-2015-00181715-CU-CR-GDS, filed July, 14, 2015.
[22] *Id.*
[23] Drilling in California: Who's at Risk?, NRDC, p. 13.
[24] *Id.*
[25] California Office of Environmental Hazards, CalEnviroScreen 2.0, available at http://oehha.ca.gov/ej/ces2.html.

C. The County Failed to Translate the DEIR into Spanish, Violating CEQA's Public Participation Requirements.

0046-12

"Public Participation is an essential part of the CEQA process." [26] However, the County has made the complete DEIR inaccessible to the public by failing to translate the DEIR into a language that can be understood by the communities most affected by this project. According to the 2013 U.S. Census, Kern County is 51% Latino or Hispanic and 42% of the population speaks a language other than English at home. Through our work in Kern County we know that many residents are monolingual Spanish speakers. By failing to translate the DEIR into Spanish, the County made it impossible for these Kern County residents to make an independent, reasoned judgment about the environmental documentation relied upon, and as a result, denied the public its statutory right under CEQA to comment meaningfully upon its conclusions.[27] California courts have interpreted CEQA's "plain language" requirements to ensure that the public has access to EIR documents. "The message of this regulatory scheme is clear: an EIR in this state must be written and presented in such a way that its message can be understood by governmental decisionmakers and members of the public who have reason to be concerned with the impacts which the document studies."[28] To ensure the public has an adequate opportunity to understand the consequences of the project and provide comment, the County must translate the DEIR and extend the comment period before approving the project.

II. THE COUNTY MUST PREPARE A PROGRAM EIR FOR ITS REVISIONS TO THE ZONING CODE

0046-13

The DIER defines the County's amendments to its oil and gas zoning ordinance as a project, even though it covers nearly all types of oil and gas exploration, construction and operation in the entire County for at least the next 20 to 25 years.[29] A project EIR focuses on the changes in the environment that results from a development project, the scope of this DEIR is too broad for a project level EIR.[30] It does not contain the level of specificity that the County and the public require to make informed decisions on the impacts and mitigations needed for individual projects. The County's only purpose for trying to define what clearly should be a programmatic EIR as a project is to impermissibly circumvent CEQA requirements for a more detailed review of each permit. The County intends this DEIR to satisfy any future CEQA analysis for the vast majority of future oil and gas production activities.[31] The County's purported purpose for a project level EIR – to identify the most effective development standards and mitigation

[26] CEQA Guidelines § 15201.
[27] *Emmington v. Solano County Redevelopment Agency*, 195 Cal.App.3d 491 (1987).
[28] *San Franciscans for Reasonable Growth v. City and County of San Francisco*, 193 Cal.App.3d 1544, 1549 (1987).
[29] DEIR at 2-23.
[30] CEQA Guidelines §15161.
[31] DEIR at 2-23.

0046-13
Continued

requirements and comprehensively analyzing impacts – would be best accomplished with a program level EIR. In fact, the County's goals cannot be accomplished in this project DEIR. By attempting to complete all environmental review for the next 20 to 25 years with this one inadequate document, the County fails to protect the health and welfare of Kern County residents. The County boasts that its "long experience with oil and gas exploration and development allows it to identify and analyze reasonably foreseeable actions and impacts associated with the ordinance amendment at a project level review."[32] This statement blatantly ignores the changes in methods that have occurred as oil and gas becomes increasingly difficult and ultimately impossible to extract using conventional techniques. The County has ignored the science emerging around the country and in California that overwhelmingly point to severe environmental and health impacts of these practices.

0046-14

The County improperly attempts to define the permitting process as ministerial to circumvent future CEQA analysis.[33] A ministerial decision is one in which there is no discretion and the agency only needs to apply fixed standards or objective measurements.[34] A project that contains both ministerial and discretionary actions is deemed discretionary and subject to CEQA requirements.[35] For the reasons addressed in Earthjustice's comment letter, subsequent permitting of oil and gas projects is not ministerial. The County should prepare a program EIR and clarify that subsequent site-specific activities will require further CEQA review based on CEQA's tiering requirements. However, since County has presented this as a project DEIR, below are a number of ways in which this DEIR fails to adequately analyze mitigation, impacts, and alternatives.

III. THE COUNTY FAILED TO IMPLEMENT FEASIBLE MITIGATION MEASURES

0046-15

The mitigation measures proposed in the DEIR are woefully inadequate to address the "project's" impacts in a variety of ways. The County cannot approve this project if there are "feasible mitigation measures available which would substantially lessen the significant environmental effects" of the project.[36] The County must adopt additional feasible mitigation to reduce the project's impact before certifying the DEIR.

[32] DEIR at 2-24.
[33] DEIR at 2-23.
[34] CEQA Guidelines §15369.
[35] *Id.*
[36] Cal. Pub. Res. Code § 21002; see also, Cal. Code Reg. tit 14, § 15002(a)(3) (agencies must prevent avoidable damage "whenever it finds measures to be feasible").

A. The Proposed Setbacks Are Inadequate to Reduce the Impacts to Less Than Significant.

0046-16

The proposed ordinance requires dangerously inadequate setbacks: 100 feet (0.02 miles) from a public highway, 190 feet (0.04 miles) from dwelling units, 300 feet (0.06 miles) from schools, and 100 feet (0.02 miles) from commercial buildings.[37] The proposed ordinance allows the Planning Commission to waive any of the setbacks.[38] The setbacks in Mitigation Measure 4.3-5 are woefully inadequate, ignore the findings of numerous studies – including the California Council on Science and Technology's ("CCST") recent study,[39] are not enforceable, and will not reduce the significant impacts of exposure. Measure 4.3-5 requires a site plan application to show the location of sensitive receptors within 3000 feet (0.51 miles) of the construction site for new wells, ancillary facilities, or equipment (excluding pipelines). If there are no sensitive receptors then no mitigation is required. If there are sensitive receptors, then the following setbacks are proposed, but not required. In the Western and Central Subareas, 367 feet (0.07 miles) for well depth of 10,000 feet, 116 feet (0.02 miles) for a well depth of 5000 feet, and no setback required for well depths of 2,000 feet or less. In the Eastern Subarea a setback of 296 feet (0.06 miles) is only required for a well depth of 10,000 feet.[40] If the setbacks cannot be met, the applicant can still move forward if it implements listed, or other, measures.

0046-17

These inadequate setbacks do not mitigate impacts 4.3-3 or 4.8-3 to less than significant levels or protect the health of nearby residents. Numerous studies have documented that proximity to oil and gas production increases a population's exposure to air pollutant emissions, toxic air contaminants, dust, chemicals, noise, and light.[41] While many studies recently focus on fracking, the CCST found that health risks may be independent of whether hydraulic fracturing was used. The most significant health impacts are documented at half a mile away.[42] Harmful exposure to toxic air contaminants can occur as far out as two miles from the source.[43] The mitigation measures, therefore, fail to address or reduce impacts between one half mile and two

0046-18

[37] Zoning Ordinance section 19.98.060 A.
[38] Zoning Ordinance section 19.98.050 A.
[39] CCST, An Independent Scientific Assessment of Well Stimulation in California Vol. II: Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulations, (July 9, 2015).
[40] DEIR at 4.3-111.
[41] CCST at 44, 388, 413, and 414.
[42] CCST at 43; Lisa McKenzie et al., Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources, 424 SCIENCE OF THE TOTAL ENVIRONMENT 79, 79-87 (2012), available at http://dx.doi.org/101016/jscitotenv.2012.02.018; Lisa McKenzie et al., Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado, 122 ENVIRONMENTAL HEALTH PERSPECTIVES 412, 412-17 (2014), available at http://dx.doi.org/10.1289/ehp.1306722.
[43] CCST at 414.

0046-18 Continued

miles from oil and gas operations entirely.

0046-19

The DEIR references a Health Risk Assessment, explaining that "The HRA shows that the potential cancer risk exceeds the CEQA significance thresholds of 10 in 1 million for drilling a 10,000-foot well in 2015 to a distance 367 feet, and for drilling a 5,000-foot well in year 2015 to a distance of 116 feet, and for operations of the oil processing equipment to a distance of 701 feet. By 2018, due to emission reductions resulting from compliance deadlines occurring from CARB current diesel regulations, the risks associated with drilling a 5,000-foot (or shallower) well would not exceed the 10 in one million threshold." This analysis suggests that there could be health risks for schools located less than 0.25 miles or 700 feet from oil processing equipment or located less than 367 feet from drilling of a 10,000-foot well. The HRA also assumes that new CARB rules will go into effect and be effective. There are no assurances that the high cancer risk will be mitigated to below a level of significance.

0046-20

The Health Risk Assessment ("HRA") only partially addresses the potential health impacts of oil and gas production. It ignores the health risks of fracking and other stimulation techniques and it does not analyze all the chemicals that could be used at the well sites. The HRA focuses on potential cancer risks, while exposure to the air pollution, chemicals, and toxics associated with oil and gas production also causes or contributes to respiratory disorders, asthma, birth defects, neurological and cardiovascular damage, and premature death. Further, the County's reliance on a 10 in 1 million cancer risk to determine significant impacts is unreasonably high. Most agencies use a 1 in a million cancer risk to determine unreasonable threat. The County's use of a significance threshold that is ten times greater than EPA's and most other environmental agencies is not supported by substantial evidence.

0046-21

At a minimum, the mitigation measure should require the site plan application to locate sensitive receptors within 10,560 feet (2 miles) of the project, require a minimum of a 2640 foot (0.5 miles) setback from all sensitive receptors and consider a more protective setback, between 5280 and 10,560 feet (1 to 2 miles) in areas where the most vulnerable populations could be impacted, such as schools, hospitals, and senior centers. These setbacks should be uniform throughout the project area and be required for all well depths. The County should not authorize any exceptions to the setback requirement minimums.

0046-22

B. Mitigation Measures 4.3-1, 4.3-3, and 4.3-4 Will Not Lead to a Less than Significant Level of Impact.

0046-23

The DEIR correctly determines that the project will conflict with or obstruct the implementation of the Valley's Air Quality Plan (Impact 4.3-1) and violate air quality standards or contribute substantially to existing air quality violations (Impact 4.3-2). However, it incorrectly determines – without analysis – that by simply complying with existing air district regulations and California laws, these impacts will be reduced to a less than significant level. This finding is

unsupported by evidence and simply unrealistic. In fact, current air district rules are insufficient to bring the Valley into attainment even without the added pollution that is estimated from this project.

0046-23 Continued

C. Additional Mitigation Measures Should Be Implemented.

The air quality analysis in the DEIR is inadequate. As explained in greater detail in other comments (see eg. CBD's and Earthjustice's comment letters), the County's assumptions and estimations of emissions from oil and gas activities are unsupported. Evidence demonstrates that actual emissions are much higher and more significant than those addressed in the DEIR. Communities which already experience some of the worst air in the nation request that the County require the most technologically advanced air monitors to be placed at each drilling site by the applicant.

0046-24

The County should include additional mitigation to address pipeline accidents, especially in light of the two pipeline leaks and ruptures that have occurred in Arvin and Lamont during the past year. The DEIR should provide for testing and immediate public disclosure of any and all testing results when a pipeline leaks, clarity in agency roles and response when a pipeline leaks or ruptures, and reimbursements and relocation aid when pipeline leaks displace or otherwise harm nearby residents.

0046-25

IV. THE COUNTY DOES NOT ADEQUATELY ANALYZE THE ENVIRONMENTAL AND HEALTH IMPACTS OF THIS PROJECT

CEQA Guidelines mandate that "[a]n EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences."[44] Because of the DEIR's broad scope, it is impossible for the County to adequately analyze the numerous significant impacts of 67,425 projected new oil and gas wells over the next 25 years across 3,700 square miles.[45] The County's analysis does not incorporate relevant findings from the CCST study. While it was widely known that the third and final analysis was due to be released before this DEIR is certified, the County chose to release the DEIR without accounting for the findings in the CCST study.

0046-26

A. The County Does Not Adequately Analyze Air Quality Impacts.

The San Joaquin Valley air basin is a nonattainment area for criteria pollutants such as ozone and PM2.5. The Valley is an extreme nonattainment area for the 1997 and 2008 8-Hour Ozone National Ambient Air Quality Standards (NAAQS), a serious nonattainment area for the 1997 PM2.5 NAAQS, and a moderate nonattainment area for the 2006 PM2.5 NAAQS. Kern County is

0046-27

[44] Cal. Code Regs. tit. 14, § 15151.
[45] DEIR at 3-6, 3-30.

0046-27
Continued

consistently in the American Lung Association's top ranking counties for particulate matter and ozone pollution.[46] The proposed project will significantly increase criteria emissions. While the DEIR states that there will be significant air quality impacts, the County has severely underestimated the amount of those impacts (see Earthjustice's and CBD's comment letters) and has not adequately mitigated those impacts (see above).

0046-28

B. The County Does Not Adequately Analyze Greenhouse Gas Emissions.

CEQA requires the County to analyze all reasonably foreseeable impacts of a project. The DEIR fails to do this because it does not analyze oil and gas combustion when calculating the greenhouse gas emissions impacts of this project. In addition, the analysis does not use the most recent ARB greenhouse gas inventory data that looks at emissions through 2013. This data was available months before the DEIR was released. Finally, as detailed in CBD's comment letter, the methane calculation used in the DEIR is not scientifically supported and masks the short term effects of methane.

0046-29

In addition, the DEIR relied upon the air district's threshold of significance to determine that the zoning change would not result in a significant greenhouse gas impact. When adopting thresholds of significance, a lead agency may only rely on thresholds of significance previously adopted by another public agency if the decision to adopt such thresholds is supported by substantial evidence. [47] Here, there is no evidence to suggest that the air district's greenhouse gas threshold of significance is sufficient to ensure that the County's compliance with the standard actually avoids impacts from greenhouse gas emissions. Without such evidence, the County's reliance on this threshold is inappropriate. The Air District's threshold was tied to AB 32's emission target of reducing GHG emission to 1990 levels by 2020 which ARB projects to be a 29% reduction. This target was reached as a compromised political target and the Air District did not review the scientific basis or environmental effectiveness of this target.

C. The County Does Not Adequately Analyze Hazards and Hazardous Materials.

0046-30

The County's inadequate Hazards and Hazardous Materials analysis highlights why a project level EIR is inappropriate for these zoning amendments. The DEIR acknowledges that the County cannot identify the hazardous materials used in the oil fields and instead simply explains that different operators will use different materials. Without knowing which hazardous materials will be used in the oil and gas operations authorized by this zoning change, the County cannot adequately analyze and mitigate the project's hazardous materials impacts as required by a project level EIR.[48]

---

[46] State of the Air, American Lung Association, *available at* http://www.stateoftheair.org.
[47] CEQA Guidelines § 15064.7c.
[48] DEIR at 4.8-2.

0046-31

The DEIR also fails to adequately analyze the potential hazardous impacts of transporting oil and gas. Transporting oil and gas by rail has resulted in a number of high-profile disastrous accidents. While the DEIR states that the number of derailments releasing hazardous materials has decreased, it fails to address the increasing number of oil train explosions.[49] Oil train explosions release more hazardous materials farther from the site of impact than train derailments. The County must analyze and mitigate all of the potential hazardous impacts associated with transporting oil and gas from the oilfields, including the combustion and explosion of oil trains.

0046-32

The DEIR must analyze both the direct and indirect impacts of the proposed project. The DIER must, therefore, analyze the impacts of waste disposal associated with oil and gas production. Hazardous waste generated from oil and gas production is disposed at commercial hazardous waste landfills in Buttonwillow and Kettleman City; both of which are located in the vicinity of the Project Area.[50] Those two hazardous waste facilities are located in low income Latino farmworker communities. In fact, all of California's three hazardous waste facilities are located in low income Latino farmworker communities. Therefore, the disposal of hazardous waste within the state has disparate impacts which must be avoided under Government Code section 11135 as discussed above. The impacts of transporting and disposing of oil and gas waste to these facilities, and others in predominantly low income communities and communities of color should be included as part of an environmental justice analysis.

V. THE COUNTY HAS NOT ADEQUATELY ANALYZED ALTERNATIVES

0046-33

The California Supreme Court has described the alternatives and mitigation sections as "the core" of an EIR.[51] The requirement to set forth project alternatives in the EIR "is crucial to CEQA's substantive mandate that avoidable significant environmental damage be substantially lessened or avoided where feasible."[52] CEQA guidelines provide that "[a]n EIR shall describe a range of reasonable alternatives to the proposed project, or to the location of the project that could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."[53]

0046-34

The DEIR is required to examine in detail the alternatives the County determines could feasibly attain most of the objectives of the project. CEQA does not require all alternatives to meet all project objectives, only most of them.[54] The County must foster meaningful public participation and informed decision making in deciding the range of feasible alternatives to be discussed in the

---

[49] *Id.*
[50] DEIR at 4.8-14.
[51] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.
[52] Michael H. Remy, et. al, Guide to the California Environmental Quality Act at 431 (10th ed. 1999) (citations omitted).
[53] Cal. Code Regs., tit. 14, § 15126(a).

DEIR.[55] The County can eliminate alternatives from detailed consideration in the DEIR for: "(i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts."[56] However, "if the agency finds certain alternatives to be infeasible, its analysis must explain in meaningful detail the reasons and facts supporting that conclusion."[57]

0046-34 Continued

A. The Project Objectives Improperly Elevate the Desires of One Stakeholder.

0046-35

The DEIR is for the revision of Kern County's zoning ordinance. While this revision was requested and paid for by the Oil and Gas Industry, that does not make them "project applicants" in the same sense as for other types of projects. The Industry is one stakeholder in this process, but there are many other stakeholders, each with various objectives for a countywide zoning ordinance revision. To list the Industry's project objectives in the DEIR and determine the feasibility of alternatives based on those objectives places the special interest of a single stakeholder above all other stakeholders.

0046-36

No matter who requested and paid for it, the zoning revisions and the environmental review should have been considered as an independent project undertaken by the County and that equally considered all stakeholders. Instead, it is clear from the Project Description and Objectives that this was not an independent review. It is also clear from a review of documents obtained through a public records act request that the Industry and the Planning Department employees had regular phone calls, meetings, and email exchanges during the entire revision and environmental review process. This access was not public knowledge, nor was it offered or granted to any other stakeholders.

0046-37

The County should revise the Project Objectives to remove the "Applicant's Objectives" and revise the County Objectives to include ones that are not industry biased. For example, instead of an objective to "[e]ncourage ongoing economic development by the oil and gas industry that creates quality, high paying jobs and promotes capital investment in Kern County…,"[58] the objective should be to encourage economic development from the energy sector that creates quality, high paying jobs. This opens the possibility of adopting better alternatives with fewer impacts to public health and the environment. Other objectives should focus on transitioning Kern County's energy to cleaner renewable energy, becoming not only energy independent but fossil fuel independent, and minimizing health and environmental impacts of oil and gas extraction.

---

[54] Cal. Code Regs., tit. 14, § 15126.6.
[55] Cal. Code Regs., tit. 14, § 15126.6(f).
[56] Cal. Code Regs., tit. 14, § 15126.6(c).
[57] *Marin Municipal Water District v. KG Land Corporation California* (1991) 235 Cal.App.3d 1652, 1664.
[58] DEIR at 6-9 to 6-11.

0046-38

B. The DEIR Should Analyze the Drilling Ban on All Lands Alternative.

The County rejected a ban on all drilling in Kern as infeasible and not meeting any of the applicant's objectives and four of the County's objectives.[59] First, as detailed above, assessing the alternatives in light of the Industry's objectives and with industry biased County objectives is improper. Second the DEIR analysis mistakenly states that legal restrictions prevent the County from banning drilling. As explained in CBD's comment letter, the County has constitutional authority to determine what land uses will protect health and safety and has been done in other counties.

0046-39

C. The DEIR Fails to Explain Why the No Fracking Alternative Was Rejected.

The County fails to support its conclusion in its Alternatives section that Alternative 4 – No Hydraulic Fracturing would create greater Air Quality and Greenhouse Gas Emissions Impacts than the proposed project. The County states a ban on hydraulic fracturing may cause an increased use of Enhanced Oil Recovery techniques,[60] but offers no evidence to support that contention and does no further analysis on the probability or amount of that increased use. The County's conclusory statement, without analysis, that an increased used of EOC could cause an increase in emission of greenhouse gases and criteria air pollutants, is not supported by substantial evidence.[61]

0046-40

D. The County Should Analyze An Alternative that Excludes Unconventional Oil Extraction.

The County does not analyze an alternative that involves no extreme stimulation and extraction or enhanced oil recovery techniques, such as fracking, acidization, or steam injection. Given the controversy and potential impacts associated with all types of unconventional oil extraction, the County should analyze this alternative. Alternative 4 examines an alternative where only hydraulic fracturing was prohibited, but allowed acid fracturing, acid matrix well stimulation, and Enhanced Oil Recovery techniques.[62]

[59] DEIR at 6-12.
[60] DEIR at 6-24.
[61] DEIR at 6-24.
[62] DEIR at 6-23.

0046-41

VI. CONCLUSION

For the reasons stated above, the County needs to revise and recirculate the DEIR to comply with CEQA and Government Code § 11135.

Sincerely,



Sofia Parino, Senior Attorney
The Center on Race, Poverty & the Environment

Gema Perez, President
Greenfield Walking Group

Rodrigo Romo, President
Committee for a Better Shafter

Roberto Garcia, Secretary
Committee for a Better Arvin

Gloria Herrera, President
Delano Guardians Committee

0046-1

Commenter's opinion and legal citations are noted. Please see responses below.

0046-2

Commenter's general statement of the requirements of an EIR are noted.

0046-2 cont'd

0046-3

Commenter's opinion is noted. Please see Global Response 2. With respect to Spanish translation issues, in particular, please see below.

0046-4

Commenter's opinion is noted. For informational purposes, please see comments 5, 6 and 7, in particular, with respect to comments addressing alleged disparate impacts associated with the Revised Amended Zoning Ordinance. With respect to issues of Spanish translation please Response to Comment 12, below.

0046-5

Commenter's legal references are noted and included in the Final EIR. California Government Code section 11135 generally prohibits recipients of state financial assistance, including the County, from conducting programs or activities in a manner that results in disparate impacts based on race and other factors. Section 11135 does not require a prospective disparate impact or environmental justice analysis. While section 11135 of the does create a private right of action based on disparate impacts, section 11135 exists wholly outside of CEQA. Section 11135 does not create a basis for objecting to an EIR.

An environmental justice analysis (*i.e.*, analysis of impacts by race and income) is also not required under CEQA. Neither the statute nor Guidelines contain provisions that call for a special analysis of demographics either in the project or cumulative impact analysis. *See Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th 1004, 1019 ("under CEQA, the question is not whether a project will affect particular persons, but whether it will affect the environment of persons in general"), CEQA Guidelines § 15064(e) ("economic and social changes resulting from a project shall not be treated as significant effects on the environment"). Further the Guidelines provide that the required environmental analysis shall not be interpreted "in a manner which imposes procedural or substantive requirements beyond those explicitly stated" in the statute or CEQA Guidelines. CEQA § 21083.1.

Consistent with CEQA, the Draft EIR analyzed the potential impacts of the proposed Project on the environment. CEQA defines the environment as the physical conditions that exist within the area affected by the proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. CEQA requires analysis of project human health impacts. For example, a lead agency must adopt a mandatory finding of significance where the effects of a project on the physical environment will cause substantial adverse effects on human beings. Therefore, the analysis performed for the Project, evaluated effects on sensitive receptors (*e.g.*, school, hospitals, daycare centers). It also used health-based standards, for example, in the analysis of air quality that were based on vulnerable populations including children, fetus, seniors and others. Therefore, the analysis performed was appropriately conservative and took into consideration issues frequently associated with environmental justice.

However, as mentioned above, social and economic impacts are not considered environmental effects. Except to the extent that social impacts can lead to further environmental impacts, as in the case of blight, such effects are outside of CEQA's scope and are not a necessary part of an environmental evaluation. As required by CEQA, the DEIR evaluated impacts on the physical environment, including Project and cumulative impacts on human beings, regardless of economic or social status

The concept of "environmental justice" is discussed in Government Code section 65040.12. While that statute specifically discusses numerous environmental justice programs to be implemented by the Office of Planning and Research, nowhere does it require that environmental justice issues be analyzed as part of the CEQA process. For example, subdivision (c) states that the Office of Planning and Research must develop guidelines for cities and counties to address environmental justice requirements in their respective general plans – but it makes no mention of such guidelines for the CEQA process.

Section 65040.12 was originally enacted by the State Legislature in 1999 via SB 115. Initial versions of that bill, which were reviewed in committee, stated that the Office of Planning and Research was to recommend changes to the CEQA Guidelines to mitigate environmental effects on minority and low-income populations. However, when the bill finally reached the Assembly Floor, it no longer contained those provisions. Below is the excerpt from the September 3, 1999 version of SB 115, showing the tracked changes and deletion of the referenced CEQA language:

This bill would require, by July 1, 2001, the office to recommend proposed changes in, and the secretary to certify and adopt revisions to, the guidelines to provide for the identification and mitigation by public agencies of disproportionately high and adverse environmental effects of projects on minority populations and low-income populations and to promote effective public participation by those affected populations. The bill would require the office, by July 1, 2000, in consultation with other state agencies, to review its available data bases and other available data bases and information to identify affected communities and populations. The bill would require the office and the secretary to coordinate their efforts and to share information with the Council on Environmental Quality and the United States Environmental Protection Agency in implementing those provisions, as specified.

The Assembly Floor Analysis of the bill even stated the following:

This bill establishes OPR as the state's lead agency for implementation of environmental justice programs. Earlier versions of this bill enacted a more detailed program intended to track the key requirements of the federal environmental justice policy and programs. The bill was amended in Assembly Appropriations to delete these provisions.

Thus, the Legislature considered including environmental justice (*e.g.*, analysis based on race and income) as a separate topic to be analyzed in a CEQA document, but it elected not to do so.

0046-5 cont'd

0046-6

While an environmental justice analysis is not called for under CEQA, an analysis of many issues commonly associated with environmental justice (*e.g.*, impacts to sensitive and vulnerable populations) are required under CEQA. *See, e.g.*, analysis of potential impacts to sensitive populations and worker receptors that could be affected by future oil and gas activities, including impacts related to aesthetics (Section 4.1), air quality (Section 4.3), hazards (Section 4.8) and noise (Section 4.13). Land uses that are considered to be sensitive individuals in the DEIR include residences and residential communities, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive individuals considered in the DEIR include persons with compromised immune systems, such as children and the elderly and worker receptors include employees and locations where people work. The DEIR identifies several mitigation measures (MM), such as oil and gas activity minimum setbacks, accident prevention and operational requirements, that avoid significant impacts to sensitive receptors, including the following:

MM 4.1-4, which requires that except in agricultural areas, oil or gas tanks located within 200 feet of any sensitive receptor be partially screened from public view by shrubs, trees or solid screen fencing, pump sites (including multiple well pump sites) within 500 feet of any dwelling must be surrounded by a fence, at least 6 feet in height, constructed of dark-colored chain-link with wood or metal slates, dark green or brown fabric material, or other more visually restrictive fencing material, and the height of all pumping units not exceed 80 feet and be painted in accordance with the Kern County Zoning Ordinance.

MM 4.1-6, which requires that permanent nighttime lighting will only be installed as required for safety or security, shielded and oriented downward, and that bare bulbs will be fully screened from view from sensitive viewing receptors such as residences, and that on-demand lighting and/or timers must minimize the visual impacts of lighting in compliance with the standards in amended Chapter 19.81 – Outdoor Lighting "Dark Sky Ordinance" of the County Zoning Code.

MM 4.3-5 which requires that a Site Plan Application must include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 3,000 feet of the construction site (potential impact area) for a proposed new well or other ancillary facility or equipment (excluding pipelines), and requires several equipment placement and operational measures (including the possibility of temporarily relocating sensitive receptors at an applicant's expense) to avoid potential air quality impacts if the minimum setbacks cannot be met.

MM 4.8-4, which requires that a Site Review Plan identify all gas, oil and produced water pipelines to be used for each new or reworked well site and the location of any sensitive receptor located within 200 feet of any such pipeline. Any pipeline located within 200 feet of a sensitive receptor is subject to additional requirements, including the provision of evidence that the pipeline has been integrity tested using pressure testing or other accepted test methods by a qualified professional within a two-year period prior to submittal of the Site Review Plan.

MM 4.12-1, which requires that a Site Plan Application include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 3,000 feet of a construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines), and requires several additional noise shielding and reduction measures if there are sensitive human noise receptors within the potential impact area and noi se levels cannot be reduced to a maximum of 65 dBA at the nearest exterior wall of a sensitive receptor or more than 1 dBA higher than the ambient noise levels, if in excess of 65 dBA.

MM 4.12-2, which requires that new oil and gas wells be located at least f 210 from the closest sensitive receptor.

As discussed in the DEIR, these and other mitigation measures reduce potential project-related impacts to sensitive receptors to less than significant levels, except for significant and unavoidable impacts to Project Area visual quality and nighttime lighting levels. Visual and nighttime lighting impacts are regional in scale and not limited to specific locations within the Project Area. The DEIR mitigation measures ensure that the proposed Zoning Amendments result in the fair treatment of all sensitive receptors irrespective of race, culture, and income, and that the burdens of project-related impacts, including pollution, will not be focused on sensitive populations and communities.

Again, although not required by CEQA, for informational purposes only in response to the issues raised by the commenter, an analysis of Kern County census tract 5-year American Community Survey (ACS) demographic and poverty data for the period was conducted to provide additional context regarding the location of Tier 1 oil and gas activity areas and County demographic and poverty rates. The ACS is conducted by the United States Census Bureau and generates community and local data for one, two and 5-year periods. The most recent 5-year data was collected by the Census Bureau during 2009-2013 and provides an annual average estimate of smaller area demographics, population, poverty level and other data during that period. According to the Census Bureau, the 5-year data is the most accurate form of ACS data, has the largest sample size, and is the only ACS data that covers very small populations.
(http://www.census.gov/programs-surveys/acs/guidance/estimates.html, accessed August 2015).

The analysis was conducted by downloading census tract-level data from the ACS 5-year database for all Kern County census tracts (151 in total), including each tract's total population, percentage of the population represented by several demographic groups, and the percentage of the population below the standard poverty level threshold (http://factfinder.census.gov, accessed August 2015). Census tract data was used because it provides the smallest community-level dataset that is available with reasonable accuracy within the County.

As discussed in the DEIR, more than 90% of all future oil and gas activity subject to the proposed County Oil Gas Conformity Review process will occur in the Tier 1 areas. The total Tier 1 acreage in each census tract was identified to analyze the demographics and poverty data for the locations where the significant majority of all future oil and gas activity will occur. Of the 151 census tracts in Kern County, 31 contain Tier 1 acreage, and 120 contain no Tier 1 acreage. Figure 1 shows the location of each census tract and Tier 1 acreage in the County.

Tables 1-3 summarize the ACS population, demographic and poverty data for the County as a whole, the 120 census tracts that contain no Tier 1 acreage (the "non-Tier 1 tracts"), and the 31 census tracts that contain Tier 1 acreage (the "Tier 1 tracts"). As shown in Table 1, the County's 151 census tracts (including Non-Jurisdictional areas such as incorporated cities and land owned by state and federal agencies) include about 5,223,940 acres. The non-Tier 1 tracts include about 1,926,762 acres, and the Tier 1 tracts include 3,297,178 acres. As discussed in the DEIR, the total amount of Tier 1 acreage in the County is 206,856 acres. Tier 1 areas overlay about 4% of the County and 6% of the Tier 1 tracts.

According to the ACS 2009-2013 data, the County (including Non-Jurisdictional areas) had an average population of 848,204 people over the 5-year survey period. As shown in Table 2, about 661,039 residents, or 78% of the total County population, was located in non-Tier 1 tracts. About 187,165 residents, or 22% of the County population, was located in Tier 1 tracts. Table 2 also shows that the average percentage of the population identified in the ACS data as Hispanic or Latino (of any race), Black or African American, American Indian and Alaska Native, Asian, and Pacific islander, other race, or two or more races is lower in Tier 1 tracts than in the County as a whole and in non-Tier 1 census tracts. The percentage of the population identified as White is higher in Tier 1 tracts than in the County as a whole and in the non-Tier 1 tracts.

The 5-year ACS data provides poverty level information for an average of 814,695 individuals over this period. As shown in Table 3, the percentage of the population below the poverty level in the Tier 1 tracts (16.7%) is lower than in the County as a whole and in the non-Tier 1 census tracts (22.9%-24.7%).

Table 1

Kern County Census Tract Overview

	Kern County	Census Tracts Without Tier 1 Acreage	Census Tracts With Tier 1 Acreage
Number of Census Tracts	151	120	31
Total Census Tract Acreage	5,223,940	1,926,762	3,297,178
Acreage of Tier 1 in Census Tracts	206,856	-	206,856
Percentage of Census Tract Acreage in a Tier I Location	4%	0%	6%

Table 2

Kern County Census Tract Demographics

	Kern County	Census Tracts Without Tier 1 Acreage	Census Tracts With Tier 1 Acreage
Total population	848,204	661,039	187,165
Percent of Total County Population	100%	78%	22%
Percent Hispanic or Latino (of any race)	49.8%	52.1%	41.7%
Percent White	37.9%	34.5%	50.0%
Percent Black or African American	5.3%	6.1%	2.4%

Percent American Indian and Alaska Native	0.7%	0.7%	0.6%
Percent Asian	4.1%	4.3%	3.4%
Percent Pacific islander, other race, two or more races	2.2%	2.3%	1.9%

Table 3

Kern County Census Tracts, Population in Poverty

	Kern County	Census Tracts Without Tier 1 Acreage	Census Tracts With Tier 1 Acreage
Population for Which Poverty Level Was Determined	814,695	635,065	179,630
Total Population Below Poverty Level	186,811	156,751	30,060
Percent total population below poverty level	22.9%	24.7%	16.7%

To provide additional information about the demographic and poverty rates in locations that could be more affected by future oil and gas activity, the ACS 5-year data was further analyzed for three subsets of the Tier 1 tracts: (a) the 10 Tier 1 tracts that contain the most Tier 1 acreage; (b) the 10 Tier 1 tracts with the most population; and (c) the 10 Tier 1 tracts with the highest percentage coverage by Tier 1 areas.

Tables 4-6 summarize the ACS population, demographic and poverty data for the 10 Tier 1 tracts that contain the most Tier 1 acreage and compares the results with data for the County and the non-Tier 1 tracts. As shown in Table 4, these 10 census tracts include about 97% of the total Tier 1 acreage in the County (200,654 of 206,856 acres).

As shown in Table 5, according to the 5-year ACS data, on average about 5.2% of the total County population (43,804 of 848,204 residents) was located in the 10 Tier 1 tracts that contain the most Tier 1 acreage. The percentage of the population identified in the ACS data as Hispanic or Latino (of any race), Black or African American, Asian, and Pacific islander, other race, or two or more races is lower in the 10 Tier 1 tracts that contain the most Tier 1 acreage than in the County as a whole and in the non-Tier 1 tracts. The percentage of the population that is identified as American Indian and Alaska Native is slightly higher (0.8% versus 0.7%), and the percentage identified as White is significantly higher in the 10 Tier 1 tracts that contain the most Tier 1 acreage.

As shown in Table 6, the percentage of the population below the poverty level in the 10 Tier 1 tracts that contain the most Tier 1 acreage is significantly lower (14.5%) than in the County and in the census tracts that contain no Tier 1 acreage (22.9%-24.7%).

Table 4

Top Ten Tier 1 Census Tracts with Most Tier 1 Acreage

Overview

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Most Tier 1 Acreage
Number of Census Tracts	151	120	10
Total Census Tract Acreage	5,223,940	1,926,762	2,668,368
Acreage of Tier 1 in Census Tracts	206,856	-	200,654
Percentage of Total Tier I Acreage	100%	0%	97%

Table 5

Top Ten Tier 1 Census Tracts with Most Tier 1 Acreage

Demographics

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Most Tier 1 Acreage
Total population	848,204	661,039	43,804

Percent of Total County Population	100%	77.9%	5.2%
Percent Hispanic or Latino (of any race)	49.8%	52.1%	32.2%
Percent White	37.9%	34.5%	59.1%
Percent Black or African American	5.3%	6.1%	3.3%
Percent American Indian and Alaska Native	0.7%	0.7%	0.8%
Percent Asian	4.1%	4.3%	3.5%
Percent Pacific islander, other race, two or more races	2.2%	2.3%	1.1%

Table 6

Top Ten Tier 1 Census Tracts with Most Tier 1 Acreage

Population in Poverty

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Most Tier 1 Acreage
Population for Which Poverty Level Was Determined	814,695	635,065	39,183
Total Population Below Poverty Level	186,811	156,751	5,697
Percent Total Population Below Poverty Level	22.9%	24.7%	14.5%

Tables 7-9 summarize the ACS population, demographic and poverty data for the 10 Tier 1 tracts that have the highest population.

As shown in Table 4, the 10 most heavily populated Tier 1 tracts include about 4% of the total Tier 1 acreage in the County (8,855 of 206,856 acres).

As shown in Table 8, the 5-year ACS data indicates that an average of about 12.3% of the total County population (104,426 of 848,204 residents) was located in the 10 most heavily populated Tier 1 tracts. These tracts also contain about 56% of total population located in the Tier 1 tracts (104,426 of 187,165 residents) The percentage of the population that is identified in the ACS data as Hispanic or Latino (of any race), Black or African American, American Indian and Alaska Native, or Pacific islander, other race, or two or more races is lower in the 10 Tier 1 tracts that contain the most population than in the County as a whole and in the non-Tier 1 tracts. The percentage of the population that is identified as Asian is slightly higher (5% versus 4.1-4.3%), and the percentage identified as White is significantly higher in the 10 Tier 1 tracts that contain the most population.

As shown in Table 9, the percentage of the population below the poverty level in the 10 census that contain the most Tier 1 acreage is significantly lower (13.9%) than in the County as a whole and in the non-Tier 1 tracts (22.9%-24.7%).

Table 7

Top Ten Tier 1 Census Tracts with Largest Population

Overview

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Largest Population
Number of Census Tracts	151	120	10
Total Census Tract Acreage	5,223,940	1,926,762	718,898
Acreage of Tier 1 in Census Tracts	206,856	-	8,855
Percentage of Total Tier I Acreage	100%	0%	4%

Table 8

Top Ten Tier 1 Census Tracts with Largest Population

Demographics

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Largest Population
Total population	848,204	661,039	104,426
Percent of Total County Population	100%	77.9%	12.3%
Percent Hispanic or Latino (of any race)	49.8%	52.1%	45.8%
Percent White	37.9%	34.5%	44.0%
Percent Black or African American	5.3%	6.1%	3.1%
Percent American Indian and Alaska Native	0.7%	0.7%	0.4%
Percent Asian	4.1%	4.3%	5.0%
Percent Pacific islander, other race, two or more races	2.2%	2.3%	1.7%

Table 9

Top Ten Tier 1 Census Tracts with Largest Population

Population in Poverty

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Largest Population
Population for Which Poverty Level Was Determined	814,695	635,065	102,024

Total Population Below Poverty Level	186,811	156,751	13,922
Percent Total Population Below Poverty Level	22.9%	24.7%	13.6%

Tables 10-12 summarize the ACS population, demographic and poverty data for the 10 Tier 1 tracts that have the highest percentage of Tier 1 coverage (the ratio of Tier 1 to total tract acreage). As shown in Table 10, the 10 Tier 1 tracts with the largest percentage of Tier 1 coverage include about 87% of the total Tier 1 acreage in the County (180,279 of 206,856 acres).

As shown in Table 11, the 5-year ACS data indicates that an average of about 5.4% of the total county population (46,020 of 848,204 residents) was located in the 10 Tier 1 tracts with the largest percentage of Tier 1 coverage. The percentage of the population that is identified in the ACS data as Asian, Black or African American, American Indian and Alaska Native is lower than in the County as a whole and in the non-Tier 1 tracts. The percentage of the population that is identified as Pacific islander, other race, two or more races is about the same in these tracts as in the County as a whole and in the non-Tier 1 tracts. The percentage of the population that is identified as Hispanic or Latino (of any race) is slightly higher in the 10 Tier 1 tracts with the largest percentage of Tier 1 coverage (51.5%) than in the County as a whole (49.8%) and lower than in the non-Tier 1 tracts (52.1%). The percentage identified as White is significantly higher in the 10 Tier 1 tracts with the largest percentage of Tier 1 coverage.

As shown in Table 12, the percentage of the population below the poverty level in the 10 Tier 1 tracts with the largest percentage of Tier 1 coverage is lower (20.2%) than in the County and in the non Tier 1 tracts (22.9%-24.7%).

Table 10

Top Ten Tier 1 Census Tracts with Largest Percentage Tier 1 Coverage

Overview

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Largest Percentage Tier 1 Coverage
Number of Census Tracts	151	120	10
Total Census Tract Acreage	5,223,940	1,926,762	1,112,404
Acreage of Tier 1 in Census Tracts	206,856	-	180,279
Percentage of Total Tier I Acreage	100%	0%	87%

Table 11

Top Ten Tier 1 Census Tracts with Largest Percentage Tier 1 Coverage

Demographics

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Largest Percentage Tier 1 Coverage
Total population	848,204	661,039	46,020
Percent of Total County Population	100%	77.9%	5.4%
Percent Hispanic or Latino (of any race)	49.8%	52.1%	51.5%
Percent White	37.9%	34.5%	42.2%
Percent Black or African American	5.3%	6.1%	2.4%
Percent American Indian and Alaska Native	0.7%	0.7%	0.5%
Percent Asian	4.1%	4.3%	1.3%
Percent Pacific islander, other race, two or more races	2.2%	2.3%	2.2%

Table 12

Top Ten Tier 1 Census Tracts with Largest Percentage Tier 1 Coverage

Population in Poverty

	Kern County	Census Tracts Without Tier 1 Acreage	Top Ten Tier 1 Census Tracts with Largest Percentage Tier 1 Coverage
Population for Which Poverty Level Was Determined	814,695	635,065	43,591
Total Population Below Poverty Level	186,811	156,751	8,807
Percent Total Population Below Poverty Level	22.9%	24.7%	20.2%

The Tier 1 areas identified in the DEIR represent the locations where over 90% of future oil and gas activity subject to the proposed County Oil and Gas Conformity Review process will occur. The 5-year ACS census tract data summarized in Tables 1-12 indicate that Tier 1 areas do not appear to be spatially distributed in a manner that would unfairly focus future oil and gas environmental impacts on sensitive populations or communities. The 31 Tier 1 tracts include 22% of the County's population. About 78% of the County resides in 120 census tracts that have no Tier 1 acreage. On average, the ACS data show that Tier 1 tracts have a greater proportion of White residents, a lower proportion of Hispanic or Latino (of any race), Black or African American, American Indian and Alaska Native, Asian and Percent Pacific islander, other race, two or more race residents, and lower poverty rates than the County and non-Tier 1 tracts (see Tables 1-3). These data indicate that Tier 1 areas, and the substantial majority of future oil and gas activities, are more likely to be occur in census tracts that have a higher proportion of White and less impoverished residents, and a lower proportion of other major demographic groups, than in the rest of the County.

impoverished residents, and a lower proportion of other major demographic groups, than in the rest of the County.
The analysis of the top 10 Tier 1 census tracts by largest Tier 1 acreage, most population, and highest level of Tier 1 coverage is consistent with these results. Each of these Tier 1 census tract groupings has a higher proportion of White residents, a lower proportion of Black or African American residents, and a lower poverty rate, than the averages for the County as a whole and non-Tier 1 census tracts. The average proportion of Hispanic or Latino (of any race), American Indian and Alaska Native, Asian, and Percent Pacific islander, other race, two or more race residents is also lower in most cases, or in certain instances is about the same or just slightly higher than in the County and non-Tier 1 census tracts (see Tables 4-12). These results also indicate that Tier 1 areas do not appear to be spatially distributed in a manner that unfairly focuses future oil and gas environmental impacts on sensitive populations or communities.

0046-7

Response to first half of paragraph:

The County has no jurisdiction over state-wide drilling practices, and the comment is noted. For informational purposes only, it is also observed that the statistics provided do not appear to identify a disparate impact condition under section 11135 because there is no evidence that the one-mile unit of analysis is an appropriate unit of measures.

The use of statistics to prove a *prima facia* case (that is, a case that is accepted as correct until proved otherwise) nder section 11153 issue was addressed in *Darensburg v. Metro. Transp. Comm'n*, 636 F.3d 511 (9th Cir. 2011). In that case, a class action was brought against the (San Francisco Bay Area) Metropolitan Transportation Commission ("MTC"). Plaintiffs alleged that MTC created disparate impacts by funding more heavily rail transit, which on average is used more by Whites, than bus service, which is on average more heavily by people of color. Therefore, the plaintiffs argued MTC's funding practices have the effect of discriminating against people of color. *Id.* at 518.

To establish whether plaintiffs made out a *prima facie* case, the court found that "plaintiffs [must] employ an 'appropriate measure' for assessing disparate impact." *Id.* at 519, *quoting N.Y City Envtl. Justice Alliance v. Giuliani*, 214 F.3d 65, 69 (2d Cir. 2000) (*additional citations omitted*). The court found further that, "[a trial] court may not find the existence of disparate impact "on the sole basis of a statistic unless it reasonably finds that the statistic would be a reliable indicator of a disparate impact. Courts and defendants are not obliged to assume that plaintiffs' statistical evidence is reliable." *Id*. (*internal brackets and citations omitted*).

Against this framework, the court identified that the plaintiffs did not use an "appropriate measure." Rather than analyzing the impact of the funding decision on entire transit systems ridership, plaintiffs focused only on bus riders of color. The court held that the "statistics [offered by the plaintiffs] say nothing about the particular ridership of the planned expansion. . . . It is a real possibility that a particular bus project… will serve a largely white ridership On the other hand, a rail expansion project… may benefit minority riders more than white riders…" *Id.* at 521. Without a more particularized showing, the court found that the plaintiffs had not made their *prima facie* showing and dismissed the case.

Reaching this conclusion, the court analogized to *Bean v. Southwestern Waste Management Corp.*, 482 F.Supp. 672 (S.D.Tex 1979), which "illustrates the importance of providing an appropriately precise statistical measure." *Darensburg*, 636 F.3d at 521. In that case, African American plaintiffs changed the siting of a hazardous waste facility in their community, offering statistical evidence to demonstrate discrimination. Specifically, the *Bean* plaintiffs showed that if their city were divided into four quadrants the concentration of hazardous waste management facilities are shown to be disproportionately located in minority-quadrants. However, when the "court viewed where the waste management facilities were placed from the perspective of more precise census tract data, it found that their placement actually favored minorities, and the plaintiffs' aggregate data was only compelling on its surface." *Id.* at 522 (*internal punctuation and citation omitted*).

Here, commenter statistics are not detailed and site specific. Commenter's analysis relies on the assumption that residents living up to one mile away from an oil or gas well— commenter's geographic measure— are adversely impacted. However, based on air quality modeling presented in the DEIR for deep well development, only a hypothetical sensitive receptor (resident) living 296 feet to 367 feet away from operational activity would be exposed to air emissions in excess of the threshold used in the DEIR Modeling also shows that under the Zoning Ordinance Amendment operational impacts would be below the significance threshold at between 478 feet to 701 feet. (Under revised Health Risk Assessment included as Appendix T-1, these setbacks are not required as calculated, but these setbacks have been retained as mitigation measures in this Final EIR.) Therefore, the use of the one mile geographic measure proposed by the commenter does not appear to be a reliable indicator of a disparate impact. Moreover, in light of the census tract analysis presented above and the fact that the Project imposes more and not few environmental restrictions on oil and gas development, an inference of disparate impact based on Project impacts appears misplaced.

Response to second half of paragraph:

Comment noted. As discussed above, a demographic impact assessment (cumulative or otherwise) is not within the scope of the required CEQA analysis It is also noted that the Project addresses prospective oil and gas developments and not those already developed. Nonetheless, as discussed above, the average percentage of the population identified as Hispanic or Latino (of any race), Black or African American, American Indian and Alaska Native, Asian, and Pacific islander, other race, or two or more races is lower in Tier 1 tracts— locations where more than 90% of all future oil and gas activity subject to the proposed County Oil Gas Conformity Review Process will occur-- than in the County as a whole and in non-Tier 1 census tracts. Moreover, the percentage of the population identified as White is higher in Tier 1 tracts than in the County as a whole and in the non-Tier 1 tracts. This differential is based on the fact that the significant majority of Tier 1 tracts are located outside of urbanized area where the concentration of Whites tends to be higher.

It is further noted, that commenter's choice of geographic measures (*i.e.*, one-mile distance and census tracts that rank high on the California Communities Environmental Health Screening Tool ("CalEnviroScreen)) do not correspond to impacts from well development or operations. Indeed, as discussed above, the risk assessment for toxic air contaminants prepared as part of the DEIR demonstrates that at a fraction of this one mile distance risks from well development and operation are below the air district's significance threshold. Further, the showing that minority populations tend to be located closer to census tracts that rate high on CalEnvironScreen is likely indicative of the CalEnviroScreen methodology. As discussed below, CalEnviroScreen ranks census tracts, in part, based on populations characteristics that are highly correlated with minority status. Therefore, it is unsurprising minority status correlates to census tracts with higher concentrations of people of color.

In addition, commenter's reliance CalEnviroScreen is misplaced, as it assumes there is a relationship between CalEnviroScreen scores and Project cumulative impacts. CalEnviroScreen scores are not indicative of environmental impacts caused by the Project or any particular project. The CalEnviroScreen 2.0 Guidance at pages iii-vi, provides:

[S]coring results are not directly applicable to the cumulative impacts analysis required under the California Environmental Quality Act (CEQA). The statutory definition of 'cumulative impacts' contained in CEQA is substantially different than the working definition of 'cumulative impacts' used to guide the development of CalEnviroScreen. … Moreover, CalEnviroScreen assesses environmental factors and effects on a regional or community-wide basis and cannot be used in lieu of performing an analysis of the potentially significant impacts of any specific project. … Also, this tool considers some social, health and economic factors that may not be relevant when doing an analysis under CEQA.").[1]

The problems with the use of CalEnviroScreen in the context of CEQA and this Project are manifold. By way of background, CalEnviroScreen generally works as follows:

- The tool utilizes numeric data, compiled for census tracts throughout California, on multiple indicators in two broad categories: pollution burden and population characteristics. These two categories are given equal weight in calculating the overall CalEnviroScreen score.

- Pollution burdens include, for example, air contaminant concentrations, drinking water contaminants or the presence of cleanup sites.
- Population characteristics are simply descriptions of the population, such as education attainment, poverty, linguistic isolation and unemployment levels, number of emergency room visits, and the like.
- From these datasets, a single composite score is calculated by multiplying the calculated pollution burden score by the calculated populations characteristics. Census tracts throughout the state are ranked based on their composite scores.

The CalEnviroScreen methodology does not create substantial evidence of potentially significant cumulative impacts under CEQA for several reasons. First, as the CalEnviroScreen guidance document notes, composite scores are partly based on socioeconomic factors which do not represent CEQA impacts. CEQA Guidelines § 15064(e). Second, CalEnviroScreen scores incorporate existing environmental conditions, which would continue to exist, even if there were no proposed project. Pre-existing conditions are properly part of the CEQA baseline, and are not project-generated environmental impacts. CEQA Guidelines § 15125. Third, while pre-existing conditions are considered during the cumulative impact analysis, they are considered only to the extent that the pre-existing conditions can be meaningfully aggregated with impacts from the project. Because the CalEnviroScreen produces a composite unitless score, including some factors that have nothing to do with the Project impacts, the presence of a high CalEnviroScreen score does not indicate the presence of a cumulative impact. Fourth, the CalEnviroScreen calculation also presents a variety of technical issues. For instance, it arbitrarily assumes numerical equivalence between some disparate variables (*e.g.*, toxic releases are weighted exactly the same as traffic density). The tool also arbitrarily assigns different weights to other variables (*e.g.*, groundwater threats have exactly half the weight of traffic density), and treats some interdependent variables (*e.g.*, ozone and traffic density, poverty and unemployment) as though they were independent.

In sum, the commenters' reliance on CalEnviroScreen composite scores and a one mile unit of analysis does not constitute substantial evidence of a potential environmental impact.

---

[1] http://oehha.ca.gov/ej/pdf/CES20FinalReportUpdateOct2014.pdf.

0046-8

The Commenter makes note of the *Romo v. Brown* lawsuit, which was filed under section 11135 on behalf of two children who attend Sequoia Elementary School. The suit alleges that the children and other schoolchildren of color have suffered adverse, racially disparate effects from stimulation of oil wells near Sequoia Elementary School. As discussed above, CEQA does not call for analysis based on demographic analysis, and it is not the right venue to address claims made under 11135. However, for informational purposes it is noted (and discussed above) that almost 90% of oil and gas production occurs in Tier 1 areas where the dominant land use is oil and gas production. School district boundaries overlay these areas, even though there are no schools and very residence residences. Therefore, a school district boundary is not an appropriate geographic unit of analysis. It is also noted, that a geographic unit of 1.5 miles from an active well does not appear suited to evaluate impacts. Therefore, commenter has not identified any particular impact to schools or pupils in reference to the Project.

In addition, this Project does not directly affect existing conditions at Sequoia Elementary School or other school within the County. This Project addresses future drilling and well stimulation, not prior actions. Indeed, in evaluating the environmental effect of the Project the circumstances of past drilling and stimulation are part of the environmental setting or baseline and are considered in the cumulative impacts assessment.

The Amended Ordinance would impose more than one hundred new procedural and substantive requirements on oil and gas activities within the County. Among other things, the proposed Amended Zoning Ordinance includes updated development, implementation standards and conditions to reduce address environmental impacts of drilling and other oil and gas related equipment and facilities. In addition, based on the analysis of potential significant impacts in this EIR, the County has identified mitigation measures that must be incorporated into the Project that oil and gas operators must comply with in conducting future well drilling and stimulation. Some mitigation measures are triggered specifically based on proximity to sensitive receptors, for example, MM 4.3-5 (setbacks to avoid toxic air contaminants from drilling and other construction sites causing significant impacts due to exposure of sensitive populations) and 4.12-1 (setbacks to avoid noise from construction activities causing significant impacts on sensitive populations). In addition, as described in Chapters 4.6 (Geology and Soils), 4.8 (Hazards and Hazardous Materials), and 4.9 (Hydrology and Water Quality), DOGGR recently adopted regulations regarding well stimulation that will affect how that activity will be conducted in the future. In the future, the harms alleged in the *Romo v. Brown* lawsuit will be reduced or avoided through the Ordinance and state well stimulation regulations.

In evaluating the Project, this EIR takes a comprehensive look at oil and gas development activities in the County. The complaint in *Romo v. Brown* focusses on well stimulation. However, as explained in the Chapter 3, Project Description, stimulation treatments typically last only a few hours or days. Following flowback of fluids, the air emissions associated with a stimulated well are not measurably different from wells that have not been stimulated. Therefore, rather than focusing just on well stimulation, this EIR analyzes the impacts, including air emissions impacts, of all phases of oil and gas development, and has developed appropriate mitigation measures.

For the purposes of further analysis, the wells near the Sequoia Elementary School were analyzed for potential impacts under a hypothetical drilling and stimulation scenario conducted in a manner consistent with the proposed Amended Zoning Ordinance. The wells closest to Sequoia Elementary School are summarized below.

Table XX-YY: Wells Closest to Sequoia Elementary School

Well Name	API No.	Drilled Date	Stim Date	Depth	Distance*
Eckmann 2-4H	03043765	10/29-12/3/2011	12/18-28/2011	11,458	1250
Tulare 3-1	03004631	10/13-27/1995	11/15-17/1995 & 12/13/1995	8,500	1000
Tulare 3-12H	03021084	10/31-11/15/2002	12/4-5/2002	11,319	800
Tulare 3-16H	03049883	2/16-3/23/2013	3/29-4/1/2013	8,496	1800

*Approximate distance in feet to school fenceline.

The Tulare 3-12H well is the closest well to the school, and is approximately 800 feet from the school's fenceline. It is 11,319 feet deep. The Health Risk Assessment prepared for the hypothetical project shows that a well greater than 10,000 feet deep drilled in 2015 would have a significant impact on a sensitive receptor if it were 367 feet or closer to the sensitive receptor. *See Draft EIR*, *Appendix M, Health Risk Assessment for Proposed Drill and Oil and Gas Operations*. Even if this well were drilled upwind from the school, it would not be expected to cause a significant impact on the children or others present at the school.

Additionally, it is important to note that oil and gas development is widespread throughout the Project Area, and there are examples of intensively developed oil and gas fields identified as Core Areas in close proximity to the County's wealthier and neighborhoods, as well. For example, the Kern River and Kern Front oil fields (described at page 3-18 and shown on Figure 3-3 of the Draft EIR) border neighborhoods in the northeastern portion of the City of Bakersfield, in proximity to schools with a predominantly white student body, such as Garces Memorial High School.

The Amended Zoning Ordinance, together with the mitigation measures included in this EIR, will reduce public health and other environmental impacts across the region, benefitting all school children.

0046-9

Please see Response to 0046-8.

0046-10

Response to first half of paragraph:

Comment noted. For the reasons discussed above, including the fact the CalEnviroScreen scores are partly based on socioeconomic factors which do not represent CEQA impacts, the CalEnviroScreen methodology does not create substantial evidence of potentially cumulative considerable impacts under CEQA.

Moreover, as discussed above, the Project includes numerous measures that impose new environmental regulations on the development and operation of oil and gas wells that are designed to mitigated avoid significant impacts. Issues of air quality impacts, including cumulative impacts to sensitive populations have been considered in the DEIR and further addressed in GR Air-6. Except for impacts visual quality and nighttime lighting levels the Project has no significant and unavoidable to the Project Area. These impacts are not related to air quality concerns.

Response to second half of paragraph:

The comment is noted. Issues of air quality impacts, including cumulative impacts to sensitive populations have been considered in the DEIR and further addressed in GR Air-6.

0046-11

Please see response to 0046-10.

0046-12

Commenter's legal reference noted. Neither CEQA nor the CEQA Guidelines require translation of an environmental compliance document into Spanish or any other language. Such an obligation would be inconsistent with CEQA's admonition that it shall not be interpreted "in a manner which imposes procedural or substantive requirements beyond those explicitly stated" in the statute or CEQA Guidelines. CEQA § 21083.1.

In 2014 the California legislature passed a bill which would have required the Office of Planning and Research to develop guidelines for when a lead agency must translate CEQA documents into non-English languages. On September 25, 2014, Governor Brown vetoed that legislation,[1] further confirming that translation is not mandated under CEQA. In vetoing the legislation, Governor Brown noted that translating documents is sometimes good practice, depending on the circumstances, and identified two examples of cases where the lead agency found that translation was merited. Even in those cases, the lead agencies only translated certain notices and other public documents, not the full environmental impact reports.

Here, Spanish language translators were present at all three DEIR workshops, but no translation services were requested or use. Subsequently, the County did not find it necessary to translate the environmental review documents in this matter, and it was not required to do so under CEQA.

California courts have interpreted CEQA's "plain language" requirements to ensure that the public has access to EIR documents. "The message of this regulatory scheme is clear: an EIR in this state must be written and presented in such a way that its message can be understood by governmental decisionmakers and members of the public who have reason to be concerned with the impacts which the document studies."

The commenter suggests that the County violated CEQA by failing to translate the DEIR into Spanish or other non-English languages, pointing, in particular, to two cases (*Emmington v. Solano County Redevelopment Agency*, 195 Cal.App.3d 491 (1987) and *San Franciscans for Reasonable Growth v. City and County of San Francisco*, 193 Cal.App.3d 1544, 1549 (1987)). Neither of these cases stands for the proposition that a lead agency is required to translate environmental review documents into non-English languages. Environmental review documents must be understandable, but there is no obligation that they be translated.

[1] http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_0501-0550/ab_543_vt_20140925.html.

0046-13

The comment states that the County should have prepared a program EIR instead of a project EIR for the Project is noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration (as are all responses in this Final EIR). The County has the discretion to prepare a comprehensive project EIR for the Project, and has exercised its discretion to so here. Please refer to GR-2 for further discussion on the adequacy of this project-level review.

0046-13 cont'd

0046-14

Please see GR-1 for a description of how the conformity review process will be implemented.

0046-15

Please see GR 16. The Final EIR has made revisions to numerous mitigation measures to address concerns raised by comments, as well as to add specificity and remove discretion so that the measures, as implemented, will be consistent with the ministerial conformity review process adopted by the Revised Amended Ordinance. The revised mitigation measures are set forth in section 7.1.4 of this Final EIR.

0046-16

The cited setbacks are from the ordinance, not the HRA setbacks. Please see GR Air-3, GR Air-5, and GR Air-6 for a discussion of the adequacy of the HRA setbacks. Please see GR Air-9 for a discussion of the CCST study. The Final EIR has revised several mitigation measures relating to setbacks, which have been included in the Revised Amended Ordinance. For example, the required operational setback distance from sensitive receptors has been increased from 190 to 210 for noise impacts. The Revised Amended Ordinance also clarifies several terms, including the "public highway" reference used for the 100 foot setback. (The Revised Amended Ordinance is set forth in Section 7.1.3 of the Final EIR.) Revised setback distances required to protect human health and the environmental are described in responses to comments to this Final EIR.

0046-17

Please see RTC 45-14 above. In addition, the two references by McKenzie, *et al.* cited by in this comment were obtained and reviewed to determine whether they support the assertions made in the comment."McKenzie (2012) Human health risk assessment of air emissions from development of unconventional natural gas resources"[1], and "McKenzie (2014) Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado"[2].

McKenzie (2012) conducted two evaluations of health risks, one based on the median value of air measurements and another based on a 95th percentile upper confidence limit (UCL) estimates. The study concludes: "These preliminary results indicate that health effects resulting from air emissions during development of unconventional natural gas resources are most likely to occur in residents living nearest to the well pads and warrant further study." However, the results showed that there are no significant chronic, sub-chronic health or cancer risk for risks for either the median or UCL exposure estimates for locations greater than ½ mile. Based on worst-case (70 year continuous outdoor exposure at a fixed location) rather than reasonable maximum exposure assumptions, the study indicated that estimated hazard indices less than 0.5 (<1 indicates no health risk) and cancer risk less than 7 in a million (10 in a million is commonly used by EPA and other air districts to be an acceptable risk level – see response (0049-9). For locations at or within ½ mile, the study indicates that median measured concentrations also indicated risks at acceptable levels for all three health effects. Within ½ mile the UCL risk estimates are higher indicating a hazard index of 1 for chronic effects, 5 for sub-chronic effects and 10 in a million for lifetime cancer risk. Given that the UCL values are representative wells that are much less than ½ mile away and that worst case (see above) exposure assumptions are used, these values are likely to be overestimates.

McKenzie (2014) studied birth outcomes statistics as related to natural gas well locations but did not examine concentrations of ambient air pollutants. Thus, while this type of epidemiological study can determine if there may be positive associations between distance and specific birth outcomes, these methods do not establish definitive cause and effect relationships. The study found that among the birth effects studied that there was a positive association between greater density and proximity of natural gas wells within a 10 mile radius and congenital heart defects. The study did not find significant correlations with other birth outcomes or address what pollutants may be involved or the specific types of sources or activities that may be implicated by the noted positive association. The authors conclude that given the limitation of the present study, that more comprehensive and rigorous research is warranted.

[1] Science of the Total Environment, Lisa M. McKenzie Roxana Z. Witter, Lee S. Newman, John L. Adgate http://www.elsevier.com/locate/scitotenv, March 2012

[2] • Environmental Health Perspectives, Lisa M. McKenzie, Ruixin Guo, Roxana Z. Witter, David A. Savitz, Lee S. Newman, and John L. Adgate, volume 122 | number 4 | April 2014 http://dx.doi.org/10.1289/ehp.1306722.

0046-18

0046-18 cont'd

Please see GR Air-8.

0046-19

Oil processing equipment must complete a site-specific HRA in conjunction with SJVAPCD permitting in order to obtain an Authority to Construct (ATC) permit. Thus, potential toxic emissions risks will be addressed for oil processing equipment through permitting. It is also reasonable to assume that a state agency's proposed rules will eventually go into effect and be effective. Please see GR Air-3, GR Air-5, and GR Air-6 for a further discussion of the Project's HRAs.

0046-20

The commenter states that the County's reliance on a 10 in one million cancer risk threshold is unreasonably high and that most agencies use a 1 in a million cancer risk to determine unreasonable threat, including the U.S. Environmental Protection Agency.

The HRA in Appendix M of the DEIR uses a 10 in one million threshold to determine the setbacks in MM 4.3-5. This threshold is lower than the threshold utilized by the SJVAPCD in their HRA analyses. The SJVAPCD uses a 20 in one million threshold which was adopted on June 30, 2015 in response to the changes in OEHHA's HRA modeling. *See* SJVAPCD APR – 1906, "Framework for Performing Health Risk Assessments", dated June 30, 2015.[1] The staff report for the update to SJVAPCD's threshold states that it is revising the District's HRA threshold to 20 in one million due to the changes in OEHHA's March 2015 guidance document and that it believes that this threshold will be equally protective of public health. SJVAPCD Final Staff Report, "Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document", May 28, 2015, p. 21.

The comment that EPA and most other environmental agencies use a 1 in one million cancer risk level to determine significance is incorrect. 10 in a million has been a common significance criteria, and, as stated above, some agencies such as the SJVAPCD have recently moved to a higher threshold of 20 in one million. EPA's risk criteria for several regulatory programs are described below, in addition to many examples of California agencies’ significance criteria for CEQA purposes.

In practice, EPA's determination of acceptable risk in particular instances ranges from 100 in one million, as specified in OSWER (Office of Solid Waste and Emergency Response) Directive 9355.0-30, "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions" issued April 22, 1991[2] to 10 chances in one million. For instance, EPA has used 10 in one million as an acceptable level associated with recent Superfund site remediation activities. *See* New Bedford Harbor Cleanup Plans, Technical Documents and Environmental Data and Hudson River PCBs Superfund Site Cleanup Plans and Documents.[3] The 10 in one millionrisk level is also cited in EPA's Human "Health Risk Assessment Protocol (HHRAP) for Hazardous Waste Combustion Facilities, Chapter 7: Characterizing Risk and Hazard".[4]

Various other California agencies also use a threshold higher than 1 in one million:

Mojave Desert AQMD uses a 10 in one million CEQA significance threshold for health risk assessments. *See* on page 10 of *California Environmental Quality Act (CEQA) And Federal Conformity Guidelines*, August 2011, p. 10.[5] Santa Barbara County APCD defines a "Significant Risk" as 10 in one million.[6] Ventura County APCD gives significance criteria of 10 in one million. *Ventura County Air Quality Assessment Guidelines*, October 2013, p. 3-5.[7] South Coast AQMD Air Quality thresholds are 10 in one million.[8] on the web site The California Energy Commission also uses 10 in one million as a significance level. *See Final Staff Assessment for the Carlsbad Energy Center Project Amendment*, February 2015, p. 4.8-6.[9] Thus, the 10 in one million threshold used in the HRA in Appendix M of the DEIR is appropriate.

[1] Available at: http://www.valleyair.org/policies_per/Policies/apr-1906.pdf.

[2] Available at: http://www.epa.gov/oswer/riskassessment/pdf/baseline.pdf.

[3] Available at: http://www2.epa.gov/new-bedford-harbor/new-bedford-harbor-cleanup-plans-technical-documents-and-environmental-data and http://www.epa.gov/hudson/plans.html

[4] http://www.epa.gov/wastes/hazard/tsd/td/combust/finalmact/ssra/05hhrap7.pdf

[5] Available at: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2910.

[6] See http://www.ourair.org/significant-risk-facilities/(accessed on September 17, 2015).

[7] Available at: http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf.

[8] Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2(accessed on September 17, 2015).

[9] Available at: http://docketpublic.energy.ca.gov/PublicDocuments/07-AFC-06C/TN203696_20150217T141737_CECP_Amendment_Final_Staff_Assessment.pdf.

0046-21

The comment is noted for the record and has been considered; however, neither the health risk assessments, noise assessment, nor the vibration assessments that have been completed by experts using appropriate methodologies provide scientific support for commenter's requested expanded setback distances. Please see GR Air-3, GR Air-5, and GR Air-6 for a discussion of the Project's HRAs.

0046-22

All air quality mitigation measures, including the "no net increase" measure included in MM 4.3-8, must be implemented under this EIR. MM 4.3-8 requires that the Project cause "no net increase" in air emissions for pollutants that are not required to be offset under existing District permit regulations, such as emissions from maintenance vehicles, as described further in Section 4.3. Additionally, stationary source emissions for which offsets are required under District permitting rules must offset at an even greater ratio (1:1.5 – or for each ton of new emissions, one and one-half tons of emission reductions must be achieved) than this "no net increase" standard. However, based on the remaining scientific uncertainty about how to appropriately calculate reductions of one pollutant as equivalent to reductions to another pollutant, it is not possible to conclude that every molecule of each pollutant will be offset under the ERA. This EIR requires the Applicant to offset more emissions than are required in current District attainment plans, and will accordingly assist the region in complying with applicable ambient air quality standardsThe commenter misunderstands the mitigation measures in the DEIR. Please see GR Air-1 for a discussion of these mitigation measures. In addition, the point in the last sentence of the comment is not germane. Chapter 4.3 of the DEIR provides a comprehensive presentation of the Valley air baseline and regulatory process for achievement of legal attainment standards.

0046-23

See response to comment above.

0046-23 cont'd

0046-24

Please see GR Air-4. The San Joaquin Valley Air Pollution Control District is the agency designated by the State of California to monitor and report information on air conditions in the Project Area, and to adopt regulations as well as make recommendations on achieving the air emission reductions required to attain applicable ambient air quality standards. Placing individual air monitors on up to 3647 new wells permits annually is not a recommendation of the Air District, and there is no evidence in the record that such an action is scientifically warranted toprovide useful information, nor will such monitors reduce any impact below the levels mandated by the mitigation mesures included in this EIR.

0046-25

Please see GR Haz-1 for a discussion of pipelines, including mitigation measure revisions to expand on the procedures applicable to pipeline maintenance, release reporting, and public notice and response actions.

0046-26

Please see GR 2 and GR 12.

0046-27

Please see GR 2 and GR 12.

0046-27 cont'd

0046-28

Please see GR Air-12 regarding lifecycle emissions and GR GHG-1 regarding other GHG issues.

0046-29

Please see GR GHG-1.

0046-30

The Draft EIR identifies representative potentially hazardous materials used in Kern County oil and gas drilling and production in 2014 (excluding chemicals used in well stimulation treatments). DEIR, pp. 4.8-4 – 4.8-5, Table 4.8-1. Table 4.8-3 sets forth representative WST chemicals used in Kern. The Draft EIR also identifies maximum daily onsite volumes of such hazardous materials as reported to Kern County Environmental Health

Division (KCEH). Though the total number of wells drilled in a given year could increase compared to baseline under the Project (see GR 9 – Well Projections), the well sites themselves are anticipated to be similar in size and intensity to past industry practices. Thus, it is reasonably foreseeable that the types and volumes of hazardous materials used in oil and gas fields will remain substantially the same as those disclosed in the DEIR. Further, the EIR imposes various mitigation measures that reference and implement industry standards concerning oil management of hazardous materials at oil and gas production sites. The standards include *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book* (Bureau of Land Management 2007), *Environmental Protection for Onshore Oil and Gas Production Operations and Leases* (American Petroleum Institute 2009), or equivalent standards. See MM 4.8-6 - 4.8-7. Mitigation Measures 4.8-10 – 4.8-14 also address spill and release prevention and response. With these measures, as well as implementation of DOGGR regulations concerning WST activities (see GR-10), the EIR correctly concludes that potential impacts for use, storage and transport of hazardous materials are less than significant.

0046-31

As described on pp. 4.8-3 – 4.8-4 of the EIR, "[r]ail is used as one of the modes of transport for hazardous materials utilized in oil and gas activities within the Project Area, and is used to transport crude oil to the Project Area, but not to transport crude oil generated within the Project Area." Thus, the oil & gas activities authorized by the Project will not result in an increase in the volume of total crude or gas transported by rail or the number of train trips that involve such transport, or any attendant risk associated with such trips. As such, the Project has no impact in this issue and no mitigation is necessary or warranted.

0046-32

Comment noted. As discussed above, an environmental justice analysis is not required under CEQA, and a DEIR is not the appropriate venue to address a potential issue under section 11135. While CEQA does not require an impact analysis that takes racial demographics into consideration, for informational purposes only it is noted that commenter has not presented facts that suggest that the residents of Button Willow or Kettleman City, whether Latino or otherwise, would be adversely impacted by the transport or disposal of wastes at facilities located within those communiities. . The Clean Harbors Buttonwillow Hazardous Waste Facility is permitted by Kern County under a fully compliant Conditonal Use Permit and is in compliance with all requirements for operation with the State and Federal government. It is located near the unincorporated community of Buttonwillow in Kern County.

The Waste Management Kettleman Hills Facility is located in Kettleman City, an unincoroporated community, in Kings County and permitted by the Kings County Board of Supervisors. The Kettleman Landfill takes both hazardous and municipal waste for disposal. Kern County has no jurisdiction or authority over the Waste Management Kettleman Hills Facilty.

It is further noted for informational purposes that in August 2012, the United States Office of Civil Right ("EPA" or "Office of Civil Rights") evaluated claims that the hazardous waste disposal facilities in Buttonwillow, Kettleman City and another city created a disparate impact on people of color through the facilities’ respective operations. EPA dismissed and closed the Title VI complaint. *See,* EPA Letter, To: Debbie Raphael, Director, California Department of Toxic Substances Control, From: Rafael DeLeon, Director, EPA Office of Civil Rights, *Dismissal and Closure of Title VI Compliant* (August 30, 2012) (*EPA Dismissal Letter*), available at the following URL: http://www.epa.gov/civilrights/TitleVIcases/decisions/padres/Padres_complaint_01-95-R9_decision-ltr_DTSC_20120830.pdf. Last checked September 17, 2015.

The Office of Civil Rights based its conclusion on an investigation of the potential impacts of the facilities with respect to: accidental releases from hazardous chemicals; groundwater contamination and drinking water; surface water contamination and drinking water; earthquakes; particulate matter (PM) (*e.g.*, dust) emissions; ozone precursor emissions; and air toxics emissions. Among other things, the Office of Civil Rights found:

"the potential lifetime cancer risk from dioxins at several receptor locations were below 1 in a million. The modeling results for worst-case hypothetical spill scenarios showed concentrations would remain below Acute Exposure Guideline Levels, which represent threshold exposure benchmarks for the general public, at nearby receptors." *EPA Dismissal Letter* at 4. "no risk of adverse health effects from contamination of

groundwater by any of the three facilities." *Id.* at 5. "very little risk of adverse health effects from the facilities contaminating surface water." *Id.* at page 5. "very little risk of adverse health effects from releases of hazardous waste from the facilities resulting from an earthquake." *Id.* at 6. "due to ongoing dust suppression practices, [particulate matter] emissions from the facilities were found to be less than the likely emissions from the pre-construction naturally occurring emissions." *Id.* at 6. "the facilities' emissions do not have a discernible impact on ozone levels at any site in the San Joaquin Valley . . ."" *Id.* at 6. "very little risk of adverse health impacts [from air toxics emissions] because inhalation cancer risks and non-cancer hazard indices from facility emissions are below threshold levels of concern. OCR found that no current residential locations have estimated lifetime cancer risks higher than 1 in a million from all the chemical emissions combined at each facility." *Id.* at 7. Based on these findings the EPA Office of Civil Right dismissed and closed the compliant "because not no violation of Title VI [of the Civil Rights Act of 1964] was found." *Id.* at 7.

Further, concurrent with the review of the Kettleman City facilities’ request for permit renewal, which was granted, the California Department of Toxic Substance Control (DTSC) conducted an Environmental Justice Review. DTSC, Environmental Justice Review, *The Kettleman Hills Facility Chemical Waste Management*, Inc. (June 2013) (*EJ Review*) available at the following URL: https://www.dtsc.ca.gov/HazardousWaste/Projects/upload/Kettleman_EJReview_0613.pdf. In the *EJ Review*, "DTSC acknowledges the multiple environmental pollution burdens borne by the Kettleman City community, and the presence of poverty, language barriers and other factors which tend to make those people vulnerable to the impacts of pollution." *EJ review* at 4. However, the *EJ Review* did not make any finding or conclusions with respect to the facility's contribution to impacts, and DTSC subsequently issued it renewed the facility's Final Hazardous Waste Facility Permit on May 21, 2014. Nonetheless, as part of the permitting process the applicant agreed to an enforceable plan to reduce truck emissions. According to the *EJ Review*, "[t]his plan will reduce the impact of diesel emissions of NOx and PM10 (particulate matter 10 micrometers in diameter and smaller). NOx emissions could be reduced by as much as 165,000 pounds per year and PM10 emissions by as much as 7,000 pounds per year in Kettleman City, Avenal and the San Joaquin Valley Air Basin."

While an environmental justice evaluation is not appropriate within the context of CEQA, commenter has not presented substantial evidence to suggest that the transport and disposal of hazardous materials to the appropriately permitted facilities will create significant impacts.

0046-33

This introductory comment is noted. Please see Responses 33-39 to this comment, and Global Response (GR) Alt-1.

0046-34

This introductory comment is noted. Please see Responses 0049-33 through 0046-39, and Global Response (GR) Alt-1.

0046-34 cont'd

0046-35

As this comment correctly notes, the project applicants in this matter are private parties with interests in Kern County oil and gas production. As this comment also correctly notes, the project applicants did apply for the amendments to the Kern County Zoning Ordinance described in Draft EIR Chapter 3, *Project Description*, and elsewhere in this EIR, as is their legal right. Section 19.112.010 of the Kern County Code of Ordinances expressly provides that "any interested person" may apply to the County for a legislative zoning amendment.

The CEQA Guidelines require the EIR's project description to include a statement of the objectives sought by the proposed Project that includes the underlying purpose of the Project. 14 Cal. Code Regs. § 15124(b). The CEQA Guidelines further provide that the EIR shall describe a range of reasonable alternatives to the project which would feasibly attain most of the project objectives. 14 Cal. Code Regs. § 15126.6(a). CEQA permits the County broad discretion to formulate the project objectives. *See Cal. Oak Foundation v. Regents of the University of Cal.* (2010) 118 Cal.App.4th 227, 276. CEQA does not prohibit the County from formulating project objectives designed to establish an administrative process intended to facilitate the growth of an important sector of the County economy. As recognized by the courts, "CEQA does not restrict an agency's discretion to identify and pursue a particular project designed to meet a particular set of objectives." *Id*.

The Project objectives in this case do not place the special interest of a single stakeholder above others. As described on pages 1-5 through 1-6 of the Draft EIR, the Project objectives in this matter are focused on a broad spectrum of County interests and include:

Reducing or eliminating potential significant adverse environmental impacts, to the extent feasible, of future oil and gas activities … and thereby ensure that current County ordinances reflect the County's interest in protecting the health, safety and general welfare of residents and visitors;

Encouraging ongoing economic development by the oil and gas industry that creates quality, high paying jobs and promotes capital investment in Kern County which enables the County to invest in capital improvement projects and social programs, which benefit County residents, retail businesses, and capital industries which ensures the County's fiscal stability;

Ensuring the protection of environmental resources by emphasizing the conservation of productive agricultural lands, the encouragement of planned urban growth, the promotion of clean air strategies to address existing air quality issues, and the promotion of long-term water conservation strategies which will ensure the quality and adequacy of surface and groundwater supplies for future growth of all of Kern County's industries;

Containing new development within an area large enough to meet generous projections of foreseeable need but in locations that will not impair the economic strength derived from residential developments, agriculture, rangeland, mineral resources, or diminish the other amenities that exist in Kern County; and

Increasing oil and gas exploration and production in Kern County as a means of increasing employment opportunities and economic prosperity to Kern County's residents, businesses, and local government.

As explained in Draft EIR Chapter 6, Alternatives, each Project alternative was evaluated to determine its ability to achieve these objectives and did not restrict such evaluation to objects focused on a single stakeholder.

0046-36

This comment does not raise a significant environmental issue. The CEQA Guidelines expressly authorize the lead agency to cooperate with the project applicant and with the applicant's consultants in the preparation of an environmental impact report. 14 Cal. Code Regs. 15084(d)(3). The public has been provided multiple opportunities to participate in the preparation of this EIR, including through properly noticed EIR scoping meetings, and by reviewing the Draft EIR and submitting comments during the noticed public review period required by CEQA. The public will also be able to participate in all upcoming public hearings conducted by the County Planning Commission and Board of Supervisors concerning this EIR and the Project, which public hearings shall be properly noticed in accordance with law.

0046-37

This comment does not raise a significant environmental issue. Please see Responses 33 and 34.

0046-38

Please see Global Response Alt-1 and Responses 33 and 34.

0046-39

Please see Global Response Alt-2.

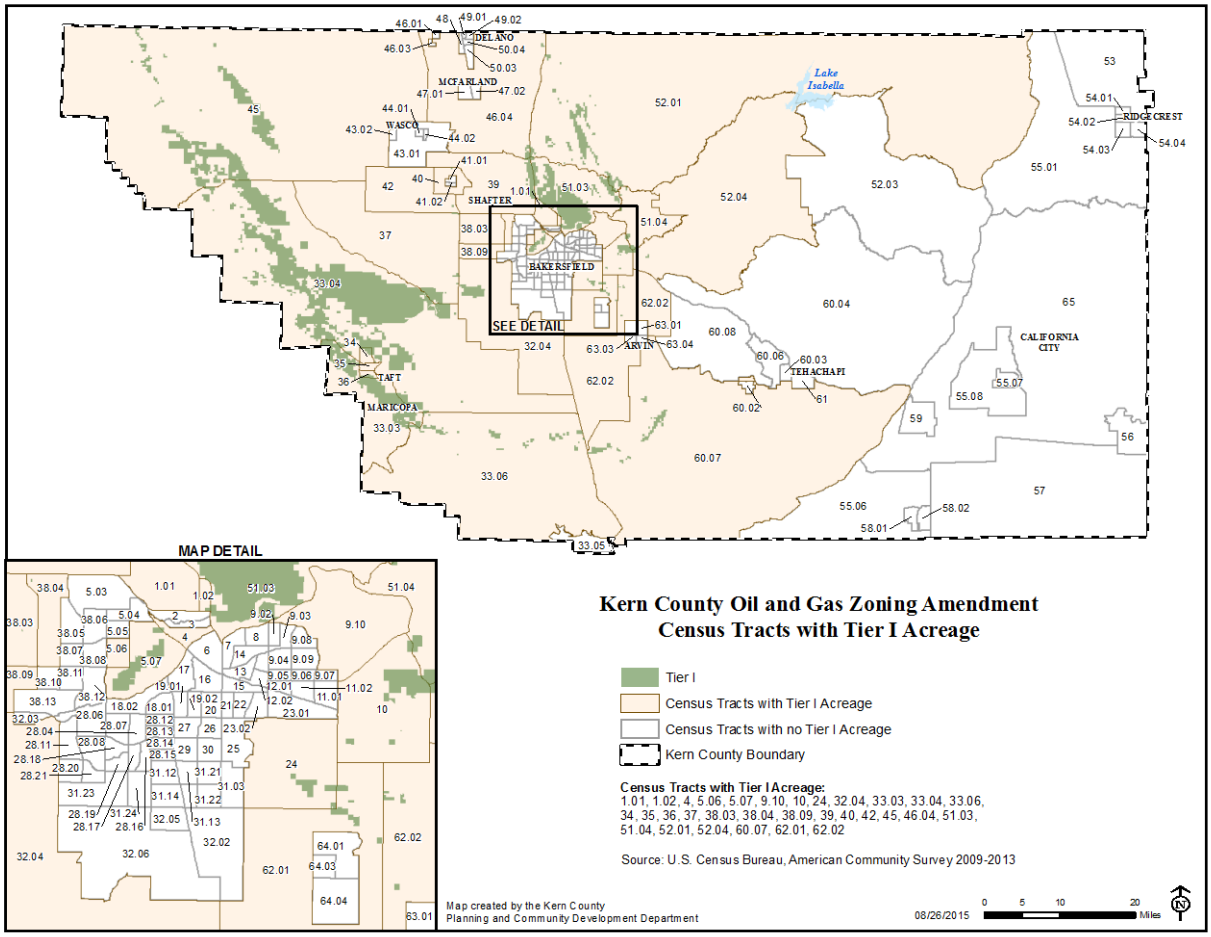
0046-40

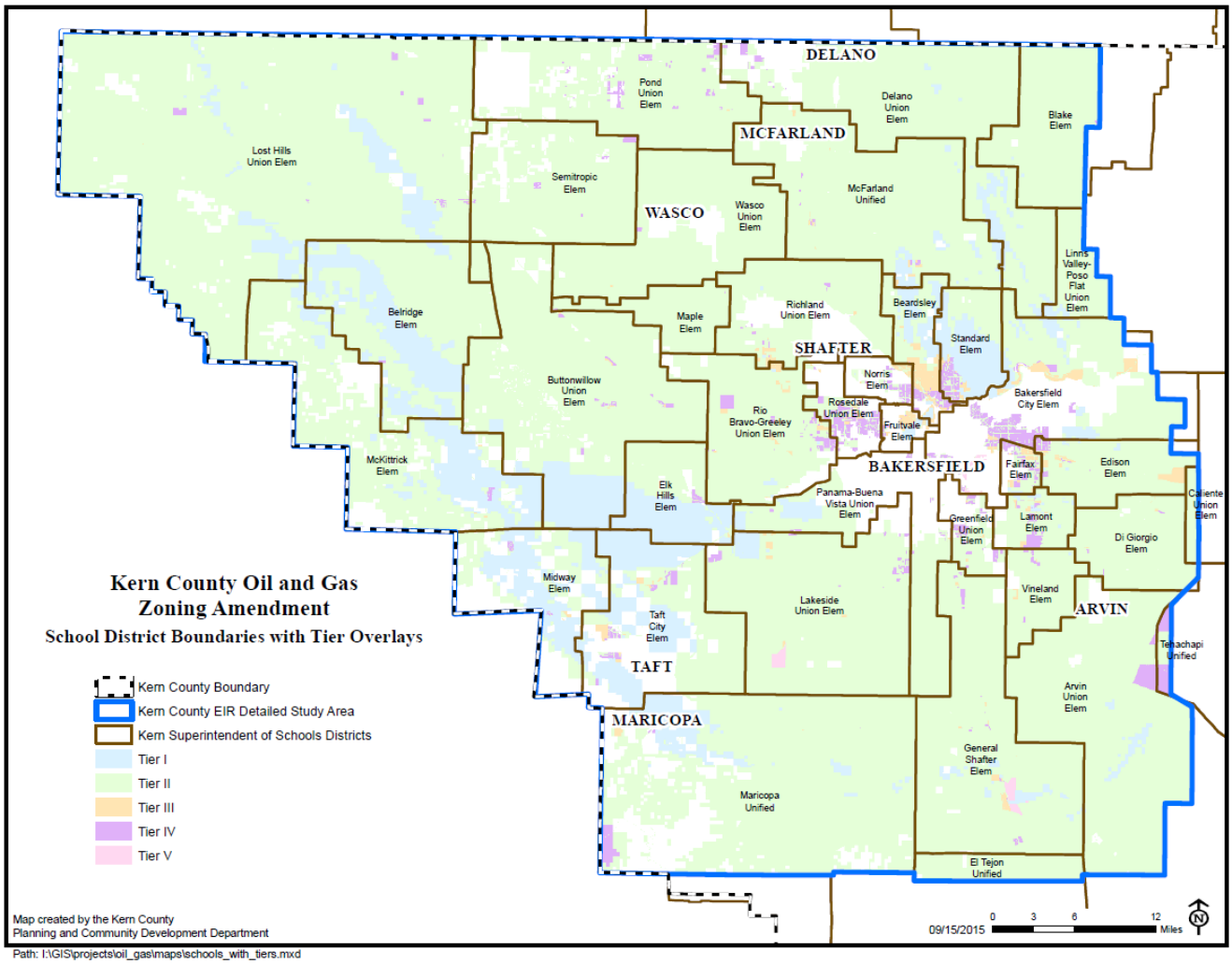
Please see Draft EIR pages 6-23 through 6-24 wherein the Alternative 4 – No Hydraulic Fracturing Alternative was fully evaluated. Alternative 4 would prohibit hydraulic fracturing, as this comment suggests. Please also see Global Response Alt-2 which explains why, on further review, the County has determined that Alternative 4 is legally infeasible on the basis of preemption. Any alternative that would ban other forms of well stimulation treatments, such as acidization, or forms of enhanced oil recovery, such as steam injection, would also be legally infeasible for the same reasons described in Global Response Alt-2's discussion of Alternative 4. The EIR is not required to consider alternatives that are legally infeasible. *See* 14 Cal. Code Regs. § 15126.6(f)(1); *see also, Save San Francisco Bay Assn. v. San Francisco Bay Conservation & Development Dist.* (1992) 10 Cal.App.4th 908, 922.

0046-41

Comment noted. Please see GR 20 regarding recirculation.

Figure 1


Lake Isabella
DELANO
MCFARLAND
WASCO
SHAFTER
BAKERSFIELD
SEE DETAIL
TAFT
MARICOPA
ARVIN
TEHACHAPI
CALIFORNIA CITY
RIDGE CREST
MAP DETAIL
Kern County Oil and Gas Zoning Amendment
Census Tracts with Tier I Acreage
Tier I
Census Tracts with Tier I Acreage
Census Tracts with no Tier I Acreage
Kern County Boundary
Census Tracts with Tier I Acreage:
1.01, 1.02, 4, 5.06, 5.07, 9.10, 10, 24, 32.04, 33.03, 33.04, 33.06, 34, 35, 36, 37, 38.03, 38.04, 38.09, 39, 40, 42, 45, 46.04, 51.03, 51.04, 52.01, 52.04, 60.07, 62.01, 62.02
Source: U.S. Census Bureau, American Community Survey 2009-2013
Map created by the Kern County Planning and Community Development Department
08/26/2015
0 5 10 20 Miles
N
Path: I:\GIS\projects\oil_gas\maps\census_tracts_with_tier1.mxd



Path: I:\GIS\projects\oil_gas\maps\schools_with_tiers.mxd

47 Earthjustice

EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

September 11, 2015

Via Certified U.S. Mail and Email
Christopher B. Mynk, AICP
Supervising Planner
MynkC@co.kern.ca.us
Kern County Planning Department
Public Services Building
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

Re: **Comments on the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance 2015(C)**

Dear Mr. Mynk:

The following comments on the Draft Environmental Impact Report ("DEIR") for proposed Revisions to the Kern County ("County") Zoning Ordinance 2015(C) are submitted on behalf of the Sierra Club, a national nonprofit organization of more than 620,000 members. Sierra Club is dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth's ecosystems and resources; to educating and encouraging humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. Sierra Club's particular interest in the County's revisions to its oil and gas zoning ordinance stem from its interests in reducing reliance on fossil fuels and protecting the health of overburdened and vulnerable communities, including those located in and around the County. These comments are submitted because the County is attempting to evade necessary CEQA review for future oil and gas activities throughout its jurisdiction. 0047-1

The DEIR's analytic scope is impermissibly broad and expansive, making it impossible to sufficiently analyze the activity that will occur in the Project Area as a result of the oil and gas zoning ordinance. As such, it fails in its basic purpose of being an informational document for the public and decisionmakers to be made aware of the environmental consequences of their decisions before they are made. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.) 0047-2

Rather than providing a means for the County to adequately identify, consider, analyze and mitigate the range of environmental impacts caused by oil and gas activities throughout the County, the DEIR impermissibly attempts to insulate all oil and gas exploration throughout the County's jurisdiction from further CEQA review for the next 25 years. (DEIR, 3.5, Attachment A, Kern County Zoning Ordinance (07/15) Draft.) This is a grossly inappropriate use of CEQA's environmental review and public notice requirements and it violates the statute's core principles. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (2007) 24 Cal.App.4 713, 732 [citing *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 829-830, to state that "affected outsiders" and decision makers 0047-3

must be able to "balance [a] proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal … and weigh alternatives in the balance"].) Indeed, because of the numerous, potentially devastating impacts that oil and gas exploration has, and will continued to have on the environment and on public health, further environmental review will undoubtedly be needed for new and ongoing exploration, construction, and operation in a more than 3,000 square mile area that is already overburdened with numerous pollution sources. Yet, because the County has erroneously and impermissibly framed the DEIR as a project-level EIR, as part of its attempt to obviate later CEQA review of project-level impacts, it has precluded its potential to comply with CEQA now, and into the future.

0047-3 Continued

In addition to these flaws, the DEIR wholly ignores the importance of public opinion weighing in on matters of substantial, widespread concern. Oil and gas exploration and extraction activities are not only highly burdensome to the environment and to human health, but they are also highly controversial, and as the DEIR acknowledges, imply numerous significant unmitigable effects. (*See* DEIR at 1-14—1-18 [documenting significant and unavoidable impacts to aesthetics and visual resources, air quality, agricultural resources, biological resources, cultural resources, greenhouse gases, hydrology and water quality, and utilities and service systems].) At the same time, California's political and natural environments are rapidly changing. The state and the nation increasingly recognize the need to move away from fossil fuel production and consumption.[1] California is also entering its fourth year of a catastrophic drought, and as climate change more generally transforms California into a hotter, drier state, more demands will be put on scant water resources, including water resources used for oil and gas drilling.[2] Over the next 20 years there will be numerous reasons to reevaluate the conclusions of this EIR and to perform site-specific environmental review on subsequent oil and gas activities. The DEIR nonetheless explicitly precludes such review unless the County finds reason to re-evaluate the ordinance's total projected activity, and the number of wells being drilled in a given year exceeds the DEIR's generous projection of over 67,000. (DEIR, 3-30.)

0047-4

Moreover, the DEIR process suffers from severe deficiencies that further preclude public input and taint the County's environmental review of the zoning ordinance. Despite a request from a number of organizations for more time to evaluate the environmental and health impacts resulting from the County's proposed actions, the County denied the public sufficient time to comment on a 1,800 page, highly technical and at many times misleading document.[3] Indeed, the County refused to provide more than a meager 60 days to comment on the sufficiency of its review of an action that would drastically impact local communities and public health, and would substantially affect the region and the state's air, water and biological resources for the next 25 years. As result of the limited time period for comments, Sierra Club and other commenters can only address a subset of the deficiencies in the DEIR.

0047-5

For these and the additional reasons expressed herein, we strongly urge the County to reject the DEIR as an informational document, and to require a reconceived, re-drafted and re-circulated DEIR.

0047-6

[1] *See, e.g.,* California Executive Order B-30-15; EPA, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, prepublication version available at: http://www.epa.gov/airquality/cpp/cpp-final-rule.pdf.

[2] *See, e.g.,* California Department of Water Resources, Climate Change, http://www.water.ca.gov/climatechange/; Rory Carroll, *California Used 70 Million Gallons of Water in Fracking in 2014*, Reuters (April 3, 2015).

[3] *See* Exhibit A, Commenters' Request for Extension of Time, Dated July 20, 2015 and County Response, Dated July 23, 2015 [denying extension of time request].

I. The DEIR Fails to Provide an Adequate Project Description and Is Impermissibly Framed As a Project-level EIR.

"An accurate, stable and finite project description" has been upheld as "the *sine qua non* of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.) Here, although the EIR is framed as a Project-level EIR, the description of the "project" purportedly analyzed is far too broad in both temporal and spatial scale for a project-level EIR. 0047-7

A project EIR, which is the most common type of EIR, typically focuses "primarily on the changes in the environment that would result from [a] development project." (CEQA Guidelines § 15161; *see also Friends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency* (2000) 82 Cal.App.4th 511, 533-534.)) Yet, the DEIR here encompasses a far broader set of actions and activities than a single development, and the frequency and extent to which such activities will take place over the next 20 years is inconsistently identified throughout the document. Notably, the DEIR purports to evaluate **all** oil and gas activities in a 3,000 square mile area for the next 20 years, which includes **all** well exploration, construction and operation; re-working of old wells; unconventional drilling and extraction (such as fracking and acid fracturing); and the construction and operation of any and all ancillary facilities related to oil and gas, such as electrical distribution lines, oil and gas pipelines, and wastewater disposal facilities. (DEIR 3-303-71.) The DEIR fails, however, to state any detail regarding any project-level or site-specific components of the project, rendering any form of meaningful project-level analysis of the "project" impacts entirely impossible. The Project description itself therefore renders the DEIR virtually incomprehensible and unusable as a project-level document, and its attempt to evaluate a "project" that spans such a broad range of activities, and such a large area and timescale, appears unprecedented for any project-level EIRs. 0047-8

Moreover, the Project description is inconsistent with the analytic time-frame used for purposes of the DEIR's impacts analyses. While the Project description states that the activities under review will take place over the next 25 years, the DEIR only uses a 20 year time-frame to analyze the impacts from oil and gas well activities in the Project's projected thousands of wells per year. (*cf* DEIR, 3-30 [projecting total Project activity to take place over the next 25 years]; and DEIR 4.3-61 [setting forth the methodology for the DEIR's impacts analysis for activities being conducted between 2015 and 2035].) This inconsistency creates incoherence in the DEIR's description of the project and in its analytic approach, thereby violating CEQA. (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 89 [holding that an EIR fails as an informational document where its Project description is inconsistent].) The variation in years between the Project description and the DEIR's analysis of the "Project's" impacts is not only confusing to the public and to decision makers as they review the DEIR's analyses and proposed mitigation, but it renders the DEIR's impacts analyses incomplete and inadequate. (*See id*.) 0047-9

The DEIR must be revised to provide an accurate, stable and finite project description, by which the County can meaningfully evaluate the impacts of the activities included in the project under review. (*County of Inyo v. City of Los Angeles, supra,* 71 Cal.App.3d, 193.) Specifically, if the DEIR is to comport with CEQA's requirements for a project-level EIR document, it must be able to provide the County with known project-level information including an accurate and stable description of the "project's" activities and their duration, sufficient to enable the County and the public to be aware of the environmental consequences of their decisions *before* those decisions are made. (*Citizens of Goleta Valley v. Board of* 0047-10

0047-10 Continued

Supervisors (1990) 52 Cal.App.3d 553, 564 [emphasis added].) The County's decisions cannot be made based on incomplete, vague, obscure, or inadequate information stated in the Project Description, as is the case in the DEIR as drafted. (*Communities for a Better Env't v. City of Richmond*, 184 Cal.App.4th, 89.) Here, the project time-frame and duration of the "project's" activities must be reconciled with the analytic temporal scope used for the purpose of identifying, analyzing and mitigating the Project's impacts. An accurate and stable project description that adequately sets forth the "project's" activities may also be impossible without scaling back the scope of the project. As currently described in the DEIR, the project is so vast that it renders the information too general to be useful in understanding the projected environmental effects of the "project," and the description of the project's duration is inconsistently and incoherently set forth throughout the DEIR's analyses.

II. The County's Framing of the EIR as a Project-level EIR is Not Only Misleading, but it Precludes Necessary Future Environmental Review of Oil and Gas Projects, in Violation of CEQA.

0047-11

Notwithstanding the clear inappropriateness of project-level review, the County states that it chose a project-level EIR for three reasons:

> First, by examining both the broad implications of the ordinance changes and the detailed site-specific impacts, this approach facilitates identification of the most effective development standards and mitigation requirements to be incorporated into the site plan review process. Second, a project-level EIR allows the Board of Supervisors and the public to be informed by a comprehensive analysis of impacts at the time the Board considers whether and how to modify existing County ordinances. Finally, a project level EIR provides responsible agencies with the level of completed CEQA process required to inform and reach final decisions regarding subsequent discretionary approvals and other actions regarding these County oil and gas activities.

(DEIR at 2-24.) None of these reasons, however, is availing, as each "benefit" of a project-level EIR is also accomplished by conceiving of the DEIR as a program EIR. Just like a project EIR, a program EIR can help identify the "most effective development standards and mitigation requirements" and help provide a comprehensive look at oil and gas drilling. For many reasons, including those explained above and in further detail throughout this comment, a program-level or first-tier EIR would also be the more appropriate means of accomplishing the objective of examining holistically the environmental impacts of a change as broad in scope as the County's oil and gas zoning ordinance revisions.

0047-12

Unfortunately, it appears that avoiding future environmental review is the only real "benefit" that the County gains by deeming this a project-level EIR. Attempting to evaluate the impacts of oil and gas activities in a single EIR for the largest oil-producing area in California, with no ongoing process for evaluating the effects of particular projects, however, makes little sense, and is a direct violation of CEQA. (*See In re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceedings*, (200843 Cal.4th 1143, 1169-1170) [requiring subsequent, detailed project-level analysis when first-tier analyses are aimed at broadly analyzing the implementation of a broader set of actions].)

0047-13

While the County attempts to characterize its approach to the EIR process for the oil and gas zoning ordinance as mere "streamlining," it is in fact attempting to avoid future environmental review. Rather than provide for future CEQA review, the DEIR insulates future

development from any form of public notice or project-level review. (*See* DEIR, 2.6.3 [making clear that the DEIR does not envision future review of oil and gas activities encompassed in the oil and gas zoning ordinance].) The County must, at a minimum reconceive and re-draft the DEIR as a "program" or first-tier EIR, and it must rewrite the proposed ordinance revisions to state that future oil and gas approvals are discretionary, not ministerial, in order to ensure future opportunity for public notice and environmental review of oil and gas projects over time, as further explained below. (*See* Section II(B), *infra*.)

0047-13 Continued

A. The DEIR's Project-level Analysis is Improper, and the Document Fails to Provide a CEQA-Compliant Program-level or First-Tier Analysis of the County's Oil and Gas Zoning Ordinance.

0047-14

"[A] *program* EIR is distinct from a *project* EIR, which is prepared for a specific project and must examine in detail site-specific considerations," as noted above. (*Center for Sierra Nevada Conservation v. County of El Dorado* (2012) 202 Cal.App.4th 1156, 1184 [quoting *In re Bay-Delta Etc.* (2008) 43 Cal.4th 1143, 1169] [holding that subsequent "specific project" that was part of a program EIR required a tiered project EIR][emphasis added].) Program EIRs are designed to "(1) Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action, (2) Ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis, (3) Avoid duplicative reconsideration of basic policy considerations, (4) Allow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts, [and] (5) Allow reduction in paperwork." (14 Cal. Code Regs. § 15168(b) ("CEQA Guidelines").)

0047-15

"For a subsequent project that is consistent with the program or plan analyzed in a first tier EIR, CEQA requires a lead agency to prepare an initial study to determine if the later project may cause significant environmental effects not examined in the first tier EIR. If the later project will cause such effects, the lead agency must prepare another EIR." (*Friends of Mammoth v. Town of Mammoth Lakes Redevelopment Agency* (2000) 82 Cal.App.4th 511, 528; *see also* CEQA Guidelines § 15168(c)(1).) In other words, a program EIR is only the first step in environmental review, and an agency must prepare subsequent site-specific review for activities carried out under the program. (*Id.*)

0047-16

Here, the extremely broad DEIR, which covers both amendments to the County's oil and gas zoning ordinance and all future oil and gas permitting in the County by multiple agencies, is inappropriately framed as a project EIR, and also fails to meet the requirements of a first-tier or program EIR. If the DEIR was to satisfy the requirements of a programmatic or first-tier document, the DEIR would have to provide for all subsequent site-specific impacts to be evaluated in an initial study to assess the direct, indirect and cumulative impacts of the particular activity, along with an opportunity for public notice and comment. (*In re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceedings*, 43 Cal.4th, 1173 [noting that when a program EIR is broad and fails to discuss site-specific effects, *"later* project-level EIR's may not simply tier from the [program EIR] analysis and will require an independent determination and disclosure of significant environmental impacts"].) A programmatic EIR would also have to clarify that the County and other agencies must file a notice of determination for any subsequent program activity that it finds requires no further environmental review. (*Comm. For Green Foothills v. Santa Clara Cnty. Bd. of Supervisors* (2010) 48 Cal. 4th 32, 56 ["such a notice would seem to be required under the general rule that an agency file an NOD '[w]henever [it] approves or determines to carry out a project that is subject to' CEQA. (§§ 21108, subd. (a), 21152, subd. (a).)]".) This iterative process is essential to ensuring CEQA compliance now, and into the future, and would enable the County to make a good faith effort at evaluating the cumulative impacts of oil drilling at a high level. (*In*

0047-16
Continued

re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceedings, at 1173.) The process is also critical to assessing the efficacy of applied mitigation measures while allowing for needed ongoing public involvement and evaluation of oil and gas drilling activity throughout the County, and throughout the region, over time.

0047-17

Continued reevaluation of the site-specific impacts caused by oil and gas production also enables the County to incorporate the newest technologies and the newest environmental, safety, public health and resource protection strategies as standard mitigation measures in its master planning document, consistent with CEQA principles. Because of rapid changes in oil and gas production technologies as well as equally significant changes in the environmental setting throughout the state, such reevaluation should take place at least every five years. (CEQA Guidelines § 15179 [requirement that master EIRs, which serve a similar purpose to program EIRs, not be used to authorize future projects undertaken more than five years after the master EIR is certified, unless there are no changed circumstances and no new information].) Again, with an always changing regulatory and environmental landscape, continuing to evaluate oil and gas drilling at a high level and at regular intervals is both prudent public policy, and necessary to ensuring CEQA compliance. (*Id*.)

B. By Attempting to Insulate Future Well Approvals from Further Environmental Review, the Proposed Ordinance Violates CEQA.

0047-18

The County's proposed changes to Chapter 19.98 of the Kern County Zoning Ordinance would establish "Oil and Gas Conformity Review" and "Minor Activity Review" ministerial permit procedures for County approval of future well drilling and operations. (DEIR at 1-6.) This purports to allow the County to approve most oil and gas activities for the next 25 years ministerially and without further public notice or environmental review, as long as the Planning Director "determines that the proposed use meets the implementation standards and conditions specified in the applicable provisions of [the oil and gas zoning code]." (Proposed Kern County Zoning Ordinance §§ 19.98.090(B); 19.98.100(C); 19.98.120(B).) Because this review is necessarily not ministerial, however, the ordinance, and the County's approval of future oil and gas activities without further environmental review, violates CEQA.

0047-19

The CEQA Guidelines define discretionary projects as government actions requiring "the exercise of judgment, deliberation or decision," CEQA Guidelines § 15357, and further provide, in part, that "CEQA applies in situations where a governmental agency can use its judgment in deciding whether and how to carry out or approve a project. A project subject to such judgmental controls is called a 'discretionary project.'" (CEQA Guidelines § 15002, subd. (i).) Ministerial decisions, in contrast, require the agency official to apply only "fixed standards" or "objective measurements" and preclude the use of "personal, subjective judgment in deciding whether or how the project should be carried out." (CEQA Guidelines §15369.) Thus, "The term 'ministerial' is limited to those approvals which can be legally compelled without substantial modification or change." (*Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal.App.3d 259, 269.) Typical examples of ministerial permits include automobile registration, dog licenses, and marriage licenses. Any doubt about whether a project is ministerial or discretionary should be resolved in favor of the latter characterization. (*Id.* at 271; *NRDC v. Arcata Nat'l Corp.* (1976) 59 Cal.App.3d 959, 970; *Friends of Mammoth v. Board of Supervisors* (1972) 8 Cal.3d 247, 259 [CEQA must "be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language."].) "Where a project involves an approval that contains elements of both a ministerial action and a discretionary action, the project will be deemed to be discretionary and will be subject to the requirements of CEQA." (CEQA Guidelines 15268, subd. (d).)

Whether an activity is ministerial is a question of law and subject to *de novo* review by courts. (*Great Oaks Water Co. v. Santa Clara Valley Water Dist.* (2009) 170 Cal.App.4th 956, 967.) "[A] municipality's classification of a certain approval process as ministerial is *not* conclusive. 'The applicability of CEQA cannot be made to depend upon the unfettered discretion of local agencies, for local agencies must act in accordance with state guidelines *and the objectives of CEQA*.'" (*Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal.App.3d 259, 270 [quoting *Davy v. City of Glendale* (1975) 51 Cal.App.3d. 817, 822].)

0047-19
Continued

The County's attempt to "streamline" environmental review of future well activity is made clear throughout the DEIR; yet the "streamlining" envisioned in the EIR is more akin to insulating future well activity from environmental review, than actually streamlining that review. As Section 2.6.3 of the DEIR states:

> Based on the comprehensive analyses, mitigation measures, and performance standards included in the EIR and revised ordinance, it is anticipated that in the vast majority of future oil and gas production activities, implementation of the new ordinance will **not** result in the need for the County, or for responsible agencies with ministerial authority or discretionary review and approval processes to prepare additional CEQA documents for individual well or field development proposals.

(DEIR, 2.6.3 [emphasis added].)

Despite the DEIR's position, however, subsequent approval of oil and gas projects is not ministerial under CEQA, and therefore requires environmental review. (CEQA Guidelines § 15002, subd. (i).) The County must make a discretionary decision when it determines, generally, whether "the proposed use meets the implementation standards and conditions specified" in the zoning code, and more specifically whether individual oil and gas permits comply with the mitigation measures outlined in the DEIR. (Proposed Kern County Zoning Ordinance §§ 19.98.090(B); 19.98.100(C); 19.98.120(B).)

0047-20

For instance, mitigation measure 4.17-2 requires that an oil and gas applicant "shall increase the re-use of produced water, and reduce its use of municipal and industrial-quality ground or surface water *to the extent feasible*." (Emphasis added.) Per the County's proposed ordinance, the County may deny the permit if the Planning Director determines that the applicant has not complied with this mitigation measure. (Proposed Kern County Zoning Ordinance §§ 19.98.060(D); 19.98.040(E); 19.98.090(B); 19.98.100(C); 19.98.120(B).) But whether the applicant has reduced its use of water *to the extent feasible* requires subjective judgment. Accordingly, the County's finding that an applicant has or has not adequately reduced its use of water to the extent feasible is a discretionary determination, and the County's approval of permits is not ministerial. (CEQA Guidelines §15369.)

0047-21

Other areas where there are no "fixed standards" or "objective measurements" and where the County must use expert judgment in determining whether the project applicant has complied with the mitigation measures set forth in the DEIR, include, but are not limited to:

0047-22

- Enforcement of mitigation measure 4.2-1, which requires that for oil and gas activities on farmland, the applicant submit to the County evidence of one or more measures to achieve mitigation, including the option for the applicant to "participat[e] in any agricultural land mitigation program adopted by Kern County that provides equal or more effective mitigation" than other listed mitigation measures;

- Enforcement of mitigation measure 4.3-5(c), which allows the County to waive setback distances to sensitive receptors if setbacks cannot be met, as long as the County finds that the applicant can demonstrate the it has achieved a level of risk less than the threshold risk level;
- Enforcement of mitigation measure 4.3-8, which allows the County to waive the requirement to pay an air quality mitigation fee if the applicant demonstrates that it can "reduce emissions for one or more designated criteria emissions through actual reductions in air emissions from other Applicant sources, as submitted to the County and validated by the [Air] District";
- Enforcement of mitigation measure 4.4-3, which provides that exclusion barriers or buffers *may* be used to avoid take of protected and sensitive species "where effective and feasible";
- Enforcement of mitigation measure 4.4-15(l), which requires that all site activity use previously disturbed areas to minimize habitat disturbance "to the maximum extent *feasible*";
- Enforcement of mitigation measure 4.4-16, which allows the County to approve new disturbance mitigation through a number of potential measures, or a combination of measures;
- Enforcement of mitigation measure 4.7-4, which requires the applicant to offset greenhouse gas emissions not covered by the Cap-and-Trade program or other mandatory greenhouse gas emission reduction measures, to ensure no net increase in greenhouse gas emissions, and which necessarily requires the County to use expert judgment to determine whether the applicant has accurately reported the emissions required to be offset and has adequately reduced those emissions;
- Enforcement of mitigation measure 4.8-3, which requires that fuel and lubricant tanks have "*appropriate*" secondary spill containment;
- Enforcement of mitigation measure 4.8-6, which requires the applicant to implement "the most up-to-date best management practices" including using closed loop mud systems "*when practical*"; design systems with the smallest volumes possible to minimize waste generation; reduce and reuse oil-based muds and high density brines "*when practical*"; construct "*adequate*" berms around materials and waste storage areas to contain spills; and use "*strongly suggested*" containment for produced water tanks;
- Enforcement of mitigation measure 4.8-8, which requires applicants to use the "*appropriate*" American Petroleum Institute Standards, or "the same or equivalent standards";
- Enforcement of mitigation measure 4.8-15, which requires applicants who intend to use more than 10,000 pounds of acutely hazardous chemicals within .25 miles of a school to "evaluate whether other alternative chemicals that are less hazardous could be used";
- Enforcement of mitigation measure 4.9-2, which requires applicants to prepare a drainage plan which specifies "best management practices" and is designed to minimize runoff and the potential for impeding or redirecting 100-year flood flows; and
- Enforcement of mitigation measure 4.12-1, which requires that if noise levels are shown to exceed 65 dBA in an area where there are sensitive human noise receptors, then a variety of mitigation measures or combination of measures could be taken to reduce the impact, and the applicant must submit to the County details on "the combination and methods used to determine the level of reduction."

Enforcement of all of these mitigation measures leaves it to the County's expert judgment to determine whether a certain mitigation measure is "feasible," "appropriate," "adequate," or "practical," can be waived or substituted, or can be demonstrated through a combination of mitigation measures. The County thus has wide discretion to disapprove the permit application if it finds that the applicant has not adequately demonstrated, in the County's judgment, that the mitigation measures are met.

0047-22
Continued

Because the County must use its judgment in determining how and if a project is to be carried out, and because it may approve or deny a project based on subjective judgments, the County's approval of oil and gas permits is not ministerial under CEQA. (CEQA Guidelines §15369; *Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal.App.3d 259, 274 [holding that power to determine what building components were "adequate" rendered the permit approval discretionary]; *Natural Resources Defense Council, Inc. v. Arcata Nat. Corp.* (1976) 59 Cal.App.3d 959, 970 [holding that review of whether logging plan had "adequate" drainage and utilized the general contours of the land "to the full extent practicable" rendered approval discretionary].) To the extent the ordinance attempts to authorize County approvals of oil and gas permits without complying with CEQA's requirement that the County prepare an initial study and issue public notice, it is invalid.

0047-23

III. The DEIR's Proposed Mitigation Measures Are Impermissibly Vague and Unenforceable.

0047-24

Many of the mitigation measures proposed by the DEIR are impermissibly vague and improperly deferred. They are also all effectively unenforceable, because there is no mechanism in the Proposed Ordinance to ensure that future permits comply with the measures. For these reasons, the mitigation measures are invalid under CEQA.

CEQA requires that an agency issuing an EIR identify mitigation measures that, if implemented, would reduce the impacts of the project below the "significance" threshold. (Cal. Pub. Res. Code § 21081.) For each significant impact, an agency must either identify measures that the project will include that will mitigate the impact, identify measures that another agency has jurisdiction to adopt, or find that the necessary mitigation measures are infeasible. (Cal. Pub. Res. Code § 21081.) In the latter case, the agency must issue a statement of overriding considerations describing why the project should go forward even without the infeasible mitigation measures. (*Sacramento Old City Assn. v. City Council* (Ct. App. 1991) 280 Cal. Rptr. 478, 492 [citing Pub. Res. Code § 21081(a)].) Mitigation measures must be "fully enforceable through permit conditions, agreements or other measures." (Pub. Res. Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(2); *Sierra Club v. Cnty. of Fresno* (2014) 226 Cal. App. 4th 704, 750, review filed (July 8, 2014).) Agencies must support their finding that mitigation measures are adequate with substantial evidence.

0047-25

Many of the mitigation options proposed by the DEIR are "cursorily described," are "nonexclusive, undefined, untested and of unknown efficacy," and create "no objective criteria for measuring success." (*Communities for a Better Environment v. City of Richmond*, 184 Cal.App.4th, 93). For example, MM 4.9-2 vaguely requires applicants to prepare a drainage plan which specifies "best management practices." And MM 4.3-8 provides unlimited options for applicants to reduce criteria air emissions, as long as the County approves the proposed method. With regard to the toxic emissions caused by the ordinance's permitted activities, the DEIR and its appendices only vaguely refer to unspecified "mitigation" measures that are assumed to be 100% efficient, causing "0.000000" ammonia and formaldehyde emissions from well activity. (*See* Exhibit B, 3) Because these vaguely defined and deferred mitigation measures offer no assurance that the significant impacts of the project will be mitigated, they are invalid. (*Communities for a Better Environment v. City of Richmond*, at 93).

0047-26

The mitigation measures provided for in the DEIR also lack adequate enforcement because there is no clear mechanism in the proposed zoning ordinance for ensuring, before permits are issued, that all mitigation measures are included. Under the proposed Oil and Gas Conformity Review, a project applicant need only provide basic information to the Planning Department about the proposed oil and gas activity (e.g., the name and telephone number of the property owner and the topography of the

0047-27

site), and does not need to demonstrate compliance with the mitigation measures. (Proposed Kern County Zoning Ordinance § 19.98.080.) The Planning Director then may issue a permit if she determines that "the proposed use meets the implementation standards and conditions" of the zoning ordinance. (Proposed Kern County Zoning Ordinance §§ 19.98.090(B); 19.98.100(C).)

0047-27 Continued

There is thus no mechanism within the zoning ordinance for the Planning Director to confirm that all mitigation measures have been included in the project, because the project applicant has no duty, pre-permit, to demonstrate that it has incorporated mitigation measures into the project. The only duty to demonstrate mitigation under the Oil and Gas Conformity Review is the vague requirement under § 19.98.060(D) that applicants demonstrate compliance with mitigation measures, along with the "self-certification" provided by the applicant post-completion of the project. And even that self-certification doesn't apply to Oil and Gas Conformity Review under section 19.98.100 (for Oil and Gas Conformity Review without the required surface owner signature). (*See* Proposed Kern County Zoning Ordinance § 19.98.130.) This self-certification is inadequate because mitigation measures must be structured as a condition of *future* permit approval; not, as in this case, included only as an after-the-fact self-certification. (*Woodward Park Homeowners Ass'n, Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 729-30 [finding mitigation payment inadequate when it was not structured as a condition on site-plan approval and use-permit issuance].) Moreover, even if an after-the-fact certification could be adequate, the provision for self-certification lacks any specificity as to what exactly an applicant must include in self-certification, and how the measures would be enforced through self-certification and by whom, rendering it impermissibly vague and therefore invalid. (*See Sierra Club v. Cnty. of Fresno* (2014) 226 Cal. App. 4th 704, 750, review filed (July 8, 2014) [finding that mitigation measures that were vague as to how they would be enforced were invalid].)

0047-28

The Minor Activity Review, unlike the Oil and Gas Conformity Review, at least requires that the applicant provide a "[d]escription of proposed oil and gas activity and documentation of compliance with applicable Mitigation Measures" in order to receive a permit. (Proposed Kern County Zoning Ordinance § 19.98.110(E).) However, this provision still lacks specificity as to what "documentation" is required to show compliance with the mitigation measures, and is therefore invalid. (*See Sierra Club v. Cnty. of Fresno* (2014) 226 Cal. App. 4th 704, 750, review filed (July 8, 2014); Pub. Res. Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(2).)

0047-29

At a minimum, the proposed zoning ordinance should be revised to require detailed documentation of mitigation measures to be provided in the Application Contents that are submitted to the Planning Director, as a condition of permit approval, for both Oil and Gas Conformity Review and Minor Activity Review. The ordinance should specify exactly what must be submitted to the Planning Director, and should track the list of mitigation measures included in the DEIR. In turn, the Planning Director's approval should include a specific requirement to review and determine compliance with the mitigation measures listed in the DEIR. This should include completion of a checklist detailing each mitigation measure proposed by the DEIR and require a description of how each mitigation measure will be met, using specific criteria to measure the effectiveness of the mitigation measures. As discussed above, because this is a discretionary process, notice and opportunity for public comment should also be provided on the mitigation measures proposed to be employed. (*See Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 93 ["Fundamentally, the development of mitigation measures, as envisioned by CEQA, is not meant to be a bilateral negotiation between a project proponent and the lead agency after project approval; but rather, an open process that also involves other interested agencies and the public."].) To better ensure enforceability of the mitigation measures, the proposed zoning ordinance should also be revised to incorporate the proposed mitigation

0047-30

measures as substantive zoning requirements, to the extent they are not already included in Chapter 19.98 of the zoning code.

0047-30 Continued

IV. The DEIR's Impacts Analyses are Severely Flawed.

0047-31

As detailed above, the DEIR's scope is far too broad and is improper for a project-level EIR. Because the DEIR is nonetheless classified and structured as a project EIR, the document circumvents current and future analyses of numerous significant direct, indirect and cumulative impacts caused by the oil and gas zoning ordinance and future well activity. With regard to the Air Quality impacts caused by the Project, the County cannot move forward with approval of the zoning code changes without an accurate and thorough assessment of the detrimental, cumulatively considerable impacts caused by current and future oil and gas well activity. Such impacts are particularly acute and potentially devastating in the Project Area as it is located in a basin that suffers extreme non-attainment for harmful air contaminants. Similarly, with regard to hydrology, water quality and water supply, the DEIR's failure to adequately analyze the Project's direct, indirect and cumulative impacts precludes the County from making an informed decision regarding the Project, particularly in light of current and foreseeable drought and climate change conditions. The DEIR also fails to account for the potentially devastating public health impacts that may result from degradation of groundwater quality and quantity.

0047-32

A. The DEIR's Air Quality Analysis is Based on an Impermissibly Broad Scope, Flawed and Underestimated Assumptions of Well Activity in and Around the Project Area, and Inadequate Mitigation.

0047-33

As further detailed in the attached expert report by Dr. Ron Sahu, there are at least three primary flaws in the DEIR's approach to analyzing the air impacts resulting from the oil and gas zoning ordinance. (*See* Exhibit B.) First, because the scope of the DEIR's analysis is far too broad in terms of time, spatial-scale, and both the extent and intensity of future well activity, the document fails to adequately analyze the true range of air quality impacts that will be caused by oil and gas activities permitted throughout the County. Second, where incorporated into the DEIR's analyses of the air emissions associated with future well activity, the DEIR's assumptions of what that activity consists of are erroneous and are unsupported by evidence contained in the DEIR's appendices or elsewhere. Third, while the DEIR concedes that many of the air quality impacts from the oil and gas zoning ordinance will be significant and unavoidable with mitigation, the DEIR sets forth largely inadequate and ineffective mitigation measures to address air quality impacts overall. As explained above, many of the DEIR's mitigation measures are improperly vague and wholly unenforceable. Still others are simply inadequate to actually address the emissions caused by the oil and gas activity envisioned in the ordinance and purportedly encompassed in the DEIR's environmental review.

0047-34

With regard to the broad analytic scope of the oil and gas zoning ordinance's permitted activity, the DEIR's attempt to assess and mitigate the air emissions from drilling over 2,500 wells each year for the next 20 years is futile. (*See* Exhibit B, 2.) Both conceptually and practically, it is impossible to determine the extent to which this level of future oil and gas well activity will impact an air basin that already suffers from extreme non-attainment. Moreover, the significance of air emissions impacts from numerous individual projects cannot be determined without knowledge of future environmental and regulatory conditions. Thus, the need for future and continuous environmental review is paramount.

0047-35

The DEIR's assumptions and projections regarding future well activity are also severely flawed

0047-35 Continued

and unsupported by objective sources of information on the record. For example, the DEIR applies a constant projection of well depth that fails to account for changing technologies, and oil and gas resource accessibility. Dr. Sahu points out that it is only logical to foresee, based on patterns in the oil and gas industry as well as decreasing oil and gas supplies, that as oil and gas resources at shallower depths become less plentiful, well depth will increase in the future. (Exhibit B, 8.) This increased well depth will be accompanied by an increase in air emissions as the intensity at which drilling and extraction activities are conducted will increase, resulting in the need to evaluate emissions associated with varying well-depths over time. (*Id*.) The DEIR nonetheless assumes for the purpose of analyzing the air emissions associated with the oil and gas zoning ordinance, that all wells drilled in the Project Area through the year 2035 will be 10,000 feet or shallower. (*Id*.) However, this assumption is unsupported by data compiled in the year 2012, which the DEIR references throughout its various impacts analyses and which shows that numerous wells were drilled at depths greater than 10,000 feet throughout the County. (*Id*.) Indeed, according to the data compiled in that year alone, roughly 25% of wells drilled in the Central Zone of the Project Area were at least 12,000 feet deep. (*Id*.)

0047-36

Beyond its flawed assumptions regarding well depth, the DEIR fails to state any support for its assumed VOC factor intensity in the crude oils extracted throughout the Project Area; it fails to base its emissions calculations on an accurate assessment of the emissions from all emission sources – including all pumps, valves, connectors, flanges and other well components; and it assumes that the number of idle wells will remain constant over time. (Exhibit B, 9.) Notably, the DEIR's preferred data set from which it derives its well-activity assumptions for the purpose of air emissions and other impacts analyses is almost exclusively comprised of voluntarily reported industry data. For example, the DEIR bases its conclusions of Project emissions on projections of well activity from the petroleum industry, applying industry-based estimates of what the well activity will be throughout the duration of the "Project." (DEIR, 4.3-79.) The DEIR also states that "the information used for evaluating well construction activities was obtained from detailed records compiled during the construction of ten new oil and gas production wells in 2010 and 2011." (DEIR 4.3-73.) The DEIR fails to explain, however, the precise source of those records, and why these particular ten oil and gas production wells would accurately predict or project the range of impacts from potentially thousands of new oil and gas wells each year, through 2035.

0047-37

In large part because of the severe inadequacies in the DEIR's evaluation of the air quality impacts that oil and gas well activities will have in and around the Project Area, the document's proposed mitigation measures fail to minimize the Project's true impacts. Dr. Sahu points out that in many instances, despite the DEIR's findings of significance in the area of air quality impacts, the DEIR attempts to mask several of the air impacts associated with the zoning ordinance's activity through applying ineffective mitigation. (Exhibit B, 4.) It does this by failing to quantify the actual reductions in emissions from mitigation applied to various sources associated with well activity, and in many instances it improperly relies on "alternative" forms of mitigation that are not associated with actual emission reductions but may instead involve payment into "mitigation funds" or similarly ineffective efforts. (Exhibit B, 6-7 [describing the inadequacies of MM 4.3-1 through 4.3-4 in failing to provide any quantitative reductions in tons of emissions of specific pollutants from drilling and well activity].) As Dr. Sahu notes, "paying into a mitigation fund cannot 'mitigate' emissions if actual emitting sources cannot be identified from which such real reductions are to be obtained." (Exhibit B, 7.) The use of mitigation fund payments in lieu of actual, quantifiable emissions reductions indeed raises serious concerns that there are simply not enough sources in the Project area from which any meaningful further reductions can be extracted or otherwise obtained. (*Ibid*.)

0047-38

Finally, an additional major flaw in the DEIR's analyses and in its ability to enable meaningful

0047-38 Continued

public comment is its failure to include the report prepared by Vector Environmental, Inc., which forms the basis of many of the EIR's projections and conclusions. While certain tables from the report are included in the text of the DEIR, the report itself is missing from the DEIR's appendices, thereby precluding meaningful review and comment on the contents of that report, in violation of CEQA. (Pub. Res. Code § 21003.1 (b) [Requirement that "[i]nformation relevant to the significant effects of a project, alternatives and mitigation measures which substantially reduce the effects shall be made publicly available as soon as possible by the lead agency"].)

B. The DEIR's Analysis of the Project's Direct and Indirect Water Quality and Water Supply Impacts is Severely Flawed.

0047-39

Much like the DEIR's analysis of the air emissions impacts that will result from the oil and gas zoning ordinance, its analysis of both the quantitative and qualitative impacts to the County's and to the region's hydrological resources suffers numerous deficiencies. As a preliminary matter, because the DEIR applies projections of future well activity based on voluntarily reported industry data, the extent and concentration of such activity is underestimated, tainting the document's impacts analyses overall, including its analysis of water quality and water supply impacts. In addition to this significant flaw, the DEIR applies an unrealistically low estimate of well failures during the construction phase of individual projects, which similarly taints the document's analysis of severe, detrimental impacts that are caused by chemical and other accidental leaks of well-stimulation material into both surface and groundwater sources. The DEIR projects that only 2 well-construction failures will take place each year throughout the life of the Project. A common sense analysis, however, suggests this is highly unlikely with the estimated 2,697 new wells projected to be permitted and constructed each year.

0047-40

0047-41

Moreover, the DEIR's reliance on the use of "produced water" to mitigate the Project's groundwater impacts is severely problematic. The DEIR itself concedes that the use of produced water to replace project-related groundwater use is subject to various technical and logistical variables, and is therefore uncertain. (DEIR 4.9-140.) It also carries serious risks that are not analyzed and are improperly dismissed in the DEIR. (See, e.g., DEIR at 4.9-138-139 [dismissing risks from UIC steam-water injections into non-exempt groundwater aquifers].) These impacts include those associated with the use of produced water in enhanced oil recovery ("EOR") activities.

0047-42

The DEIR states that at least "2,021 EOR wells, including 1,721 wells in DOGGR District 4, which generally encompasses the project area" could be "discharging into non-exempt aquifers" in violation of the Safe Drinking Water Act's Underground injection control ("UIC") program and criteria, causing potentially devastating groundwater impacts. (DEIR 4.9-138.) Without analyzing these impacts, however, the DEIR uses a May 2015 letter from the State Water Resources Control Board and DOGGR to the EPA to negate the significance of the impacts that have been, and will continue to be caused by the past, current, and foreseeable future discharges from injection wells located in and around the Project Area, which are in fact part of the Project's proposed "mitigation" to address Project-related groundwater impacts. (DEIR 4.9-129.) The DEIR summarily dismisses the impacts from discharges into non-exempt aquifers based on DOGGR and the regional water board's claim that the discharges are "'very unlikely to pose a threat' to water supply wells." *(Ibid*.) A mere single statement made in an unofficial letter, however, cannot take the place of the substantial evidence required to support the DEIR's findings. (*San Joaquin Raptor Rescue Center v. County of Merced*, 149 Cal.App.4th 645, 652-653 [holding that the focus of a reviewing court's inquiry into the sufficiency of an EIR is not on the document's findings, rather it is on whether those findings have the support of substantial evidence contained in the lead agency's record of decision].) The DEIR does not account for discharges into

underground sources of drinking water protected by the Safe Drinking Water Act, and it fails to provide groundwater testing data from drinking water wells, throughout the Project Area, to determine the extent of impacts from the use of produced water. The DEIR, therefore, cannot rely on the use of a practice that on its own may cause significant impacts that must be mitigated, without conducting CEQA review. (*California Clean Energy Committee v. City of Woodland*, 225 Cal.App.4th 173, 200 (2014) [holding that an EIR which purported to be a program EIR was inadequate, notwithstanding its attempt to tier subsequent EIRs, because it failed to provide adequate mitigation for the impacts known at the time of its drafting].)

0047-42 Continued

Finally, and in addition to the fact that use of produced groundwater itself carries risks that are not analyzed or mitigated in the DEIR, because the DEIR both fails to account for the level of use of groundwater resources from other industrial and agricultural activities, and fails to apply a verifiably accurate projection of current and future well activity, the use of produced groundwater to mitigate Project-related groundwater use is inadequate.

0047-43

C. The DEIR Fails to Adequately Analyze the Cumulatively Considerable Impacts of the Proposed Zoning Ordinance Revisions.

0047-44

An EIR must always discuss the cumulative impacts of a project when its incremental effects are "cumulatively considerable." (Pub. Res. Code § 21083(b)(2); CEQA Guidelines § 15130(a).) Moreover, in the specific context of a programmatic EIR, one of the key purposes of the EIR is to "ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis." (CEQA Guidelines § 15168(b)(2).) Programmatic EIRs play an instrumental role in allowing the lead agency to consider broad policy alternatives and program-wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems in program implementation, or cumulative impacts. (CEQA Guidelines § 15168(b)(4).) Accordingly, the CEQA Guidelines require lead agencies to explain how implementing the particular requirements in the plan, regulation or program under review "ensure[s] that the project's incremental contribution to the cumulative effect is not cumulatively considerable." (Guidelines § 15064, subd. (h)(3).)

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." (CEQA Guidelines § 15355.) "Cumulatively considerable" impacts are present when "the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" and activities. (Pub. Res. Code § 21083(b)(2); CEQA Guidelines § 15065(a)(3).) As is the case for all impact categories, a lead agency's threshold findings of significance with regard to cumulative impacts must "be supported by substantial evidence"; and, where found, cumulatively considerable impacts must be adequately mitigated. (*See* CEQA Guidelines § 15064.7 (b).)

0047-45

Here, the DEIR concludes throughout its impacts analyses that the Project will cause significant and unavoidable impacts including significant and unavoidable cumulative impacts, notwithstanding the application of its proffered mitigation measures. These findings are particularly troubling in light of the current non-attainment status of the air basin in which the Project is located, the proximity of wells to sensitive receptors, and current as well as future extreme drought conditions. Notably, the document's findings of significant and unavoidable impacts prohibit the County from approving the Project without adopting a "statement of overriding considerations." (Pub Res. Code § 21081, subd. (b); Guidelines, § 15093.) The role of a statement of overriding considerations is to ensure that "the elected decision

0047-46

0047-46 Continued

makers have their noses rubbed" in the Project's environmental effects, and still vote to move forward. (*Vedanta Society of So. California v. California Quartet, Ltd.*(*Vedanta*)(2000) 84 Cal.App.4th 517, 530.) As such, it is critical that the DEIR contain an accurate assessment of the extent to which the significant and unavoidable impacts caused by the Project may tip the balance in favor of rejecting, rather than approving, the Project. Given their significance, and given the current and reasonably foreseeable conditions surrounding the Project, the Project's cumulatively considerable impacts fall among those that the County must thoroughly consider before approving the Project. (*Vedanta*, 84 Cal.App.4th, 530.)

i. The Project's Cumulatively Considerable Air Quality Impacts Are Underestimated in the DEIR.

0047-47

Despite the DEIR's conclusion that the Project will cause significant and unavoidable impacts to air quality in and around the Project Area, the DEIR still underestimates the severity of the Project's air quality impacts.

0047-48

As noted in the Air Quality impacts analysis above, and as further detailed in the expert report by Dr. Ron Sahu, attached at Exhibit B, the DEIR fails to account for the full range of emissions sources in well operations. (Exhibit B, 2-3.) Moreover, there is a significant risk that the DEIR's projections of well activity underestimate the extent to which such activity will take place, and is already taking place, in and around the County, because the DEIR applies estimates of current and future well activity from arbitrary data points.

0047-49

An adequate cumulative impacts analysis and discussion requires a thorough assessment of the incremental significance of the Project's impacts over time, and in consideration of "other projects causing related impacts." (Guidelines, § 15130, subd. (a)(1).) In its cumulative air quality impacts analysis, however, the DEIR fails to list other projects or ongoing activities that cause cumulative air quality and health burdens for Kern County residents. This failure renders the DEIR non-compliant with one of CEQA's fundamental purposes, which is "to ensure that governmental agencies regulate their activities 'so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian.'" (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214 [citations omitted].)

0047-50

Numerous existing well operations in and around the County are already sited in the vicinity of a number of sensitive receptors, including schools. The majority of county residents, including children that attend school in close proximity to existing well operations, are already exposed to the worst air pollution in the country. The San Joaquin Valley's current non-attainment status for NOx and PM 2.5, and the presence of high levels of other hazardous air pollutants, is caused by a number of ongoing activities including heavy diesel truck traffic for the transportation of goods and for the purpose of well operations; ongoing agricultural and heavy industrial activities including industrial recycling activities; and food processing activities such as dairy processing and rendering, among many others. Yet, the DEIR fails to explicitly address and evaluate the Project's cumulatively considerable impacts in relation to these and other ongoing activities in and around the Project Area; it fails to account for existing health burdens and it underestimates the Project's own direct impacts over time, which in turn taints the document's ability to analyze the incremental and cumulative significance of those impacts. Moreover, the Project's proposed mitigation measures are wholly inadequate to address the Project's contribution to existing cumulatively considerable health burdens in the Project Area. For example, while the DEIR proposes a minimum well setback distance for wells in each Project subarea at depths of 2,000, 5,000, and 10,000 feet, its setback distances are insufficient and fail to adequately protect the public from the impacts of well operations.

0047-51

Where operators cannot comply with the set-back distances, they are permitted to avoid them entirely by implementing "alternative mitigation" measures, which are "demonstrated by the Applicant to achieve a level of risk less than the threshold level." (DEIR at 4.3-111.) These mitigation options fail to actually mitigate the environmental and health impacts caused by close proximity to well operations, and they specifically fail to address the impacts that well operations have on vulnerable, overburdened Kern County residents. While applicants can choose from some specified alternative mitigation measures (which include relocating rigs and/or engines; retrofitting off-road and other equipment to reduce emissions; using electricity rather than engines when possible; using automatic rigs; shutting down equipment when not being used; limiting idling of equipment; and relocating residents during well construction, drilling, and completion), they are also permitted to devise their own unspecified alternative mitigation measures. (DEIR at 4.3-111-112.) The DEIR fails to describe how applicants' claims regarding the effectiveness of their proposed mitigation measures will be evaluated, and fails to include any evaluation or assessment of the effectiveness of its own specified alternative mitigation measures. For example, the DEIR omits any discussion about how mitigation measures such as moving engines further away from sensitive receptors would actually mitigate health risks caused by drilling and maintenance operations when the entire well area is already dangerously close to sensitive receptors based on the minimum setback distances.

0047-52

Long-term exposures to air toxics are associated with respiratory and neurological conditions in children and adults, and can cause cancer, birth defects and immune system damage. Acute exposures can also cause nausea, headaches and nosebleeds. Children, the elderly and those already suffering from chronic health issues are more vulnerable to these and other impacts, yet the DEIR fails to evaluate the Project's contribution to their cumulative health burdens. Because the DEIR fails to adequately analyze the incremental significance of the Project's impacts in relation to existing cumulatively considerable air quality impacts, the DEIR fails to account for these and other significant environmental and health impacts caused by the Project.

0047-53

These deficiencies in the DEIR's analyses cannot be dismissed as harmless or insignificant, and require analysis and mitigation to comply with CEQA as they could have grave public health consequences. *Bakersfield Citizens for Local Control v. City of Bakersfield* 124 Cal.App.4th, 1220.

ii. <u>The DEIR's Assessment of the Project's Cumulatively Considerable Impacts on Hydrology, Water Quality and Water Supply Raises Serious Concerns</u>.

0047-54

The DEIR's analysis of the Project's impacts on hydrology, water quality, and ground and surface water supply raises critical problems for the County and for the public at large. While the DEIR acknowledges that groundwater supplies in the County and specifically in the Project Area are depleting, it fails to consider the incremental significance of the Project's use of diminishing groundwater resources in the context of a rapid decline in both surface and ground water resources state-wide.

0047-55

According to the DEIR and its supporting documents, including its water supply assessment (WSA), current water demand in the Project Area stems from the following three general use categories: urban municipal and industrial (M&I) use, agricultural use, and use for oil and gas activities including those contemplated as part of the Project. (Appendix T at 77.) The resources used to meet the concurrent demands from each of these use areas include a combination of both diverted and local surface water resources as well as groundwater resources, which alone comprise a third of the total available water in Kern County. (Appendix T at 1, 77.) While the DEIR is likely correct in assuming that

0047-55
Continued

agricultural uses throughout the Project Area will continue to comprise the vast majority of the County's water demand, the DEIR incorrectly relies on overly conservative assumptions regarding the continued, future water resource demand from the agricultural industry, which taints the document's analysis of the cumulatively considerable impacts this Project will have on water quality and water supply. (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1217 [citing *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 870 to point out the importance of alerting decision makers and the public of the possibility that the water supply may not be sufficient to meet user demand in an environmentally sound way]; *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61, 63 [invalidating an EIR based on its "underestimation" of new and ongoing projects, masking "the true severity and significance" of the cumulative impacts of the project under review].) While the DEIR concludes that the Project will cause significant and unavoidable impacts to the County's groundwater resources, its analysis is based on dangerous underestimations of future agricultural demand for increasingly scarce groundwater resources in and around the Project area.

0047-56

Specifically, the WSA, which is used as the basis to support the DEIR's findings, applies groundwater use and impacts projections throughout the life of the Project based on an assumption that agricultural demand will remain the same as it is under current-level conditions. (*See* WSA at 77.) The assumption is problematic notwithstanding the DEIR's findings of significance largely because it hides flaws in the DEIR's proposed mitigation measures, including its proposed use of produced water to replace water used by both oil wells and agricultural activities. To the extent the projections are based on the continued current-level demand for agricultural use, such mitigation measures are likely to be wholly inadequate to mitigate impacts from increased demand for a rapidly decreasing resource.

0047-57

Moreover, because the DEIR's analyses are improperly set forth as project-level analyses, they preclude the County and the public from assessing the true project-level impacts of future well activity in the Project Area, which would not be subject to future environmental review in violation of CEQA. (*In Re Bay Delta Programmatic Envtl. Impact Report Coordinated Proceedings*, 43 Cal.4th, 1173.) Just some of the estimates that should be subject to future project-specific environmental review include:

- The DEIR's estimates of current and continued groundwater resource use for well operations throughout the course of the Project;
- The DEIR's estimates of other uses of ground and surface water resources in and around the Project Area, specifically including increased groundwater resource use for both agricultural and M&I uses over the course of the Project;
- The DEIR's conclusions regarding the incremental or cumulative significance of the Project's ground and surface water resource use, particularly in light of potentially worsening drought conditions over time.

In sum, despite the DEIR's acknowledgment that Project Area demand for groundwater resources is projected to exceed supply through the year 2035 in both single and multiple dry years, and despite its findings of significance with regard to the Project's cumulatively considerable impacts to hydrology and water quality, the DEIR fails to accurately set forth the Project's impacts on groundwater and water resource supply in the County, and it obscures the level of analysis required to comply with CEQA. (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1217 ["Proper cumulative impacts analysis is absolutely critical to meaningful environmental review"].)

V. The DEIR's Alternatives Analysis Impermissibly Rejects Feasible Alternatives

0047-58

The alternatives analysis is critical to the integrity of an EIR. (*In re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceedings*, 43 Cal. 4th 1143, 1162 (2008) ["The EIR is the heart of CEQA, and the mitigation and alternatives discussion forms the core of the EIR."]). An EIR must "ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official." (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, 27 Cal. App. 4th 713, 735 (1994); *see also* Cal. Pub. Res. Code § 21002.1(a).)

0047-59

The County must identify and "consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation." (CEQA Guidelines § 15126.6(a).) This reasonable range must include alternatives that "feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." (*Id*.) Furthermore, "an agency may not approve a proposed project if feasible alternatives exist that would substantially lessen its significant environmental effects." (*Save Panoche Valley v. San Benito Cnty.*, 217 Cal. App. 4th 503, 521 (2013) (citations omitted); *see also* Cal. Pub. Res. Code § 21081 (a); CEQA Guidelines, § 15091 (a)(3).) An agency's finding that an alternative is infeasible "must be supported by substantial evidence in the record." (*Id.*; Pub. Resources Code § 21081.5; Pub. Resources Code § 21081(a)(3).)

The CEQA Guidelines state:

> An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain *most* of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.

(3 14 Cal. Code. Regs § 1526.6(a) (emphasis added)). Thus, that an alternative may be inconsistent with some project objectives may not justify eliminating it from review. (*See id*. §§(c), (f).) The Guidelines also provide that:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

(*Id*. §§ 15126(b).) Given that the alternatives analysis is central to an EIR, the County cannot merely go through the motions of analyzing and summarily dismissing alternatives.

In the DEIR, the County purported to evaluate six alternatives, including a no project alternative. (DEIR 1-22-24.) The County's evaluation of these alternatives was deeply flawed. Furthermore, because

0047-60

the DEIR's discussion of alternatives is based on improper project purposes, the County impermissibly failed to analyze several additional alternatives.

0047-60 Continued

A. The DEIR Impermissibly Rejects Various Alternatives

0047-61

The DEIR impermissibly dismisses several alternatives that, if appropriately analyzed and characterized, could reduce environmental impacts. Despite identifying environmental benefits associated with several of these alternatives, the DEIR determines that five of the six alternatives are not environmentally superior to the Project. The DEIR does not adequately support its conclusion that only Alternative 5 (Low-Emission Enhanced Oil Recovery Technology Alternative) is "environmentally superior." (DEIR 1-27.) Furthermore, the EIR could combine the benefits of various alternatives.

i. <u>"No Project" Alternative (Alternative 1)</u>

0047-62

This alternative has not been given adequate consideration, and must be reconsidered. The DEIR concludes that this alternative "is environmentally inferior to the proposed Project" because "none of the Project's proposed development standards or conditions would be implemented in the County on a consistent basis for all new oil and gas wells in the future." (DEIR 6-18, 6-19.) The DEIR states that Alternative 1 "would not create an effective regulatory and permitting process for oil and gas exploration and production," but does not explain what it means by "effective." (DEIR 6-19.)

0047-63

Furthermore, this analysis ignores the fact that the proposed Project aims to increase oil and gas development in the County, which would have negative environmental and public health impacts, and to "streamline" regulations – *i.e*., preclude true project-level, site-specific environmental review that could reduce the impacts of individual drilling projects. Project-specific, site-specific CEQA analysis is required because each location and each well in the County has its own set of environmental considerations and other concerns including, but not limited to: community and environmental justice concerns, local water supply and hydrology, geology, faults and seismology, neighboring wells (i.e. offset wells), and threatened or endangered species impacts. To ensure full disclosure of each drilling project's local impacts and to adopt mitigation measures for those site-specific impacts, CEQA review at the level of individual oil and gas drilling projects is required.

ii. <u>CUP Alternative (Alternative 2)</u>

0047-64

This alternative, "[i]n effect, … would amend the Zoning Ordinance to eliminate all unrestricted, and ministerial approval of, oil and gas exploration, development, and production activities." (DEIR 6-20.) Even though this "would require a discretionary conditional use permit approval from the County that would incorporate site-specific and project-specific conditions of approval to minimize or avoid each project's potential environmental effects," the DEIR nevertheless concludes that "Alternative 2 is ultimately environmentally inferior to the proposed Project." (DEIR 6-20.) The DEIR's assertion that it is less environmentally protective to "consider the potential environmental effects each oil or gas well permitted in the County on a case-by-case basis" – and that it is preferable to implement a one-size-fits-all approach that precludes project-specific, site-specific CEQA review – is unconvincing and unsupported by substantial evidence.

0047-65

The County further asserts that this alternative "would not streamline the County's current oil and gas permitting procedures because it would impose a lengthy and cumbersome discretionary permitting process on all new oil and gas development within the County." (DEIR 6-21.) Attempting to eliminate comprehensive environmental review in order to create a "streamlined" regulatory process for the benefit of the oil industry is improper.

iii. Reduced Ground Disturbance Alternative (Alternative 3)

0047-66

This alternative would "prohibit all new well drilling activities outside existing DOGGR-designated 'Administrative Boundary' areas"; "require subsurface oil and gas to be extracted from surface equipment located within such Administrative Boundary areas"; and "limit the disturbance footprint on existing agricultural lands to requiring clustering of new wells in locations immediately adjacent to existing oil and gas equipment." (DEIR 6-22.) The DEIR notes that this alternative would "result in less overall ground disturbance than the Project," thereby reducing impacts to agricultural, biological, aesthetic, and hydrologic resources, but finds that because it would lead to more horizontal and directional subsurface drilling activities, it would increase air quality, greenhouse gas, and toxic air emission impacts. However, the DEIR does not provide adequate information regarding the magnitude of these potential impacts, and also fails to weigh the reduced environmental impacts against the potential increased impacts. The DEIR also fails to consider an alternative that is identical to Alternative 3 but does not allow horizontal and directional drilling to access oil and gas outside of the Administrative Boundary areas.

iv. No Hydraulic Fracturing Alternative (Alternative 4)

0047-67

The DEIR states that a ban on fracking "*could* cause an increased use of Enhanced Oil Recovery techniques in the Project Area," which would "cause a corresponding increase in the emission of greenhouse gases and criteria air pollutants." (DEIR 6-23, 6-24 [emphasis added].) The DEIR fails to provide adequate information regarding the likelihood of increased use of EOR techniques, or sufficient detail regarding the resulting impacts. The DEIR also states that "hydraulic fracturing uses a variety of hazardous materials and non-hazardous materials, though the significant majority of such materials have been determined to have a low hazard potential in terms of oral toxicity and there is no confirmed degradation of groundwater in the Project Area attributable to hydraulic fracturing or to other well stimulation techniques." (DEIR 6-24.) This analysis ignores the recent findings in the CCST report (including its conclusions regarding the uncertainties surrounding many of the impacts of fracking), as outlined, *infra*, in section VI of these comments.

v. Low-Emission Enhanced Oil Recovery (EOR) Technology Alternative (Alternative 5)

0047-68

This alternative would "require oil and gas well permit applicants to implement low-emission EOR technology as a condition of permit approval for new and replacement steam generators, and to replace existing steam generators constructed prior to 1990 within five years of enactment of the amended Ordinance." (DEIR 6-25.) The DEIR states that this would reduce air quality and greenhouse gas

0047-68 Continued

impacts. The DEIR concludes that this alternative is "environmentally superior" but does not propose to combine the benefits of this alternative with other alternatives. In addition, the DEIR states that this alternative would meet "most" of the Project objectives, but does not explain which objectives it would not meet. (DEIR 6-26.)

vi. Recycled Water Alternative (Alternative 6)

0047-69

This alternative would require Applicants "to treat an amount [of] produced water that is currently being disposed of via underground injection wells which is equivalent to the amount of M&I water used in Applicant's operations." (DEIR 6-26.) The DEIR fails to provide sufficient detail or analysis regarding the potential impacts of this alternative, and fails to weigh the enumerated potential benefits (reduction of hydrology and water quality impacts) against the listed potential impacts (adverse impacts associated with construction and operation of water treatment plants).[4] (DEIR 6-27.)

0047-70

The DEIR states that "[t]he increased cost of oil and gas development and production attributable to this alternative's funding obligations could … discourage, rather than encourage, ongoing economic development by the oil and gas industry…" (DEIR 6-28.) This statement illustrates why growth of the oil and gas industry is an improper project purpose: essentially any requirement to reduce environmental and public health impacts could be construed as at odds with this purported project objective, as most such requirements impose some sort of financial burden on industry. Notably, the stated project purpose directly conflicts with policy goals to reduce California's reliance on fossil fuels.[5]

B. The DEIR Impermissibly Refuses to Analyze Various Alternatives

i. Drilling Ban on Agriculturally Productive Land Alternative

0047-71

This alternative, which would "prohibit all new oil and gas exploration, development and production activities on lands zoned either Exclusive Agricultural (A) or Limited Agricultural (A-1) if such land is being used for agricultural production at the time of drilling permit application," was rejected for several reasons. (DEIR 6-11.) First, the DEIR states that because the Project's agricultural mitigation program would not apply, "there would be less agricultural lands conserved in perpetuity in the County, and there would be less restoration of agricultural lands to productive use through the removal of legacy oil and gas production equipment." (DEIR 6-11.) This position – that it is better for agricultural land to allow oil and gas drilling on it than to prohibit such drilling – is untenable and not supported by substantial evidence. Furthermore, prohibiting drilling on agriculturally productive land does not preclude restoring other agricultural lands by removing legacy equipment.

[4] For the overall Project is It was assumed that for every 27 wells, a centralized water treatment plant would be constructed, and the average water treatment plant would require 0.11 acres of disturbance. (DEIR, 3-44)

[5] *See, e.g.*, Governor Edmund G. Brown's Inaugural Address, as prepared on January 5, 2015, available at: https://www.gov.ca.gov/news.php?id=18828 (last accessed on September 11, 2015).

0047-72

The DEIR also states that, under this alternative, "it is more likely that otherwise prohibited oil and gas activities on agricultural lands would be displaced to non-agricultural lands with greater habitat and wildlife resource values than are typically found on previously disturbed and actively farmed irrigated agricultural land, potentially causing greater overall environmental harm." (DEIR 6-11-12.) However, the DEIR does not provide adequate analysis to substantiate this possibility.

0047-73

The DEIR states that "this alternative *could* result in more horizontal and directional subsurface drilling activities needed to recover subsurface oil and gas," which "would generate greater air quality, greenhouse gas, and toxic air contaminant emissions than would the proposed Project." (DEIR 6-12.) However, the DEIR fails to provide sufficient detail or analysis regarding the potential impacts of this alternative, and fails to weigh the benefits of banning drilling on agriculturally productive land against the potential increased impacts. Nor does it consider an alternative that prohibits horizontal and directional drilling to access oil and gas located beneath agricultural zoning districts.

ii. Drilling Ban on All Lands Alternative

0047-74

The County's reasons for eliminating this alternative from further consideration are arbitrary and unacceptable. The County must analyze this alternative. The County's first reason is that this alternative "would not achieve most Project objectives." (DEIR 6-12.) Several of these objectives, however, are improper. Specifically, "[i]ncreas[ing] oil and gas exploration and production in Kern County" (DEIR 6-11) – which is included in two of the applicants' enumerated objectives – is an improper project purpose that conflicts with the goal of decreasing reliance on fossil fuels such as oil and natural gas.[6] The County's second reason for refusing to analyze this alternative is that it is "infeasible due to existing legal restrictions on the County's authority to prohibit access to subsurface mineral interests without liability." (DEIR 6-12.) However, there is no additional explanation for why this alternative is legally infeasible.

iii. Fewer Wells within the Project Footprint Alternative

0047-75

This alternative was rejected "because it would not achieve the basic Project objectives of the Applicant (i.e., to provide for growth of the Kern County oil and gas industry through creation of streamlined environmental review and permitting process for all Kern County oil and gas operations)." (DEIR 6-13.) As discussed above, growth of the oil and gas industry in Kern County is an improper project purpose that conflicts with the goal of decreasing reliance on oil and natural gas. (*See* CEQA Guidelines, Appendix F.) [7]

0047-76

The county's second reason for refusing to analyze this alternative is that "a permit cap is legally infeasible due to legal restrictions on the County's authority to prohibit access to subsurface mineral interests without liability." (DEIR 6-13.) However, there is no additional explanation for why this alternative is legally infeasible.

[6] *See id*.
[7] *Id*.

iv. Renewable Energy Alternatives

a. Wind Energy Alternative

0047-77

The County rejected this alternative because it "it would not offer significant environmental advantages over the Project." (DEIR 6-15.) The DEIR states that wind turbine development would exacerbate environmental effects associated with well site development – e.g., additional ground disturbance and construction, noise impacts from subsonic noise generation, and avian mortality impacts. (DEIR 6-15.) Although the DEIR notes that this alternative "would reduce overall Project emissions by reducing each well site's reliance on pollution fossil fuel combustion to power well operations," it makes no attempt to weigh this reduction in air pollution impacts against the potential additional impacts associated with wind energy. As a result, it is unclear whether the benefits of the wind energy alternative may outweigh any potential impacts.

0047-78

In addition, the County refuses to analyze this alternative because "the energy storage technology necessary to make this alternative technically feasible is not presently commercially available." (DEIR 6-15.) The County does not provide any information or analysis to substantiate this claim. In fact, the Public Utilities Commission has very significant procurement targets for energy storage with the intent of transforming the market for energy storage and that will significantly increase the amount of storage deployed in California.[8]

b. Solar Energy Alternative

0047-79

The County rejected this alternative because it "it would not offer significant environmental advantages over the Project." (DEIR 6-16.) The DEIR states that solar photovoltaic technology would expand each well site footprint and result in additional ground disturbance and construction, thereby exacerbating the environmental effects associated with well site development. (DEIR 6-16.) Although the DEIR notes that this alternative "might reduce the Project emissions overall by reducing reliance on polluting fossil fuel combustion to power well site operations," it makes no attempt to weigh this reduction in air pollution impacts against the potential additional impacts associated with solar PV electric generation. As a result, it is unclear whether the benefits of the solar energy alternative may outweigh the potential impacts.

0047-80

In addition, the County refuses to analyze this alternative because "the energy storage technology necessary to make this alternative technically feasible is not presently commercially available." (DEIR 6-16.) The County does not provide any information or analysis to substantiate this claim. In fact, the Public Utilities Commission has very significant procurement targets for energy storage with the intent

[8] Public Utilities Commission, D.13-10-040 (Oct. 17, 2013), available at: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M079/K533/79533378.PDF ; *see also*, http://www.greentechmedia.com/articles/read/california-dreaming-5000mw-of-applications-for-74mw-of-energy-storage-at-pg and http://www.climatecentral.org/news/california-developing-energy-storage-18529 [demonstrating California's flourishing energy storage economy, in light of regulatory and market developments].

of transforming the market for energy storage and that will significantly increase the amount of storage deployed in California.[9]

0047-80 Continued

v. Zero Net Gain Alternative

0047-81

The County rejected this alternative "because it would not achieve most of the Applicant's Project objectives," including its objectives to "achieve an efficient and streamlined environmental review and permitting process for all oil and gas operations covered by the Project"; to "provide for economically feasible and environmentally responsible growth of the Kern County oil and gas industry"; and to "increase oil and gas exploration and production in Kern County…." (DEIR 6-16.) As discussed above, growth of the oil and gas industry and increasing oil and gas exploration and production are not proper Project objectives. As such, they cannot be used as a rationale for refusing to analyze feasible alternatives.

VI. The DEIR Fails to Adequately Incorporate the California Council on Science and Technology's Findings, Points of Analysis, and Recommendations Regarding All Oil and Gas Well Stimulation in the County and Throughout the Region.

0047-82

Pursuant to state law, the California Council on Science and Technology ("CCST"), a non-profit organization commissioned by the California Natural Resources Department, conducted a state-wide survey of oil and gas well activities, in order to assess current and potential future well stimulation practices and to determine, to the extent feasible, the impacts that such practices will continue to have on the environment and public health.[10] While the first volume of this report was made publicly available in January 2015, the full report including its two additional volumes, overarching conclusions, and recommendations from the CCST and other contributors, was released to the public one day after the Notice of Availability of the DEIR and the DEIR itself were published.[11] The complete three volumes now set forth a comprehensive, working analysis of current gaps in knowledge and information regarding oil and gas well stimulation activities throughout the State, including impacts on water resources, seismic activity, wildlife, vegetation and human health, *inter alia*. [12]

0047-83

Despite the insights and updated information contained in the Report, its conclusions and recommendations, the DEIR fails to incorporate numerous points raised throughout the report in its analyses. The CCST Report's two new volumes and Executive Summary stress the importance of assessing the full range of impacts including the indirect and cumulative impacts of all well stimulation activity, specifically including fracking and acid matrix techniques that are most prevalent throughout the San Joaquin Valley. This information is critical to providing a meaningful analysis of the impacts that

[9] *Id*.
[10] *See* California State Senate Bill 4, D. Pavely, 2013, An act to amend Sections 3213, 3215, 3236.5, and 3401 of, and to add Article 3 (commencing with Section 3150) to Chapter 1 of Division 3 of, the Public Resources Code, and to add Section 10783 to the Water Code, relating to oil and gas.
[11] *See* Notice of Availability of the DEIR, which together with the DEIR was published and circulated for public review on July 8, 2015. *See also* Exhibit D, the CCST Press Release regarding the release of the complete report, dated July 9, 2015.
[12] *See* CCST Report and Executive Summary, which are hereby incorporated into the Count's administrative record of decision, available at: http://ccst.us/publications/2015/2015SB4-v2ES.pdf; https://ccst.us/projects/hydraulic_fracturing_public/SB4.php (last accessed on September 11, 2015).

0047-83 Continued

can be anticipated from the oil and gas zoning ordinance and its permitted well activity over time. Rather than apply the CCST's findings throughout its analysis, however, the DEIR merely references some of the data contained in the Report's initial volume, while failing entirely to refer to the same or updated information in its impacts analyses.

0047-84

For example, in reference to water quality and supply impacts, the DEIR uses the CCST report's finding that hydraulic fracturing or fracking in California uses less water than other uses and less water than is used in other states. (DEIR 4.9-18.) Yet the DEIR fails to reference any of the CCST report's findings or its conclusions regarding the need to assess the adequacy of regulations to address the numerous indirect impacts of fracking; the need to limit the use of poorly understood chemicals in fracking and related well-stimulation activities; the need to properly manage all produced water from hydraulically fractured or acid stimulated wells appropriately; the need to test for and evaluate groundwater chemistry regularly; the need to comprehensively evaluate trade-offs in determining whether to used certain waste water disposal practices; and the need to add protections to avoid groundwater contamination from fracking and related well-stimulation activities.[13]

0047-85

The CCST Report also finds that leakage of highly dangerous fracking chemicals can and does occur from numerous wells throughout the state, and that emissions concentrated near all oil and gas production could present serious health hazards to nearby communities. (*See* Exhibit D.) As noted above, the DEIR's failure to account for the incremental significance of future oil and gas well activity in light of the cumulatively considerable existing health burdens that already impact vulnerable communities throughout the County is fatal. Now, in light of the findings made in the recent CCST Report, it is even more important to take these impacts seriously, as they can cause devastating consequences for vulnerable County residents.

0047-86

The DEIR's omission of information from the Report that specifically focuses on oil and gas activities in Kern County and its surrounding area is particularly egregious, in light of the Report's clear insights into the need for further review of the oil and gas zoning ordinance's impacts. For example, Chapter Five of the CCST Report, entitled "Potential Impacts of Well Stimulation on Wildlife and Vegetation," includes a section focused on Kern County, which "has the highest density of hydraulic fracturing and matrix acidizing in the state." (CCST, Vol. II, p. 316.) Yet the DEIR, which was released the day before Volumes II and III of the Report were released,, fails to incorporate what was learned in the CCST study, specifically as it applies to oil and gas drilling and other well-stimulation issues throughout the County.

0047-87

The DEIR also fails to make use of the findings of the CCST Report's case study of the potential risks associated with fracking in existing oil fields in the San Joaquin Basin. The case study "evaluates specific risks to water, air and public health associated with continued well stimulation in the San Joaquin Basin." (CCST Vol III, p. 270.) The introduction explains that the goal of the case study "is to develop an understanding of the risk from future well stimulation, with an emphasis on hydraulic fracturing, to water and air resources, public health, and wildlife and vegetation in the San Joaquin Basin." (*Id*. at 269.) Like the rest of the CCST report, the case study acknowledges future uncertainties that highlight the need for future environmental review. (*See, e.g., id*. ["The risks that may occur in the future will depend on how production in the basin develops."].)

[13] *See id*.

0047-88

The Report notes that a "general concern about hydraulic fracturing is that stimulation chemicals could leak into the environment, including drinking water wells, via potential subsurface leakage paths." (*Id.* at 268.) Because most fracking in the San Joaquin Basin currently occurs at depths shallower than 1,000 feet, this can "present a hazard if there is nearby protected groundwater." (*Id*. at 268.) Furthermore, reservoirs in the basin "have a high density of existing wells, which may provide potential pathways for leakage of stimulation fluids into groundwater," and the density of faults in the basin "indicates that tens of shallow hydraulic fractures each year may intersect faults that are sufficiently large to potentially extend to protected groundwater." (*Id*. at 268.) Although "[n]o incidents of groundwater contamination due to stimulation have been found in the San Joaquin Basin to date" the Report points out that "*there has also been no targeted monitoring of groundwater quality*, nor have there been specific efforts to determine the extent of potentially compromised wellbore integrity." (*Id.* at 268 [emphasis added].) In addition, "if leaks are relatively small, as can be expected for the majority of leaky wells, they are not easily detectable in the groundwater, even when dedicated monitoring is conducted." (*Id*.)

0047-89

The Report further notes that "oil and gas production accounts for an appreciable portion of some air pollutants released in Kern County, *but very little data have been collected to evaluate air emissions from oil and gas wells*." (*Id*. at 268 [emphasis added].) Furthermore, oil and gas production is the dominant source of hydrogen sulfide (96%) and a major contributor to other emissions such as formaldehyde (26%). (*Id*. at 268.) The Report also reinforces the impacts that wells have to nearby sensitive receptors as described above in relation to the ordinance's air quality and human health impacts. The study points out that "[t]he concentration of air contaminants is larger closer to the source of emissions, so those in close proximity to production wells could be exposed to higher than average concentrations. Of the population both within the San Joaquin Valley Air Pollution Control District and a county with more than one oil and gas field, 21% live within 2 km (1.2 mi.) of a well for oil and gas production. Of this population, 21% are estimated to be in such proximity to a hydraulically fractured well, which is 3.4 % of the total population. Thus, to the extent exposure to air contaminants from oil and gas wells is a concern, it is a concern for all wells, not just those that are hydraulically fractured." (*Id*. at 268.)

0047-90

The study further hints at clear potential mitigation measures that have not been considered by the County in drafting the DEIR. These include preventing the elimination of natural landscape migration corridors between and through fields with predominantly fractured pools in the southwestern San Joaquin Basin. (*Id*. at 269.) The study recommends requiring best management practices that would reduce future oil and gas development in these areas in order to provide migration pathways between the surrounding wildlife habitats and to "consolidate facilities to retain some percentage (to be tested) of undisturbed habitat in reserve areas." (*Ibid*.)

0047-91

The DEIR further fails to account for the need to for additional information to assess the impacts of well stimulation activities. For example, with regard to water resources, the CCST notes the following uncertainties and data gaps, among others:

- Chemical additives: "100 chemicals could be the minimum number of completely unknown materials" (CCST, Volume II, at 81)
- "The amount and fate of the injected fracturing fluids that is left behind in the subsurface is unknown" (*Id*., at 90)
- "The fraction of injected chemicals that return to the surface, and the time period over which they return, are unknown" (*Id*., at 98)

0047-91
Continued

- "[M]ost groundwater sampling studies do not even measure stimulation chemicals, partly because their full chemical composition and reaction products were unknown" (*Id*., at 129)
- "The use of produced water from unconventional production raises specific or unique concerns, because of the variety of chemicals used during well stimulation that may end up mingled with produced water and the unknowns concerning the toxicity and environmental profile of those chemicals" (*Id*., at 114)
- "It is important to note that groundwater quality beneath the majority of active disposal pits, especially along the West San Joaquin Valley, is not known" (*Id*., at 141)
- "Currently, a large number of chemicals are used in well stimulation that have poor or unknown environmental profiles" (*Id*., at 148)
- "The types and amounts of well stimulation additives found in these waters is unknown, so it is not certain what treatment methods are adequate to allow reuse. Additionally, potentially hazardous chemicals resulting from degradation of the added chemicals and the interaction of the stimulation fluid with the formation need to be carefully evaluated" (*Id*., at 150)
- "Hydraulic fracturing fluids contain complex mixtures, and the interactions of these chemicals in the environment is unknown" (*Id*., at 156)
- "Lack of knowledge concerning the fate of the injected stimulation fluids in the subsurface, and the potential for them to be transformed, or to mobilize formation constituents over the lifetime of production from the well, needs to be determined. The nature of the reaction byproducts, the amounts and types of materials returning to the surface during the lifetime of the well, and hazards associated with these reaction byproducts are entirely unknown and need to be investigated" (*Id*., at 157)
- "Significant data gaps exist regarding current knowledge of groundwater quality in California, including the location and extent of protected groundwater that contains less than 10,000 mg L-1 TDS" (*Id*., at 166)
- "The transport of contaminants through induced fractures to groundwater has not been established, but should be evaluated in California, where fracturing depths are much shallower than in other parts of the country. Other potential subsurface release mechanisms include leakage through compromised wells and leakage through natural subsurface fractures, however the importance of these pathways is also unknown" (*Id*., at 166-67)

The Report further notes that additional data gaps and uncertainties in other areas exist, and points out that they should be addressed through increased review efforts and continued assessments of new information. Just some of these include: "uncertainty in the observational literature about the precise level of CH_4 emissions from the California oil and gas industry"(*id*., at 259); significant gaps in "our understanding of the impacts of discharges of stimulation fluids and wastewater to wildlife and vegetation"(*id*., at 261); significant lack of knowledge regarding the degree to which oil and gas activities can lead to the "introduction of invasive species, releases of harmful fluids to the environment, water use, litter, noise, light and traffic" (*id*., at 363); and critical gaps in data concerning the "public health impacts associated with proximity to oil and gas production" in California, which warrants "detailed studies of the relationship between health risks and distance from oil and gas development sites"(*id*., at 410). The Report further highlights the fact that "[t]he quantity of specific chemicals emitted to the atmosphere per unit of injected well stimulation fluid is completely lacking from the existing literature."(*Id*., at 436.)

Despite these significant data gaps and uncertainties, the DEIR purports to eliminate the need for future CEQA analysis of oil and gas drilling activities in Kern County for the next 20 years. In so doing,

0047-92

the DEIR's entirely discounts the need for ongoing investigation and analyses that not only formed the basis of the CCST report's purpose, but which is also one of its most critical recommendations. 0047-92 Continued

VII. CONCLUSION 0047-93

For the reasons set forth above, we urge the County to reject the DEIR.

Sincerely,



Yana Garcia
Elizabeth Forsyth
William Rostov
Earthjustice
50 California St., Suite 500
San Francisco CA 94111
T: (415) 217-2000
F: (415) 217-2040



Elly Benson
Sierra Club
85 Second Street, 2nd Floor
San Francisco, CA 94105
T: 415-977-5500
F: 415-977-5797

EXHIBIT A

EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

July 20, 2015

Via Electronic Mail

Lorelei H. Oviatt, AICP
Director
LoreleiO@co.kern.ca.us
661-862-8866

Christopher B. Mynk, AICP
Supervising Planner
MynkC@co.kern.ca.us
Kern County Planning Department
Public Services Building
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

Re: Extending Comment Period for Draft EIR

Dear Ms. Oviatt and Mr. Mynk:

The Center for Biological Diversity, the Center on Race, Poverty and the Environment, Earthjustice, the Natural Resources Defense Council and Sierra Club ("Environmental Advocates") request a 60-day extension to comment on Kern County's draft environmental impact report ("DEIR") for the Amendment to Title 19-Kern County Zoning Ordinance Chapter 19.98 (Oil and Gas Production) for Oil and Gas Permitting. Environmental Advocates seek sixty (60) days more than the minimum 45-day public review period to comment on the DEIR.

The extension request is eminently reasonable given the vast scope of the DEIR, which evaluates zoning ordinance changes that, if adopted, seek to create ministerial permitting for almost every activity related to oil and gas production in Kern County. A recent news article reports that Kern County has spent two and half years and employed 125 people, mostly consultants and three full-time staff, on preparing the DEIR.[1] To date, the oil industry has paid 12.2 million dollars in accrued costs for this DEIR.[2] By any measure, this DEIR is a massive

[1] John Cox, *Kern's New Oil Revew: 8 Things to Know*, THE BAKERSFIELD CALIFORNIAN (Jul. 12, 2015, 12:17 AM), http://www.bakersfield.com/News/2015/07/12/a-second-look-at-kern-s-oil-and-gas-review.html.
[2] *Ibid*.

effort and, if approved with the concurrent zoning ordinance, will affect Kern County communities and the environment for at least the next 25 years.

In order to respond adequately to this massive undertaking and the multiple issues that the project poses, Environmental Advocates seek 60 more days than the minimum public review period. DEIR identifies "significant and unavoidable" harm for a number of environmental categories. Moreover, there is no statutory or regulatory deadline forcing the adoption of these ordinances or DEIR at any particular time. Despite the length and complexity of this report, and the fact it was issued during the summer when many people already have scheduled vacations, the current deadline for public comments is set at the statutory minimum of 45 days.

Furthermore, two additional reports that are directly related to this DEIR were released virtually at the same time, and, therefore, were not adequately incorporated into the DEIR as required. On July 1st, 2015, the Final Environmental Impact Report on SB-4, "Analysis of Oil and Gas Well Stimulation Treatments in California," was issued. On July 9th, 2015, a day after the DEIR was issued, the California Council on Science and Technology (CCST) released the final volumes of its report on the environmental effects of well-stimulation techniques. It was well-publicized that the CCST report would be released on July 9th, but the County released its DEIR without analyzing this independent scientific assessment of well stimulation treatments in California. Since the County did not take into account these additional voluminous studies, Environmental Advocates must now review and analyze how those studies impact the analysis and findings in the DEIR.

For the foregoing reasons, Environmental Advocates respectfully request an extension of sixty (60) days more than the minimum public review period to submit a comment. Comments would then be due on October 23rd, 2015.

Sincerely,



William Rostov, Staff Attorney
wrostov@earthjustice.org
Earthjustice



Sofia Parino, Senior Attorney
sparino@crpe-ej.org
Center on Race, Poverty & the Environment



Damon Nagami, Senior Attorney
dnagami@nrdc.org
Natural Resources Defense Council



Elly Benson, Associate Attorney
elly.benson@sierraclub.org
Sierra Club



Hollin Kretzmann, Staff Attorney
hkretzmann@biologicaldiversity.org
Center for Biological Diversity

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

July 23, 2015

File: Zoning Ordinance Revisions – 2015 C

EARTHJUSTIC
California Office
50 California Street, Suite 500
San Francisco, CA 94111

Re: Draft Environmental Impact Report (SCH#2013081079)
Extension of Time Request – Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting (PP13016)

Dear Mr. William Rostov:

The Kern County Planning and Community Development Department has received your letter dated July 20, 2015 requesting an extension of time for public review of the above reference environmental impact report. As specified in CEQA Guidelines §15105(a), "the public review period for a draft EIR should not be less than 30 days nor longer than 60 days except in unusual circumstances. When a draft EIR is submitted to the State Clearinghouse for review by State agencies, the public review period shall not be less than 45 days." Section 15087(e) of the State CEQA Guidelines further specifies that "the public review period shall be at least as long as the review period established by the Clearinghouse."

Circulation of the Oil and Gas Draft EIR began on July 8, 2015. Per CEQA Guidelines §15105(a) and 15087(e), the Draft EIR for the proposed project is currently circulating for a 45-day public review and comment period which is scheduled to conclude on August 24, 2015.

Please be advised however that while the comment period will close consistent with the above listed CEQA Guidelines, it is a policy of the Kern County Planning and Community Development Department to accept all comments on the Draft EIR, Final EIR, and the proposed project throughout the entire application process. Currently, the project is tentatively scheduled to be considered by the Kern County Planning Commission on October 5, 2015, and then will be considered at a noticed public hearing before the Board of Supervisors at the end of the year or soon thereafter. All of these hearings are mandated by law for consideration of an amendment to the Zoning Ordinance, and none can be combined or eliminated. The tentative schedule, therefore, provides a period of five months after release of the Draft EIR (estimated 150 days) for opportunities to provide written and verbal comments. All comments received will be included in the administrative record for consideration by the decision makers, and written replies will be provided through the Final EIR Response to Comments and staff reports at the hearings.

Staff also will be hosting three workshops during the 45-day review period, and comments may also be submitted during these workshops.

A joint public briefing workshop with the Kern County Board of Supervisors and the Kern County Planning Commission will be held on July **27, 2015** at 9:00 a.m., at the Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California.

The second workshop will be held at the Shafter Veterans Building, Room 2, 309 California Avenue, Shafter CA, on **August 10, 2015**, at 6:00 p.m.

The third workshop will be held at the Taft Veterans Hall, Room 1, 218 Taylor Street, Taft, CA, on **August 17, 2015**, at 6:00 p.m.

The Draft EIR and all related documents have been available during the entire public review circulation period. No information has been provided to Staff regarding the document or public circulation process that would qualify as an unusual circumstances warranting an extension of the comment period under the CEQA Guidelines. Therefore, it is Staff's determination that an extension of time is not warranted.

Should you have any further questions, please do not hesitate to contact either Christopher Mynk, AICP at (661) 862-8607 or via email at MynkC@co.kern.ca.us.

Sincerely,

Lorelei H. Oviatt

Lorelei H. Oviatt, AICP
Director, Planning and Community
Development Department

cc: County Counsel

EXHIBIT B

0047-94
Continued

Comments on the Draft Environmental Impact Report (DEIR) for the Proposed Amendment to Kern County Zoning Ordinance Chapter 19.98

by

Dr. Ranajit (Ron) Sahu, Consultant
sahuron@earthlink.net
Ph: 702.683.5466

Introduction

The DEIR, whose Air Quality section is the subject of these comments, is for an ambitious project of large spatial and temporal scale. The stated description of the Project per the DEIR is as follows:

> "The proposed Project consists of an Amendment to Chapter 19.98 (Oil & Gas Production) of the Kern County Zoning Ordinance and related sections of the Kern County Zoning Ordinance to include updated procedures, development standards, and conditions for future oil and gas exploration, development, and production activities in unincorporated Kern County."[1]

The spatial scale of the project is immense:

> "The Project Area encompasses 3,700 square miles and generally includes most of the San Joaquin Valley (SJV) Floor or western portion of Kern County… The western portion of Kern County, where the Project is located is regulated by the San Joaquin Air Pollution Control District (SJVAPCD)."[2]

Similarly, the temporal scale of the project and the annual scope are also immense and broad:

> "Over the next 25 years, this EIR conservatively assumes that an average of 2,697 new producing wells per year could be drilled in the Project Area as part of the potential future oil and gas development scenario included in the proposed Project."[3]

The Goal of the DEIR is Disingenuous

While the DEIR states many goals and objectives for the Project, both from the standpoint of the County as well as from the viewpoint of the oil companies who are the driving force behind the Project, it is clear that a major goal of this so-called Project EIR is to avoid future CEQA reviews

[1] DEIR, p. 1-1.

[2] DEIR, p. 4.3-1

[3] DEIR, p. 1-7.

0047-94
Continued

for individual oil and gas drilling (or similar) projects – thereby effecting a "streamlined" approval process. As Section 2.6.3 of the DEIR states:

> "Based on the comprehensive analyses, mitigation measures, and performance standards included in the EIR and revised ordinance, it is anticipated that in the vast majority of future oil and gas production activities, implementation of the new ordinance will not result in the need for the County, or for responsible agencies with ministerial or discretionary review and approval processes, to prepare additional CEQA documents for individual well or field development proposals."

It is the opinion of this commenter that, given the broad spatial and temporal scale of the Project and even its annual scope of drilling over 2500 wells per year for the next 20+ years in the project areas as a whole, that no reasonable analysis – and certainly not the analysis presented in the Air Quality section – can substitute for the more appropriate, detailed analysis that can only be done when appropriate individual project-specific details are known contemporaneous with their installation.

Thus, even at a conceptual level, a project EIR is simply inappropriate as a blanket approval for all future projects, at least from an Air Quality perspective. "Streamlining" the CEQA process in this regard is simply akin to avoiding any meaningful CEQA review altogether.

That this approach (i.e., essentially avoiding all future CEQA reviews for literally thousands of individual drilling projects whose specific details are not known and not knowable at the present time, by putting in place this generic and flawed EIR for the next 20+ years) would even be contemplated for any such "Project" in California makes a mockery of CEQA and is bad enough. But it is simply astounding that it would be given serious consideration in Kern County, which, as the DEIR admits and describes, has some of the worst ambient air quality in the entire nation. As the DEIR dutifully notes but then ignores,[4] the Project area currently fails to meet the national ambient air quality standards for ozone and fine particulate matter, and is "unclassified" as to attainment status for many additional pollutants.

And, as the DEIR itself makes clear, even with assumptions that are optimistic or deeply flawed (as will be discussed via examples subsequently), the increases in air emissions associated with this Project are dramatic and large. Thus, these large future increases of air emissions into an air shed that is currently not meeting many national and state standards would be essentially blessed via approval of this DEIR. Although the DEIR discusses "mitigation" of these increases, it is apparent that the proposed mitigation strategies are nothing more than unenforceable and generic wishes for the future – and are simply fig leaves designed to provide "cover" for the large projected increases.

Thus, as a general matter, it is simply inappropriate to attempt a generic and assumption-driven "analysis" of air quality impacts 20+ years into the future, with little specific detail known at the time of "analysis."

[4] DEIR, Table 4.3-2.

0047-94
Continued

The Air Quality Analysis Presented is Incomplete and Not Transparent

Even before I discuss the technical details of the air quality analysis as presented in the DEIR, Section 4.3, it is clear that the entire Section 4.3 is poorly structured and omits much of the actual details of the analysis. Instead, the Section is loaded with page after page of material that should have been properly relegated to suitable appendices – with the actual results of the analyses presented in several summary tables at the very end. None of the actual analyses (and the myriad underlying assumptions) leading to the summary tables are actually presented in Section 4.3.

Instead, the actual air quality analysis is contained in a report by a contractor, Vector Environmental[5] – whose report (and supporting tables etc.) are nowhere to be found in the 2-volume DEIR. Nor is the Vector report posted to the website where all of the other DEIR materials are presented. Calls to the County to make the Vector report available went unanswered. This commenter had to obtain the Vector report from other commenters.

Thus, by not making the Vector Environmental reports and analysis available in a timely manner, the Air Quality analysis section fails the primary test of any CEQA document – namely as a tool to inform the public of the impacts of a Project, along with appropriate backup analysis.

Air Quality Impacts Due To the Project Will Be Adverse and Large

It is clear, and not surprising, that the projected air quality impacts due to the Project are significant, adverse, and large. Even with its many flawed assumptions, some of which I will discuss as examples, the DEIR's own analysis is forced to conclude as follows:

> "The Project would continue to generate odors. With implementation of MM 4.3-7, impacts would still be **significant and unavoidable**."[6]
>
> "The construction and operational activities of oil and gas activities that would be authorized under the Project would result in an increase of criteria pollutants (oxides of nitrogen [NOx], volatile organic compounds [VOC], carbon monoxide [CO], particulate matter less than 10 microns and less than 2.5 microns in diameter [PM10 and PM2.5, respectively]) in excess of the recommended criteria pollutant significance threshold adopted by the SJVAPCD Board. Emission sources in Kern County contribute between 11% and 21% of criteria pollutant emissions in the San Joaquin Valley Air Basin. The Project would contribute between 2% and 14% of these pollutants in the San Joaquin Valley Air Basin or between 19% and 97% of Kern County's contribution. This analysis indicates that most sulfur dioxide (SO2) emissions in Kern County would originate from oil and

[5] "Source data and emissions associated with the Project were determined based on the Air Quality Technical Report prepared by Vector Environmental, Inc." DEIR p. 4.3-71.

[6] DEIR, Table 1-1.

0047-94
Continued

> gas activities and the majority of NOX emissions. Therefore, the proposed Project would have a **cumulatively considerable** contribution of criteria pollutant (NOX, PM10, PM2.5, CO and SO2) emissions to the Kern County portion of the SJVAB."[7]

Actual emission increases projected are provided in tables in Section 4.3 of the DEIR. For example, see Table 4.3-29. The DEIR's own analysis anticipates emissions increases in thousands of tons per pollutant per year.

Yet, in spite of these large projected increases summarized in the DEIR, and the acknowledgement above that certain impacts (such as odors and cumulative impacts) cannot be mitigated down to non-significance, the DEIR attempts to neutralize several other impacts via certain mitigation measures. As the DEIR states:

> "After full analysis, the following effects were determined to be less than significant with the incorporation of mitigation measures...
> - Impact 4.3-1: Conflict With or Obstruct Implementation of the Applicable Air Quality Plan
> - Impact 4.3-2: Violate Any Air Quality Standard as Adopted in (c)i or (c)ii, or Established by United States Environmental Protection Agency or Air District or Contribute Substantially to an Existing or Projected Air Quality Violation
> - Impact 4.3-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations"[8]

This is more than just optimistic. It is misleading and erroneous. The DEIR's strategy to minimize these large projected impacts is a set of 8 air quality mitigation measures. I discuss some of them below.

> "MM 4.3-1 Consistent with the requirements of the San Joaquin Valley Air Pollution Control District Regulation II-Permits, the Applicant shall obtain an Authority to Construct permit and a Permit to Operate for any facility or equipment requiring a permit from the San Joaquin Valley Air Pollution Control District, such as stationary sources required to obtain permits pursuant to District Rule 2010. All emissions increases from permitted equipment shall comply with District Rule 2201.
>
> "MM 4.3-2 The Applicant shall develop and implement a Fugitive Dust Control Plan in compliance with San Joaquin Valley Air Pollution Control District fugitive dust suppression regulations to further reduce emissions, during construction, of particulate matter that is 10 microns or less and 2.5 microns or less in diameter....

[7] DEIR, Table 1-1.

[8] DEIR, p. 1-9.

0047-94
Continued

> **"**MM 4.3-3 All off-road construction diesel engines not registered under California Air Resources Board's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 3 California Emission Standards for Off-road Compression-Ignition Engines....
>
> "MM 4.3-4 To further reduce emissions of oxides of nitrogen from on-road heavy-duty diesel haul vehicles:
> a. 2007 engines or pre-2007 engines shall comply with California Air Resources Board retrofit requirements set forth in California Code of Regulations Title 13 Section 2025.
> b. All on-road construction vehicles, except those meeting the 2007/California Air Resources Board-certified Level 3 diesel emissions controls, shall meet all applicable California on-road emission standards and shall be licensed in the State of California...

It is on the strength of these mitigation measures that the DEIR boldly declares that Impact 4.3-1 noted above "…would be less than significant with mitigation."

Yet, this statement in the DEIR is not supported by any analysis. There is no quantitative support whatsoever. For example, there is absolutely no discussion of the actual emissions (in tons per year, for specific pollutants) that would be reduced by any one or all four of the mitigation measures above. So it is ridiculous to simply conclude that impacts (which are thousands of tons over the significance thresholds) will be "less than significant."

Even qualitatively, it expresses an article of faith rather than any analysis – namely that by obtaining the requisite permits and meeting the applicable current regulations (which are, after all, what these mitigations consist of), there should be no problem conflicting with the implementation of the various AQ Plans as expected in Impact 4.3-1. This does not make sense. If permits and regulations were enough to mitigate impacts, then the Project area should not have the current poor air quality that it does. The fact is that even currently, with all of the measures listed in the four mitigation measures above, the region does not meet several of the state and national air quality standards. Yet the DEIR maintains that by doing the very same thing, thousands of additional tons of pollution due to the Project will simply vanish. This wishful thinking has no place in a CEQA document.

Let us consider the last mitigation measure, MM 4.3-8:

> MM 4.3-8 For Project facilities or equipment that are not required to offset emissions under a District rule as described in MM 4.3-1, and for Project vehicle and other mobile source emissions, the County will enter into emission reduction agreement with the San Joaquin Valley Air Pollution Control District, pursuant to which the Applicant shall pay fees to fully offset Project emissions of oxides of nitrogen, reactive organic gases, and particulate matter of 10 microns or less in diameter (including as applicable mitigating for reactive organic gases by additive

reductions of particulate matter of 10 microns or less in diameter) (collectively, "designated criteria emissions") to avoid any net increase in these pollutants. The air quality mitigation fee shall be paid to the County as part of the Site Plan review and approval process, and shall be used to reduce designated criteria emissions to fully offset Project emissions that are not otherwise required to be fully offset by District permit rules and regulations.

As an alternative to paying the fee, an Applicant may reduce emissions for one or more designated criteria emissions through actual reductions in air emissions from other Applicant sources, as submitted to the County and validated by the District. This Project offset requirement shall be enforced by the County and verified by San Joaquin Valley Air Pollution Control District. If a voluntary emission reduction agreement is not executed by the County and San Joaquin Valley Air Pollution Control District, then each Applicant must mitigate for the full amount of designated criteria pollutants as verified by the San Joaquin Valley Air Pollution Control District, with evidence of such District-verified offsets presented as part of the Site Plan Conformity Review application documentation.

Examples of feasible air emission reduction activities that may be funded by air quality fees paid by Applicant or proposed and implemented by the Applicant under the emission reduction agreement include, but are not limited to, the following:
a. Replacing or retrofitting diesel-powered stationary equipment such as motors on generators, pumps and wells with electric or other lower-emission engines that are not subject to Title V reductions.
b. Replacing or retrofitting diesel-powered school, transit, municipal and other community mobile sources such as buses, car fleets, and maintenance equipment, with electric or other lower-emission engines.
c. Reducing emissions from public infrastructure sources such as water and wastewater treatment and conveyance facilities, and reducing water-related emissions through water conservation and reclamation.
d. Funding lower-emission equipment and processes for local businesses, schools, non-profit and religious institutions, hospitals, city and county facilities.

The flaw in this mitigation measure is obvious. First, like MM 4.3-1 through 4.3-4 discussed above, there is no quantitative analysis discussing how many tons of emissions of specific pollutants would actually be diminished (which is the whole goal of a mitigation measure) via this measure. While it provides examples of where emissions reductions might come from, it fails to quantify even the broad ranges of reductions that may be available from the example sources. For example, how many tons per year of NOx or PM2.5 would actually be reduced, say, in 2020 (or 2035 for that matter) by "[R]eplacing or retrofitting diesel-powered stationary equipment such as motors on generators, pumps and wells with electric or other lower-emission engines that are not subject to Title V reductions"? The DEIR does not say. And similarly for the other three examples.

0047-94
Continued

In fact, it is more likely than not that there are simply not enough sources in the Project area from which any meaningful further reductions can be extracted – especially as far into the future as 2035 – thus making a mockery of this so-called mitigation measure. Simply paying into a mitigation fund cannot "mitigate" emissions if actual emitting sources cannot be identified from which such real reductions are to be obtained. This mitigation measure fails any basic credibility test.

For reasons of brevity, I do not discuss the other three mitigation measures, MM 4.3-6 through MM 4.3-7. Yet a simple review of these measures shows that they are similarly flawed. They are qualitative, non-enforceable, and meaningless from any real reduction standpoint.

Thus, I disagree with the DEIR's hopeful but unsupported conclusion that Impacts 4.3-1, 4.3-2, and 4.3-3 have can be mitigated below significance. The projected air emissions increases due to the Project, even as analyzed by Vector Environmental, are so large, that there are not enough real and viable candidate sources in the Project area that can provide the necessary actual mass of emissions reductions – regardless of available dollars that may be generated by implementing MM 4.3-8. Certainly, the "analysis" as presented in the DEIR does not even attempt to quantify the extent of the emissions reductions that would be realistically available from actual emitting sources in the Project area.

Key Assumptions in the Air Quality Analysis Are Unsupported or Erroneous

Now I turn to some of the more glaring shortcomings of the actual air quality analysis itself, which are contained in the Vector Environmental report and tables. Based on this, it is my opinion that the projected emissions increases, large though they are as compared to the corresponding significance thresholds, should actually have been even greater.

I stress that the discussion below only highlights some of the flawed assumptions in the analysis. It is not meant to be an exhaustive critique of the entire analysis. Thus, these are just examples.

1. Improper Projection of Well Depths For Future Years

Table 3-2 of the DEIR clearly shows that over the years, oil (and gas) production has continued to decline even though more wells have been drilled in recent years. As such, it is more likely than not that wells in the future will have to be drilled deeper in order to maintain or reduce the rate of decline in oil and gas production. Therefore, a fundamental assumption in the air quality analysis makes no sense – namely that the distribution of wells drilled, by depth, in 2012 will be the same in all future years, including 2035, the last year of analysis. There is no stated justification (nor can there be) as to why the depth distribution of wells in 2035 should be the exact same as that in 2012. Common sense dictates that as the more accessible (and less costly to extract) oil and gas resources in the shallow depths are exhausted or become so minimal as to preclude economic extraction, that future wells will have to be drilled deeper.

0047-94
Continued

There is (or, in a proper analysis, should be) a strong (and non-linear) sensitivity of air emissions associated with drilling depth – with air emissions and impacts associated with a deeper wells being more significant than one associated with shallower wells.

Thus, the expected air emissions with the Project, which are already so high as noted in the DEIR itself, are in fact, likely significantly underestimated.

2. The Air Quality Analysis Only Considers Wells Drilled to A Maximum Depth of 10,000 feet

Related to the comment above, the analysis presented in the Air Quality Section limits well depths to 10,000 feet or shallower. The rationale, as stated in the analysis, is that only 3%[9] or so of the wells drilled in 2012 exceeded this depth. As noted above, by limiting the maximium depths to just 10,000 feet, in effect, the entire analysis simply assumes that all wells drilled in the Project area through 2035 would only be 10,000 feet or shallower. Thus, it is simply not correct nor relevant to limit depths to 10,000 feet based on 2012 data.

In fact, the 2012 data show that far greater depths are being drilled even in 2012. For example, in file: KC_WELL_STATS_BY_ZONE.xls, there are many wells in the Central zone with depths greater than 10,000 feet – in fact, in this part of the Project area, roughly 25% of the wells drilled in 2012 were 12000 feet deep.

Thus, the exclusion of deeper depths is a fatal flaw in the Air Quality analysis. It is meaningless, based on this assumption, to rely on projections of air emissions from drilling (and all related activities) for 20+ years into the future.

3. The Analysis Assumes That The Number of Idle Wells Will be The Same Each Year

In file: KC_FUG_VOC_WELLS_V1.xls, Vector Envinronmental has assumed, without comment or explanation, that there will be the same number of idle wells for each year through 2035. The basis for this assumption is not clear and should be clarified.

4. Emission Factors for VOC Fugitive Emissions Are Not Supported

(a) In file: KC_FUG_VOC_WELLS_V1.xls and also in files similarly named (ending in *V1A.xls and *V1B.xls) the FRac Light Oil fractions for the Western, Central, and Eastern zones are stated to be 0.4043, 0.9613, and 0.0273, respectively. However, the basis of these assumed (or calculated?) values is not clear. Therefore, it is not clear why the fraction in the Eastern Zone is so much lower than the fraction in the Western or Central Zones, or why the fraction in the Western Zone is so much lower than the fraction in the Central Zone.

(b) The heavy oil VOC and light oil VOC factors used in the calculations of fugitive emissions are 0.016 and 0.773 lb/day, respectively, based on calculations in two tables in the file: WELL_HEAD_COMPONENT_COUNTS.pdf. Numerous assumptions in these calculations are not supported or explained. First, the calculations assume that at each well head there are just 8

[9] DEIR p. 4.3-104.

valves, 0 pump seals, 6 "other" components, 3 connectors, 10 flanges, and 0 open ended lines in Light Crude Oil service – however, no citation is provided to support these values. Second, the calculations assume that the leak fractions of these components is as follows: only 0.5% leakers for valves, connectors and flanges; and only 1% leakers for pump seals and "other" components – again no basis is provided for these assumed leak fractions. EPA audit data show much higher leaking fractions – around 5% in some cases,[10] with higher leak thresholds than what is assumed in the DEIR.

(c) The spreadsheet file: KC_FUG_VOC_WELLS_V1.xls indicates that the source of some of the data for calculation of fugitive emissions is as follows: "[W]eight fraction of VOC for light oil and heavy oil was obtained from 'U.S. Dept of Interior, Users Guide for 2014 Gulfwide Offshore Activities Data System (GOADS-2014).'" It is entirely unclear why the "Gulfwide Offshore" data are relevant for this analysis in Kern County.

As a consequence of the many unsupported assumptions, some of which are noted above, the estimate of fugitive VOC emissions from all of the many components associated with drilling activities is simply not reliable. All assumptions should be supported.

5. The Analysis Assumes that All Air Toxics Emissions with Be Zero After Mitigation

An excerpt from file: KC_OGW_TAC_ALL.xls is shown below, showing only a couple of compounds. All of the other compounds are treated similarly in the full table.

Kern County 2012 Baseline Versus 2035 Buildout and Mitigated Emissions					
CARB Emittent ID	Chemical Name or Synonym	Stationary Source TAC Emissions (TPY)			Change After Mitigation
		2012 Baseline	2035 Total	Change in TAC	
7664417	Ammonia	237.844198	454.014437	216.170239	0.000000
50000	Formaldehyde	87.290418	166.626348	79.335930	0.000000

For all toxics calculations, whether all TACs or all EPA Urban Air Toxics, the "Change After Mitigation" column is shown as 0 for all compounds – which implies 100% effectiveness of control by the unspecified "mitigation." This makes no sense and should be fully explained.

6. The Activity Assumptions for Drilling Are Not Supported

The table below was created from tables in file:
REVISED_KCOGW_OFR2011_INPMATRIX_V2A.xls.

It shows the equipment and activity levels assumed in the analysis for drilling wells of different depths. As noted earlier, even though the DEIR considers wells that are 10,000 feet or shallower, the details tables do contain data for deeper wells. Thus, the equipment types, sizes,

[10] EPA, Leak Detection and Repair – A Best Practices Guide, Section 6.
http://www2.epa.gov/compliance/leak-detection-and-repair-best-practices-guide

and activity levels associated with wells of 5000, 10000, 15000, 20000, and 25000 feet deep are shown below, from the tables in the file noted above.

5000 ft

OPDAYS	WRKDPY	HRDAY	FUEL	ENGHP	EQUIPCNT	EQUIPUSE
2	7	8	DSL	230	1	Portable Crane
20	7	12	DSL	20	5	Port Light stands
20	7	22	DSL	80	1	Portable Gen. Hydraulic Power
20	7	24	DSL	100	2	Portable Gen. DSM/Trailers
18	7	22	DSL	420	1	Portable Gen. Mud Separator
18	7	22	DSL	135	1	Rotary Table or Top Drive
18	7	22	DSL	455	1	Diesel Engine For Hoist
18	7	22	DSL	442	1	Diesel Engine For Hoist
18	7	22	DSL	424	1	Diesel Engine For Mud Pump

10000 ft

OPDAYS	WRKDPY	HRDAY	FUEL	ENGHP	EQUIPCNT	EQUIPUSE
2	7	8	DSL	230	1	Portable Crane
20	7	12	DSL	20	5	Port Light stands
20	7	22	DSL	80	1	Portable Gen. Hydraulic Power
20	7	24	DSL	100	2	Portable Gen. DSM/Trailers
18	7	22	DSL	420	1	Portable Gen. Mud Separator
18	7	22	DSL	144	1	Diesel Electric - Rotary
18	7	22	DSL	996	1	Diesel Electric - Hoist & Pump
18	7	22	DSL	981	1	Diesel Electric - Hoist & Pump
18	7	22	DSL	1145	1	Diesel Electric - Hoist & Pump

15000 ft

OPDAYS	WRKDPY	HRDAY	FUEL	ENGHP	EQUIPCNT	EQUIPUSE
2	7	8	DSL	230	1	Portable Crane
20	7	12	DSL	20	5	Port Light stands
20	7	22	DSL	80	1	Portable Gen. Hydraulic Power
20	7	24	DSL	100	2	Portable Gen. DSM/Trailers
18	7	22	DSL	420	1	Portable Gen. Mud Separator
18	7	22	DSL	158	1	Diesel Electric - Rotary
18	7	22	DSL	1094	1	Diesel Electric - Hoist
18	7	22	DSL	962	1	Diesel Electric - Hoist
18	7	22	DSL	1898	1	Diesel Electric - Hoist

20000 ft

OPDAYS	WRKDPY	HRDAY	FUEL	ENGHP	EQUIPCNT	EQUIPUSE
2	7	8	DSL	230	1	Portable Crane
20	7	12	DSL	20	5	Port Light stands
20	7	22	DSL	80	1	Portable Gen. Hydraulic Power
20	7	24	DSL	100	2	Portable Gen. DSM/Trailers
18	7	22	DSL	420	1	Portable Gen. Mud Separator
18	7	22	DSL	180	1	Diesel Electric - Rotary
18	7	22	DSL	1211	1	Diesel Electric - Hoist & Pump
18	7	22	DSL	1165	1	Diesel Electric - Hoist & Pump
18	7	22	DSL	2203	1	Diesel Electric - Hoist & Pump

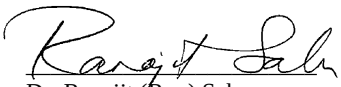
25000 ft

OPDAYS	WRKDPY	HRDAY	FUEL	ENGHP	EQUIPCNT	EQUIPUSE
2	7	8	DSL	230	1	Portable Crane
20	7	12	DSL	20	5	Port Light stands
20	7	22	DSL	80	1	Portable Gen. Hydraulic Power
20	7	24	DSL	100	2	Portable Gen. DSM/Trailers
18	7	22	DSL	420	1	Portable Gen. Mud Separator
18	7	22	DSL	180	1	Diesel Electric - Rotary
18	7	22	DSL	1361	1	Diesel Electric - Hoist
18	7	22	DSL	1342	1	Diesel Electric - Hoist
18	7	22	DSL	2274	1	Diesel Electric - Hoist

Only equipment that has changes in engine power at the different depths are highlighted in yellow in the table above. None of the assumptions made in these tables are explained or annotated. For example, while there are increases in the sizes of the various engines with depth, the analysis assumed that the number of days required to drill any of these wells from 5000 feet to 25000 feet would be 18 days, with 22 hours per day. Yet, the assumption of constant days/hours to drill wells, no matter the depth – even with the assumed increases in equipment sizes – is not supported in the calculations.

As mentioned in the beginning of this section, the above are merely examples of curious or simply unsupported assumptions that permeate the entire analysis. None of these assumptions are discussed in Section 4.3 at all (other than the exclusion of wells deeper than 10,000 feet). Yet these detailed assumptions affect all of emissions calculations, whose final results are provided in summary form in the tables at the end of Section 4.3.

It is therefore paramount that all of the calculation methodologies, assumptions, and justifications be fully discussed in Section 4.3 itself. Given the many questionable assumptions already noted, it is unlikely that the summary emissions data tabulated in Section 4.3 are accurate, even as projections of an uncertain future. In most instances, making more realistic assumptions will cause future projected emissions to increase.



Dr. Ranajit (Ron) Sahu
September 10, 2015

0047-94
Continued

ATTACHMENT A - RESUME

RANAJIT (RON) SAHU, Ph.D, QEP, CEM (Nevada)

CONSULTANT, ENVIRONMENTAL AND ENERGY ISSUES

311 North Story Place
Alhambra, CA 91801
Phone: 702.683.5466
e-mail (preferred): sahuron@earthlink.net

EXPERIENCE SUMMARY

Dr. Sahu has over twenty three years of experience in the fields of environmental, mechanical, and chemical engineering including: program and project management services; design and specification of pollution control equipment for a wide range of emissions sources; soils and groundwater remediation including landfills as remedy; combustion engineering evaluations; energy studies; multimedia environmental regulatory compliance (involving statutes and regulations such as the Federal CAA and its Amendments, Clean Water Act, TSCA, RCRA, CERCLA, SARA, OSHA, NEPA as well as various related state statutes); transportation air quality impact analysis; multimedia compliance audits; multimedia permitting (including air quality NSR/PSD permitting, Title V permitting, NPDES permitting for industrial and storm water discharges, RCRA permitting, etc.), multimedia/multi-pathway human health risk assessments for toxics; air dispersion modeling; and regulatory strategy development and support including negotiation of consent agreements and orders.

Specifically, over the last 20+ years, Dr. Sahu has consulted on several municipal landfill related projects addressing landfill gas generation, landfill gas collection, and the treatment/disposal/control of such gases in combustion equipment such as engines, turbines, and flares. In particular, Dr. Sahu has executed numerous projects relating to flare emissions from sources such as landfills as well as refineries and chemical plants. He has served as a peer-reviewer for EPA in relation to flare combustion efficiency, flare destruction efficiency, and flaring emissions.

He has over twenty one years of project management experience and has successfully managed and executed numerous projects in this time period. This includes basic and applied research projects, design projects, regulatory compliance projects, permitting projects, energy studies, risk assessment projects, and projects involving the communication of environmental data and information to the public. Notably, he has successfully managed a complex soils and groundwater remediation project with a value of over $140 million involving soils characterization, development and implementation of the remediation strategy including construction of a CAMU/landfill and associated groundwater monitoring, regulatory and public interactions and other challenges.

He has provided consulting services to numerous private sector, public sector and public interest group clients. His major clients over the past twenty three years include various steel mills, petroleum refineries, cement companies, aerospace companies, power generation facilities, lawn and garden equipment manufacturers, spa manufacturers, chemical distribution facilities, and various entities in the public sector including EPA, the US Dept. of Justice, California DTSC, various municipalities, etc.). Dr. Sahu has performed projects in over 44 states, numerous local jurisdictions and internationally.

In addition to consulting, Dr. Sahu has taught numerous courses in several Southern California universities including UCLA (air pollution), UC Riverside (air pollution, process hazard analysis), and Loyola Marymount University (air pollution, risk assessment, hazardous waste management) for the past

seventeen years. In this time period he has also taught at Caltech, his alma mater (various engineering courses), at the University of Southern California (air pollution controls) and at California State University, Fullerton (transportation and air quality).

Dr. Sahu has and continues to provide expert witness services in a number of environmental areas discussed above in both state and Federal courts as well as before administrative bodies (please see Annex A).

EXPERIENCE RECORD

2000-present **Independent Consultant.** Providing a variety of private sector (industrial companies, land development companies, law firms, etc.) public sector (such as the US Department of Justice) and public interest group clients with project management, air quality consulting, waste remediation and management consulting, as well as regulatory and engineering support consulting services.

1995-2000 Parsons ES, **Associate, Senior Project Manager and Department Manager for** Air Quality/Geosciences/Hazardous Waste Groups, Pasadena. Responsible for the management of a group of approximately 24 air quality and environmental professionals, 15 geoscience, and 10 hazardous waste professionals providing full-service consulting, project management, regulatory compliance and A/E design assistance in all areas.

Parsons ES, **Manager for Air Source Testing Services**. Responsible for the management of 8 individuals in the area of air source testing and air regulatory permitting projects located in Bakersfield, California.

1992-1995 Engineering-Science, Inc. **Principal Engineer and Senior Project Manager** in the air quality department. Responsibilities included multimedia regulatory compliance and permitting (including hazardous and nuclear materials), air pollution engineering (emissions from stationary and mobile sources, control of criteria and air toxics, dispersion modeling, risk assessment, visibility analysis, odor analysis), supervisory functions and project management.

1990-1992 Engineering-Science, Inc. **Principal Engineer and Project Manager** in the air quality department. Responsibilities included permitting, tracking regulatory issues, technical analysis, and supervisory functions on numerous air, water, and hazardous waste projects. Responsibilities also include client and agency interfacing, project cost and schedule control, and reporting to internal and external upper management regarding project status.

1989-1990 Kinetics Technology International, Corp. **Development Engineer.** Involved in thermal engineering R&D and project work related to low-NOx ceramic radiant burners, fired heater NOx reduction, SCR design, and fired heater retrofitting.

1988-1989 Heat Transfer Research, Inc. **Research Engineer**. Involved in the design of fired heaters, heat exchangers, air coolers, and other non-fired equipment. Also did research in the area of heat exchanger tube vibrations.

EDUCATION

1984-1988 Ph.D., Mechanical Engineering, California Institute of Technology (Caltech), Pasadena, CA.

1984 M. S., Mechanical Engineering, Caltech, Pasadena, CA.

1978-1983 B. Tech (Honors), Mechanical Engineering, Indian Institute of Technology (IIT) Kharagpur, India

TEACHING EXPERIENCE

Caltech

"Thermodynamics," Teaching Assistant, California Institute of Technology, 1983, 1987.

"Air Pollution Control," Teaching Assistant, California Institute of Technology, 1985.

"Caltech Secondary and High School Saturday Program," - taught various mathematics (algebra through calculus) and science (physics and chemistry) courses to high school students, 1983-1989.

"Heat Transfer," - taught this course in the Fall and Winter terms of 1994-1995 in the Division of Engineering and Applied Science.

“Thermodynamics and Heat Transfer,” Fall and Winter Terms of 1996-1997.

U.C. Riverside, Extension

"Toxic and Hazardous Air Contaminants," University of California Extension Program, Riverside, California. Various years since 1992.

"Prevention and Management of Accidental Air Emissions," University of California Extension Program, Riverside, California. Various years since 1992.

"Air Pollution Control Systems and Strategies," University of California Extension Program, Riverside, California, Summer 1992-93, Summer 1993-1994.

"Air Pollution Calculations," University of California Extension Program, Riverside, California, Fall 1993-94, Winter 1993-94, Fall 1994-95.

"Process Safety Management," University of California Extension Program, Riverside, California. Various years since 1992-2010.

"Process Safety Management," University of California Extension Program, Riverside, California, at SCAQMD, Spring 1993-94.

"Advanced Hazard Analysis - A Special Course for LEPCs," University of California Extension Program, Riverside, California, taught at San Diego, California, Spring 1993-1994.

“Advanced Hazardous Waste Management” University of California Extension Program, Riverside, California. 2005.

Loyola Marymount University

"Fundamentals of Air Pollution - Regulations, Controls and Engineering," Loyola Marymount University, Dept. of Civil Engineering. Various years since 1993.

"Air Pollution Control," Loyola Marymount University, Dept. of Civil Engineering, Fall 1994.

“Environmental Risk Assessment,” Loyola Marymount University, Dept. of Civil Engineering. Various years since 1998.

“Hazardous Waste Remediation” Loyola Marymount University, Dept. of Civil Engineering. Various years since 2006.

University of Southern California

"Air Pollution Controls," University of Southern California, Dept. of Civil Engineering, Fall 1993, Fall 1994.

"Air Pollution Fundamentals," University of Southern California, Dept. of Civil Engineering, Winter 1994.

University of California, Los Angeles

"Air Pollution Fundamentals," University of California, Los Angeles, Dept. of Civil and Environmental Engineering, Spring 1994, Spring 1999, Spring 2000, Spring 2003, Spring 2006, Spring 2007, Spring 2008, Spring 2009.

International Programs

"Environmental Planning and Management," 5 week program for visiting Chinese delegation, 1994.

"Environmental Planning and Management," 1 day program for visiting Russian delegation, 1995.

"Air Pollution Planning and Management," IEP, UCR, Spring 1996.

"Environmental Issues and Air Pollution," IEP, UCR, October 1996.

PROFESSIONAL AFFILIATIONS AND HONORS

President of India Gold Medal, IIT Kharagpur, India, 1983.

Member of the Alternatives Assessment Committee of the Grand Canyon Visibility Transport Commission, established by the Clean Air Act Amendments of 1990, 1992-present.

American Society of Mechanical Engineers: Los Angeles Section Executive Committee, Heat Transfer Division, and Fuels and Combustion Technology Division, 1987-present.

Air and Waste Management Association, West Coast Section, 1989-present.

PROFESSIONAL CERTIFICATIONS

EIT, California (# XE088305), 1993.

REA I, California (#07438), 2000.

Certified Permitting Professional, South Coast AQMD (#C8320), since 1993.

QEP, Institute of Professional Environmental Practice, since 2000.

CEM, State of Nevada (#EM-1699). Expiration 10/07/2011.

PUBLICATIONS (PARTIAL LIST)

"Physical Properties and Oxidation Rates of Chars from Bituminous Coals," with Y.A. Levendis, R.C. Flagan and G.R. Gavalas, *Fuel*, **67**, 275-283 (1988).

"Char Combustion: Measurement and Analysis of Particle Temperature Histories," with R.C. Flagan, G.R. Gavalas and P.S. Northrop, *Comb. Sci. Tech.* **60**, 215-230 (1988).

"On the Combustion of Bituminous Coal Chars," PhD Thesis, California Institute of Technology (1988).

"Optical Pyrometry: A Powerful Tool for Coal Combustion Diagnostics," *J. Coal Quality*, **8**, 17-22 (1989).

"Post-Ignition Transients in the Combustion of Single Char Particles," with Y.A. Levendis, R.C.Flagan and G.R. Gavalas, *Fuel*, **68**, 849-855 (1989).

"A Model for Single Particle Combustion of Bituminous Coal Char." Proc. ASME National Heat Transfer Conference, Philadelphia, **HTD-Vol. 106**, 505-513 (1989).

"Discrete Simulation of Cenospheric Coal-Char Combustion," with R.C. Flagan and G.R.Gavalas, *Combust. Flame*, **77**, 337-346 (1989).

"Particle Measurements in Coal Combustion," with R.C. Flagan, in "**Combustion Measurements**" (ed. N. Chigier), Hemisphere Publishing Corp. (1991).

"Cross Linking in Pore Structures and Its Effect on Reactivity," with G.R. Gavalas in preparation.

"Natural Frequencies and Mode Shapes of Straight Tubes," Proprietary Report for Heat Transfer Research Institute, Alhambra, CA (1990).

"Optimal Tube Layouts for Kamui SL-Series Exchangers," with K. Ishihara, Proprietary Report for Kamui Company Limited, Tokyo, Japan (1990).

"HTRI Process Heater Conceptual Design," Proprietary Report for Heat Transfer Research Institute, Alhambra, CA (1990).

"Asymptotic Theory of Transonic Wind Tunnel Wall Interference," with N.D. Malmuth and others, Arnold Engineering Development Center, Air Force Systems Command, USAF (1990).

"Gas Radiation in a Fired Heater Convection Section," Proprietary Report for Heat Transfer Research Institute, College Station, TX (1990).

"Heat Transfer and Pressure Drop in NTIW Heat Exchangers," Proprietary Report for Heat Transfer Research Institute, College Station, TX (1991).

"NOx Control and Thermal Design," Thermal Engineering Tech Briefs, (1994).

“From Puchase of Landmark Environmental Insurance to Remediation: Case Study in Henderson, Nevada,” with Robin E. Bain and Jill Quillin, presented at the AQMA Annual Meeting, Florida, 2001.

“The Jones Act Contribution to Global Warming, Acid Rain and Toxic Air Contaminants,” with Charles W. Botsford, presented at the AQMA Annual Meeting, Florida, 2001.

PRESENTATIONS (PARTIAL LIST)

"Pore Structure and Combustion Kinetics - Interpretation of Single Particle Temperature-Time Histories," with P.S. Northrop, R.C. Flagan and G.R. Gavalas, presented at the AIChE Annual Meeting, New York (1987).

"Measurement of Temperature-Time Histories of Burning Single Coal Char Particles," with R.C. Flagan, presented at the American Flame Research Committee Fall International Symposium, Pittsburgh, (1988).

"Physical Characterization of a Cenospheric Coal Char Burned at High Temperatures," with R.C. Flagan and G.R. Gavalas, presented at the Fall Meeting of the Western States Section of the Combustion Institute, Laguna Beach, California (1988).

"Control of Nitrogen Oxide Emissions in Gas Fired Heaters - The Retrofit Experience," with G. P. Croce and R. Patel, presented at the International Conference on Environmental Control of Combustion Processes (Jointly sponsored by the American Flame Research Committee and the Japan Flame Research Committee), Honolulu, Hawaii (1991).

"Air Toxics - Past, Present and the Future," presented at the Joint AIChE/AAEE Breakfast Meeting at the AIChE 1991 Annual Meeting, Los Angeles, California, November 17-22 (1991).

"Air Toxics Emissions and Risk Impacts from Automobiles Using Reformulated Gasolines," presented at the Third Annual Current Issues in Air Toxics Conference, Sacramento, California, November 9-10 (1992).

"Air Toxics from Mobile Sources," presented at the Environmental Health Sciences (ESE) Seminar Series, UCLA, Los Angeles, California, November 12, (1992).

"Kilns, Ovens, and Dryers - Present and Future," presented at the Gas Company Air Quality Permit Assistance Seminar, Industry Hills Sheraton, California, November 20, (1992).

"The Design and Implementation of Vehicle Scrapping Programs," presented at the 86th Annual Meeting of the Air and Waste Management Association, Denver, Colorado, June 12, 1993.

"Air Quality Planning and Control in Beijing, China," presented at the 87th Annual Meeting of the Air and Waste Management Association, Cincinnati, Ohio, June 19-24, 1994.

Annex A

Expert Litigation Support

1. Occasions where Dr. Sahu has provided Written or Oral testimony before Congress:

(a) In July 2012, provided expert written and oral testimony to the House Subcommittee on Energy and the Environment, Committee on Science, Space, and Technology at a Hearing entitled "Hitting the Ethanol Blend Wall – Examining the Science on E15."

2. Matters for which Dr. Sahu has have provided affidavits and expert reports include:

(b) Affidavit for Rocky Mountain Steel Mills, Inc. located in Pueblo Colorado – dealing with the technical uncertainties associated with night-time opacity measurements in general and at this steel mini-mill.

(c) Expert reports and depositions (2/28/2002 and 3/1/2002; 12/2/2003 and 12/3/2003; 5/24/2004) on behalf of the United States in connection with the Ohio Edison NSR Cases. *United States, et al. v. Ohio Edison Co., et al.*, C2-99-1181 (Southern District of Ohio).

(d) Expert reports and depositions (5/23/2002 and 5/24/2002) on behalf of the United States in connection with the Illinois Power NSR Case. *United States v. Illinois Power Co., et al.*, 99-833-MJR (Southern District of Illinois).

(e) Expert reports and depositions (11/25/2002 and 11/26/2002) on behalf of the United States in connection with the Duke Power NSR Case. *United States, et al. v. Duke Energy Corp.*, 1:00-CV-1262 (Middle District of North Carolina).

(f) Expert reports and depositions (10/6/2004 and 10/7/2004; 7/10/2006) on behalf of the United States in connection with the American Electric Power NSR Cases. *United States, et al. v. American Electric Power Service Corp., et al.*, C2-99-1182, C2-99-1250 (Southern District of Ohio).

(g) Affidavit (March 2005) on behalf of the Minnesota Center for Environmental Advocacy and others in the matter of the Application of Heron Lake BioEnergy LLC to construct and operate an ethanol production facility – submitted to the Minnesota Pollution Control Agency.

(h) Expert Report and Deposition (10/31/2005 and 11/1/2005) on behalf of the United States in connection with the East Kentucky Power Cooperative NSR Case. *United States v. East Kentucky Power Cooperative, Inc*., 5:04-cv-00034-KSF (Eastern District of Kentucky).

(i) Affidavits and deposition on behalf of Basic Management Inc. (BMI) Companies in connection with the BMI vs. USA remediation cost recovery Case.

(j) Expert Report on behalf of Penn Future and others in the Cambria Coke plant permit challenge in Pennsylvania.

(k) Expert Report on behalf of the Appalachian Center for the Economy and the Environment and others in the Western Greenbrier permit challenge in West Virginia.

(l) Expert Report, deposition (via telephone on January 26, 2007) on behalf of various Montana petitioners (Citizens Awareness Network (CAN), Women's Voices for the Earth (WVE) and the Clark Fork Coalition (CFC)) in the Thompson River Cogeneration LLC Permit No. 3175-04 challenge.

(m) Expert Report and deposition (2/2/07) on behalf of the Texas Clean Air Cities Coalition at the Texas State Office of Administrative Hearings (SOAH) in the matter of the permit challenges to TXU Project Apollo's eight new proposed PRB-fired PC boilers located at seven TX sites.

(n) Expert Testimony (July 2007) on behalf of the Izaak Walton League of America and others in connection with the acquisition of power by Xcel Energy from the proposed Gascoyne Power Plant – at the State of Minnesota, Office of Administrative Hearings for the Minnesota PUC (MPUC No. E002/CN-06-1518; OAH No. 12-2500-17857-2).

0047-94
Continued

(o) Affidavit (July 2007) Comments on the Big Cajun I Draft Permit on behalf of the Sierra Club – submitted to the Louisiana DEQ.

(p) Expert Report and Deposition (12/13/2007) on behalf of Commonwealth of Pennsylvania – Dept. of Environmental Protection, State of Connecticut, State of New York, and State of New Jersey (Plaintiffs) in connection with the Allegheny Energy NSR Case. *Plaintiffs v. Allegheny Energy Inc., et al.,* 2:05cv0885 (Western District of Pennsylvania).

(q) Expert Reports and Pre-filed Testimony before the Utah Air Quality Board on behalf of Sierra Club in the Sevier Power Plant permit challenge.

(r) Expert Report and Deposition (October 2007) on behalf of MTD Products Inc., in connection with General Power Products, LLC v MTD Products Inc., 1:06 CVA 0143 (Southern District of Ohio, Western Division)

(s) Experts Report and Deposition (June 2008) on behalf of Sierra Club and others in the matter of permit challenges (Title V: 28.0801-29 and PSD: 28.0803-PSD) for the Big Stone II unit, proposed to be located near Milbank, South Dakota.

(t) Expert Reports, Affidavit, and Deposition (August 15, 2008) on behalf of Earthjustice in the matter of air permit challenge (CT-4631) for the Basin Electric Dry Fork station, under construction near Gillette, Wyoming before the Environmental Quality Council of the State of Wyoming.

(u) Affidavits (May 2010/June 2010 in the Office of Administrative Hearings))/Declaration and Expert Report (November 2009 in the Office of Administrative Hearings) on behalf of NRDC and the Southern Environmental Law Center in the matter of the air permit challenge for Duke Cliffside Unit 6. Office of Administrative Hearing Matters 08 EHR 0771, 0835 and 0836 and 09 HER 3102, 3174, and 3176 (consolidated).

(v) Declaration (August 2008), Expert Report (January 2009), and Declaration (May 2009) on behalf of Southern Alliance for Clean Energy et al., v Duke Energy Carolinas, LLC. in the matter of the air permit challenge for Duke Cliffside Unit 6. *Southern Alliance for Clean Energy et al., v. Duke Energy Carolinas, LLC*, Case No. 1:08-cv-00318-LHT-DLH (Western District of North Carolina, Asheville Division).

(w) Declaration (August 2008) on behalf of the Sierra Club in the matter of Dominion Wise County plant MACT.

(x) Expert Report (June 2008) on behalf of Sierra Club for the Green Energy Resource Recovery Project, MACT Analysis.

(y) Expert Report (February 2009) on behalf of Sierra Club and the Environmental Integrity Project in the matter of the air permit challenge for NRG Limestone's proposed Unit 3 in Texas.

(z) Expert Report (June 2009) on behalf of MTD Products, Inc., in the matter of *Alice Holmes and Vernon Holmes v. Home Depot USA, Inc., et al.*

(aa) Expert Report (August 2009) on behalf of Sierra Club and the Southern Environmental Law Center in the matter of the air permit challenge for Santee Cooper's proposed Pee Dee plant in South Carolina).

(bb) Statements (May 2008 and September 2009) on behalf of the Minnesota Center for Environmental Advocacy to the Minnesota Pollution Control Agency in the matter of the Minnesota Haze State Implementation Plans.

(cc) Expert Report (August 2009) on behalf of Environmental Defense, in the matter of permit challenges to the proposed Las Brisas coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

(dd) Expert Report and Rebuttal Report (September 2009) on behalf of the Sierra Club, in the matter of challenges to the proposed Medicine Bow Fuel and Power IGL plant in Cheyenne, Wyoming.

(ee) Expert Report (December 2009) and Rebuttal reports (May 2010 and June 2010) on behalf of the United States in connection with the Alabama Power Company NSR Case. *United States v. Alabama Power Company*, CV-01-HS-152-S (Northern District of Alabama, Southern Division).

(ff) Pre-filed Testimony (October 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed White Stallion Energy Center coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

(gg) Pre-filed Testimony (July 2010) and Written Rebuttal Testimony (August 2010) on behalf of the State of New Mexico Environment Department in the matter of Proposed Regulation 20.2.350 NMAC – *Greenhouse Gas Cap and Trade Provisions,* No. EIB 10-04 (R), to the State of New Mexico, Environmental Improvement Board.

(hh) Expert Report (August 2010) and Rebuttal Expert Report (October 2010) on behalf of the United States in connection with the Louisiana Generating NSR Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana) – Liability Phase.

(ii) Declaration (August 2010), Reply Declaration (November 2010), Expert Report (April 2011), Supplemental and Rebuttal Expert Report (July 2011) on behalf of the United States in the matter of DTE Energy Company and Detroit Edison Company (Monroe Unit 2). *United States of America v. DTE Energy Company and Detroit Edison Company*, Civil Action No. 2:10-cv-13101-BAF-RSW (US District Court for the Eastern District of Michigan).

(jj) Expert Report and Deposition (August 2010) as well as Affidavit (September 2010) on behalf of Kentucky Waterways Alliance, Sierra Club, and Valley Watch in the matter of challenges to the NPDES permit issued for the Trimble County power plant by the Kentucky Energy and Environment Cabinet to Louisville Gas and Electric, File No. DOW-41106-047.

(kk) Expert Report (August 2010), Rebuttal Expert Report (September 2010), Supplemental Expert Report (September 2011), and Declaration (November 2011) on behalf of Wild Earth Guardians in the matter of opacity exceedances and monitor downtime at the Public Service Company of Colorado (Xcel)'s Cherokee power plant. No. 09-cv-1862 (D. Colo.).

(ll) Written Direct Expert Testimony (August 2010) and Affidavit (February 2012) on behalf of Fall-Line Alliance for a Clean Environment and others in the matter of the PSD Air Permit for Plant Washington issued by Georgia DNR at the Office of State Administrative Hearing, State of Georgia (OSAH-BNR-AQ-1031707-98-WALKER).

(mm) Deposition (August 2010) on behalf of Environmental Defense, in the matter of the remanded permit challenge to the proposed Las Brisas coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

(nn) Expert Report, Supplemental/Rebuttal Expert Report, and Declarations (October 2010, November 2010, September 2012) on behalf of New Mexico Environment Department (Plaintiff-Intervenor), Grand Canyon Trust and Sierra Club (Plaintiffs) in the matter of Plaintiffs v. Public Service Company of New Mexico (PNM), Civil No. 1:02-CV-0552 BB/ATC (ACE). (US District Court for the District of New Mexico).

(oo) Expert Report (October 2010) and Rebuttal Expert Report (November 2010) (BART Determinations for PSCo Hayden and CSU Martin Drake units) to the Colorado Air Quality Commission on behalf of Coalition of Environmental Organizations.

(pp) Expert Report (November 2010) (BART Determinations for TriState Craig Units, CSU Nixon Unit, and PRPA Rawhide Unit) to the Colorado Air Quality Commission on behalf of Coalition of Environmental Organizations.

(qq) Declaration (November 2010) on behalf of the Sierra Club in connection with the Martin Lake Station Units 1, 2, and 3. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Case No. 5:10-cv-00156-DF-CMC (US District Court for the Eastern District of Texas, Texarkana Division).

(rr) Pre-Filed Testimony (January 2011) and Declaration (February 2011) to the Georgia Office of State Administrative Hearings (OSAH) in the matter of Minor Source HAPs status for the proposed Longleaf Energy Associates power plant (OSAH-BNR-AQ-1115157-60-HOWELLS) on behalf of the Friends of the Chattahoochee and the Sierra Club).

0047-94
Continued

(ss) Declaration (February 2011) in the matter of the Draft Title V Permit for RRI Energy MidAtlantic Power Holdings LLC Shawville Generating Station (Pennsylvania), ID No. 17-00001 on behalf of the Sierra Club.

(tt) Expert Report (March 2011), Rebuttal Expert Report (Jue 2011) on behalf of the United States in *United States of America v. Cemex, Inc.*, Civil Action No. 09-cv-00019-MSK-MEH (US District Court for the District of Colorado).

(uu) Declaration (April 2011) and Expert Report (July 16, 2012) in the matter of the Lower Colorado River Authority (LCRA)'s Fayette (Sam Seymour) Power Plant on behalf of the Texas Campaign for the Environment. *Texas Campaign for the Environment v. Lower Colorado River Authority,* Civil Action No. 4:11-cv-00791 (US District Court for the Southern District of Texas, Houston Division).

(vv) Declaration (June 2011) on behalf of the Plaintiffs MYTAPN in the matter of Microsoft-Yes, Toxic Air Pollution-No (MYTAPN) v. State of Washington, Department of Ecology and Microsoft Corporation Columbia Data Center to the Pollution Control Hearings Board, State of Washington, Matter No. PCHB No. 10-162.

(ww) Expert Report (June 2011) on behalf of the New Hampshire Sierra Club at the State of New Hampshire Public Utilities Commission, Docket No. 10-261 – the 2010 Least Cost Integrated Resource Plan (LCIRP) submitted by the Public Service Company of New Hampshire (re. Merrimack Station Units 1 and 2).

(xx) Declaration (August 2011) in the matter of the Sandy Creek Energy Associates L.P. Sandy Creek Power Plant on behalf of Sierra Club and Public Citizen. *Sierra Club, Inc. and Public Citizen, Inc. v. Sandy Creek Energy Associates, L.P.,* Civil Action No. A-08-CA-648-LY (US District Court for the Western District of Texas, Austin Division).

(yy) Expert Report (October 2011) on behalf of the Defendants in the matter of *John Quiles and Jeanette Quiles et al. v. Bradford-White Corporation, MTD Products, Inc., Kohler Co., et al.,* Case No. 3:10-cv-747 (TJM/DEP) (US District Court for the Northern District of New York).

(zz) Declaration (February 2012) and Second Declaration (February 2012) in the matter of *Washington Environmental Council and Sierra Club Washington State Chapter v. Washington State Department of Ecology and Western States Petroleum Association,* Case No. 11-417-MJP (US District Court for the Western District of Washington).

(aaa) Expert Report (March 2012) and Supplemental Expert Report (November 2013) in the matter of *Environment Texas Citizen Lobby, Inc and Sierra Club v. ExxonMobil Corporation et al.,* Civil Action No. 4:10-cv-4969 (US District Court for the Southern District of Texas, Houston Division).

(bbb) Declaration (March 2012) in the matter of *Center for Biological Diversity, et al. v. United States Environmental Protection Agency,* Case No. 11-1101 (consolidated with 11-1285, 11-1328 and 11-1336) (US Court of Appeals for the District of Columbia Circuit).

(ccc) Declaration (March 2012) in the matter of *Sierra Club v. The Kansas Department of Health and Environment*, Case No. 11-105,493-AS (Holcomb power plant) (Supreme Court of the State of Kansas).

(ddd) Declaration (March 2012) in the matter of the Las Brisas Energy Center *Environmental Defense Fund et al., v. Texas Commission on Environmental Quality,* Cause No. D-1-GN-11-001364 (District Court of Travis County, Texas, 261st Judicial District).

(eee) Expert Report (April 2012), Supplemental and Rebuttal Expert Report (July 2012), and Supplemental Rebuttal Expert Report (August 2012) on behalf of the states of New Jersey and Connecticut in the matter of the Portland Power plant *State of New Jersey and State of Connecticut (Intervenor-Plaintiff) v. RRI Energy Mid-Atlantic Power Holdings et al.,* Civil Action No. 07-CV-5298 (JKG) (US District Court for the Eastern District of Pennsylvania).

(fff) Declaration (April 2012) in the matter of the EPA's EGU MATS Rule, on behalf of the Environmental Integrity Project

(ggg) Expert Report (August 2012) on behalf of the United States in connection with the Louisiana Generating NSR Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana) – Harm Phase.

(hhh) Declaration (September 2012) in the Matter of the Application of *Energy Answers Incinerator, Inc.* for a Certificate of Public Convenience and Necessity to Construct a 120 MW Generating Facility in Baltimore City, Maryland, before the Public Service Commission of Maryland, Case No. 9199.

(iii) Expert Report (October 2012) on behalf of the Appellants (Robert Concilus and Leah Humes) in the matter of Robert Concilus and Leah Humes v. Commonwealth of Pennsylvania Department of Environmental Protection and Crawford Renewable Energy, before the Commonwealth of Pennsylvania Environmental Hearing Board, Docket No. 2011-167-R.

(jjj) Expert Report (October 2012), Supplemental Expert Report (January 2013), and Affidavit (June 2013) in the matter of various Environmental Petitioners v. North Carolina DENR/DAQ and Carolinas Cement Company, before the Office of Administrative Hearings, State of North Carolina.

(kkk) Pre-filed Testimony (October 2012) on behalf of No-Sag in the matter of the North Springfield Sustainable Energy Project before the State of Vermont, Public Service Board.

(lll) Pre-filed Testimony (November 2012) on behalf of Clean Wisconsin in the matter of Application of Wisconsin Public Service Corporation for Authority to Construct and Place in Operation a New Multi-Pollutant Control Technology System (ReACT) for Unit 3 of the Weston Generating Station, before the Public Service Commission of Wisconsin, Docket No. 6690-CE-197.

(mmm) Expert Report (February 2013) on behalf of Petitioners in the matter of Credence Crematory, Cause No. 12-A-J-4538 before the Indiana Office of Environmental Adjudication.

(nnn) Expert Report (April 2013), Rebuttal report (July 2013), and Declarations (October 2013, November 2013) on behalf of the Sierra Club in connection with the Luminant Big Brown Case. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Civil Action No. 6:12-cv-00108-WSS (Western District of Texas, Waco Division).

(ooo) Expert Report (May 2013) and Rebuttal Expert Report (July 2013) on behalf of the Sierra Club in connection with the Luminant Martin Lake Case. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Civil Action No. 5:10-cv-0156-MHS-CMC (Eastern District of Texas, Texarkana Division).

(ppp) Declaration (August 2013) on behalf of A. J. Acosta Company, Inc., in the matter of A. J. Acosta Company, Inc., v. County of San Bernardino, Case No. CIVSS803651.

(qqq) Comments (October 2013) on behalf of the Washington Environmental Council and the Sierra Club in the matter of the Washington State Oil Refinery RACT (for Greenhouse Gases), submitted to the Washington State Department of Ecology, the Northwest Clean Air Agency, and the Puget Sound Clean Air Agency.

(rrr) Statement (November 2013) on behalf of various Environmental Organizations in the matter of the Boswell Energy Center (BEC) Unit 4 Environmental Retrofit Project, to the Minnesota Public Utilities Commission, Docket No. E-015/M-12-920.

(sss) Expert Report (December 2013) on behalf of the United States in *United States of America v. Ameren Missouri*, Civil Action No. 4:11-cv-00077-RWS (Eastern District of Missouri, Eastern Division).

(ttt) Expert Testimony (December 2013) on behalf of the Sierra Club in the matter of Public Service Company of New Hampshire Merrimack Station Scrubber Project and Cost Recovery, Docket No. DE 11-250, to the State of New Hampshire Public Utilities Commission.

(uuu) Expert Report (January 2014) on behalf of Baja, Inc., in Baja, Inc., v. Automotive Testing and Development Services, Inc. et. al, Civil Action No. 8:13-CV-02057-GRA (District of South Carolina, Anderson/Greenwood Division).

(vvv) Declaration (March 2014) on behalf of the Center for International Environmental Law, Chesapeake Climate Action Network, Friends of the Earth, Pacific Environment, and the Sierra Club (Plaintiffs) in

the matter of Plaintiffs v. the Export-Import Bank (Ex-Im Bank) of the United States, Civil Action No. 13-1820 RC (United States District Court for the District of Columbia).

(www) Direct Prefiled Testimony (June 2014) on behalf of the Michigan Environmental Council and the Sierra Club in the matter of the Application of DTE Electric Company for Authority to Implement a Power Supply Cost Recovery (PSCR) Plan in its Rate Schedules for 2014 Metered Jurisdictional Sales of Electricity, Case No. U-17319 (Michigan Public Service Commission).

(xxx) Expert Report (June 2014) on behalf of ECM Biofilms in the matter of the US Federal Trade Commission (FTC) v. ECM Biofilms (FTC Docket #9358).

(yyy) Declaration (July 2014) on behalf of Public Health Intervenors in the matter of EME Homer City Generation v. US EPA (Case No. 11-1302 and consolidated cases) relating to the lifting of the stay entered by the Court on December 30, 2011 (US Court of Appeals for the District of Columbia).

3. Occasions where Dr. Sahu has provided oral testimony <u>in depositions, at trial or in similar proceedings</u> include the following:

(zzz) Deposition on behalf of Rocky Mountain Steel Mills, Inc. located in Pueblo, Colorado – dealing with the manufacture of steel in mini-mills including methods of air pollution control and BACT in steel mini-mills and opacity issues at this steel mini-mill.

(aaaa) Trial Testimony (February 2002) on behalf of Rocky Mountain Steel Mills, Inc. in Denver District Court.

(bbbb) Trial Testimony (February 2003) on behalf of the United States in the Ohio Edison NSR Cases, *United States, et al. v. Ohio Edison Co., et al.*, C2-99-1181 (Southern District of Ohio).

(cccc) Trial Testimony (June 2003) on behalf of the United States in the Illinois Power NSR Case, *United States v. Illinois Power Co., et al.*, 99-833-MJR (Southern District of Illinois).

(dddd) Deposition (10/20/2005) on behalf of the United States in connection with the Cinergy NSR Case. *United States, et* al*. v. Cinergy Corp., et al.*, IP 99-1693-C-M/S (Southern District of Indiana).

(eeee) Oral Testimony (August 2006) on behalf of the Appalachian Center for the Economy and the Environment re. the Western Greenbrier plant, WV before the West Virginia ????.

(ffff) Oral Testimony (May 2007) on behalf of various Montana petitioners (Citizens Awareness Network (CAN), Women's Voices for the Earth (WVE) and the Clark Fork Coalition (CFC)) re. the Thompson River Cogeneration plant before the Montana Board of Environmental Review.

(gggg) Oral Testimony (October 2007) on behalf of the Sierra Club re. the Sevier Power Plant before the Utah Air Quality Board.

(hhhh) Oral Testimony (August 2008) on behalf of the Sierra Club and Clean Water re. Big Stone Unit II before the South Dakota Board of Minerals and the Environment.

(iiii) Oral Testimony (February 2009) on behalf of the Sierra Club and the Southern Environmental Law Center re. Santee Cooper Pee Dee units before the South Carolina Board of Health and Environmental Control.

(jjjj) Oral Testimony (February 2009) on behalf of the Sierra Club and the Environmental Integrity Project re. NRG Limestone Unit 3 before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

(kkkk) Deposition (July 2009) on behalf of MTD Products, Inc., in the matter of *Alice Holmes and Vernon Holmes v. Home Depot USA, Inc., et al*.

(llll) Deposition (October 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed Coleto Creek coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

(mmmm) Deposition (October 2009) on behalf of Environmental Defense, in the matter of permit challenges to the proposed Las Brisas coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

(nnnn) Deposition (October 2009) on behalf of the Sierra Club, in the matter of challenges to the proposed Medicine Bow Fuel and Power IGL plant in Cheyenne, Wyoming.

(oooo) Deposition (October 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed Tenaska coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH). (April 2010).

(pppp) Oral Testimony (November 2009) on behalf of the Environmental Defense Fund re. the Las Brisas Energy Center before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

(qqqq) Deposition (December 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed White Stallion Energy Center coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

(rrrr) Oral Testimony (February 2010) on behalf of the Environmental Defense Fund re. the White Stallion Energy Center before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

(ssss) Deposition (June 2010) on behalf of the United States in connection with the Alabama Power Company NSR Case. *United States v. Alabama Power Company*, CV-01-HS-152-S (Northern District of Alabama, Southern Division).

(tttt) Trial Testimony (September 2010) on behalf of Commonwealth of Pennsylvania – Dept. of Environmental Protection, State of Connecticut, State of New York, State of Maryland, and State of New Jersey (Plaintiffs) in connection with the Allegheny Energy NSR Case in US District Court in the Western District of Pennsylvania. *Plaintiffs v. Allegheny Energy Inc., et al.,* 2:05cv0885 (Western District of Pennsylvania).

(uuuu) Oral Direct and Rebuttal Testimony (September 2010) on behalf of Fall-Line Alliance for a Clean Environment and others in the matter of the PSD Air Permit for Plant Washington issued by Georgia DNR at the Office of State Administrative Hearing, State of Georgia (OSAH-BNR-AQ-1031707-98-WALKER).

(vvvv) Oral Testimony (September 2010) on behalf of the State of New Mexico Environment Department in the matter of Proposed Regulation 20.2.350 NMAC – *Greenhouse Gas Cap and Trade Provisions,* No. EIB 10-04 (R), to the State of New Mexico, Environmental Improvement Board.

(wwww) Oral Testimony (October 2010) on behalf of the Environmental Defense Fund re. the Las Brisas Energy Center before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

(xxxx) Oral Testimony (November 2010) regarding BART for PSCo Hayden, CSU Martin Drake units before the Colorado Air Quality Commission on behalf of the Coalition of Environmental Organizations.

(yyyy) Oral Testimony (December 2010) regarding BART for TriState Craig Units, CSU Nixon Unit, and PRPA Rawhide Unit) before the Colorado Air Quality Commission on behalf of the Coalition of Environmental Organizations.

(zzzz) Deposition (December 2010) on behalf of the United States in connection with the Louisiana Generating NSR Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana).

(aaaaa) Deposition (February 2011 and January 2012) on behalf of Wild Earth Guardians in the matter of opacity exceedances and monitor downtime at the Public Service Company of Colorado (Xcel)'s Cherokee power plant. No. 09-cv-1862 (D. Colo.).

(bbbbb) Oral Testimony (February 2011) to the Georgia Office of State Administrative Hearings (OSAH) in the matter of Minor Source HAPs status for the proposed Longleaf Energy Associates power plant (OSAH-BNR-AQ-1115157-60-HOWELLS) on behalf of the Friends of the Chattahoochee and the Sierra Club).

(ccccc) Deposition (August 2011) on behalf of the United States in *United States of America v. Cemex, Inc.*, Civil Action No. 09-cv-00019-MSK-MEH (US District Court for the District of Colorado).

(ddddd) Deposition (July 2011) and Oral Testimony at Hearing (February 2012) on behalf of the Plaintiffs MYTAPN in the matter of Microsoft-Yes, Toxic Air Pollution-No (MYTAPN) v. State of Washington, Department of Ecology and Microsoft Corporation Columbia Data Center to the Pollution Control Hearings Board, State of Washington, Matter No. PCHB No. 10-162.

(eeeee) Oral Testimony at Hearing (March 2012) on behalf of the United States in connection with the Louisiana Generating NSR Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana).

(fffff) Oral Testimony at Hearing (April 2012) on behalf of the New Hampshire Sierra Club at the State of New Hampshire Public Utilities Commission, Docket No. 10-261 – the 2010 Least Cost Integrated Resource Plan (LCIRP) submitted by the Public Service Company of New Hampshire (re. Merrimack Station Units 1 and 2).

(ggggg) Oral Testimony at Hearing (November 2012) on behalf of Clean Wisconsin in the matter of Application of Wisconsin Public Service Corporation for Authority to Construct and Place in Operation a New Multi-Pollutant Control Technology System (ReACT) for Unit 3 of the Weston Generating Station, before the Public Service Commission of Wisconsin, Docket No. 6690-CE-197.

(hhhhh) Deposition (March 2013) in the matter of various Environmental Petitioners v. North Carolina DENR/DAQ and Carolinas Cement Company, before the Office of Administrative Hearings, State of North Carolina.

(iiiii) Deposition (August 2013) on behalf of the Sierra Club in connection with the Luminant Big Brown Case. Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC, Civil Action No. 6:12-cv-00108-WSS (Western District of Texas, Waco Division).

(jjjjj) Deposition (August 2013) on behalf of the Sierra Club in connection with the Luminant Martin Lake Case. Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC, Civil Action No. 5:10-cv-0156-MHS-CMC (Eastern District of Texas, Texarkana Division).

(kkkkk) Deposition (February 2014) on behalf of the United States in *United States of America v. Ameren Missouri*, Civil Action No. 4:11-cv-00077-RWS (Eastern District of Missouri, Eastern Division).

(lllll) Trial Testimony (February 2014) in the matter of *Environment Texas Citizen Lobby, Inc and Sierra Club v. ExxonMobil Corporation et al.,* Civil Action No. 4:10-cv-4969 (US District Court for the Southern District of Texas, Houston Division).

(mmmmm) Trial Testimony (February 2014) on behalf of the Sierra Club in connection with the Luminant Big Brown Case. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Civil Action No. 6:12-cv-00108-WSS (Western District of Texas, Waco Division).

(nnnnn) Deposition (June 2014) and Trial (August 2014) on behalf of ECM Biofilms in the matter of the US Federal Trade Commission (FTC) v. ECM Biofilms (FTC Docket #9358).

EXHIBIT C

On the Underestimation of NOx Emissions from Oil Well Drilling Activities in Kern County, CA

BY
DR. RANAJIT (RON) SAHU
CONSULTANT
SAHURON@EARTHLINK.NET

REPORT FUNDED BY THE ROSE FOUNDATION FOR COMMUNITIES AND THE ENVIRONMENT,
COMMISSIONED BY THE KERN-KAWEAH CHAPTER OF THE SIERRA CLUB



A. INTRODUCTION AND SUMMARY

Kern County is a significant producer of oil and gas in California. As a result, significant numbers of oil and gas related projects request and receive approvals in Kern County annually. For example, in just 2013 and 2014 respectively, 2586 and 2207 permits were issued for well drilling by the State of California, Department of Conservation, Division of Oil, Gas and Geothermal Resources (hereafter "DOGGR") field office in District 4, with jurisdiction over Kern County. In addition, for 2013 and 2014 respectively, 1661 and 2257 permits were issued for rework of existing wells; and 1608 and 1363 permits were issued for well abandonment.[1] To illustrate the point relating to underestimation of NOx emissions from drilling activities, we will focus just on a few of the many new drilling projects proposed by various operators. We have every reason to believe that such underestimate is also occurring (and not just for NOx emissions but for other associated pollutants as well) for well rework and well abandonment activities as well as for emissions associated with related activities such as installation, rework or abandonment of Underground Injection wells, etc.

Well drilling activities for oil and gas[2] in Kern County involve fuel (mainly diesel) combustion in internal combustion engines of various sizes that are used for drilling activities. Sometimes such engines directly drive devices such as pumps; in other instances they provide power for generators and electrical energy from the generators is then used to drive motors. In any case, diesel combustion in engines results in emissions of NOx, among other pollutants such as carbon monoxide (CO), various sizes of particulate matter (PM), uncombusted fuels (including volatile and semi volatile organic compounds), numerous toxic and hazardous air pollutants (HAPs) as well as greenhouse gases such as carbon dioxide (CO2). We focus on just NOx emissions in this analysis.

We reviewed several recent project submittals to DOGGR District 4 by various project operators dealing with environmental impacts, including estimated air emissions for NOx and other pollutants. These include:

- the Rhythm Project Initial Study/Mitigated Negative Declaration (April 2015);
- the Terrebonne Project Initial Study/Mitigated Negative Declaration (April 2015);
- the Sherman 1 23 Initial Study/Mitigated Negative Declaration (July 2014);
- the Blackwells Corner Initial Study/Mitigated Negative Declaration (May 2014); and
- the Rio Viejo Initial Study/Mitigated Negative Declaration (May 2014).

In addition, we also reviewed summary information relating to estimated NOx emissions from drilling for the Jedessa, Tamarack 1, Patricia McKellar, and Rancho Grande 1 projects from 2012 2013.

Our review indicates the following: (a) that underlying activity assumptions made by various operators for developing emissions estimates are often either not supported or are inconsistent across projects; (b) to the extent activity assumptions to support emission estimates are provided, there is no mechanism to verify if subsequent actual activity levels in the field, are, in fact, consistent with the assumptions made in developing emission estimates in the pre project planning and environmental analyses; (c) the DOGGR review of submitted documents lacks depth and critical analysis and rarely, if ever, challenges assumptions by project proponents; (d) there is no review of such emission estimates by the local air quality planning agency; (e) to the extent that the public is provided the opportunity to comment on such documents they do not appear to have any impact on project approvals by DOGGR; (f) there appears to be no coordination between DOGGR approval of projects and the local air quality planning agency thus, directly and adversely affecting air quality emissions inventories and air quality planning, including plans to bring the area into attainment for several National Ambient Air Quality Standards, including for ozone and fine particulate matter (PM2.5); and (g) NOx emission estimates associated with drilling activities (a subset of such emissions

associated with oil and gas well drilling, development, completion, reworking, and abandonment) appear to be significantly lower than estimated emissions in other jurisdictions.

During the course of this study, it also became apparent that accessing relevant project documents at the local DOGGR office relating to past and current projects as a member of the public is not an easy task further impeding the already opaque and inconsistent approval process for drilling projects by DOGGR.

As a result of our review and analysis which indicates significant underestimation of NOx emissions associated with oil and gas well drilling activities in Kern County, it is likely that such projects, which currently obtain approvals from the DOGGR for the California Environment Quality Act (CEQA) compliance via Mitigated Negative Declarations (MNDs), might need a full fledged Environmental Impact Reports (EIRs), as least as far as air quality impacts are concerned.

This analysis concludes with a set of recommendations to improve and strengthen the procedural and technical flaws identified with the current review (and approval) process for such projects by DOGGR.

B. ANALYSIS OF KERN COUNTY PROJECTS

Table 1 in Attachment B shows a summary of the NOx emissions as estimated by each of the projects analyzed in this study. Shown in Table 1 are NOx emissions from just the drilling activities alone. To the extent provided in the underlying project documents, Table 1 shows the equipment name (such as cranes, forklifts, drill motors, generators, etc.), the sizes of the combustion engines in hp, the assumed load factors for each of the equipment engines, and the activity levels (in hours per day and days per year) expected for each project. Collectively, the overall drilling activity is therefore an expected number of hp hours for a given project. This is also calculated and provided in Table 1.

NOx emissions are usually estimated by multiplying the activity level (i.e., expected hp hr) by an emission factor (typically in grams of NOx/hp hr) to arrive at the mass emissions (grams, or converted to pounds or tons) of NOx for a given time period (such as hourly, daily, or for the project). The assumed NOx emission factors for each project, to the extent determinable from the underlying documents are also shown in Table 1.

To make comparisons meaningful, NOx emissions for projects are shown in Table 1 for not only a project as a whole (which may involve the drilling of multiple wells), but also on a per well basis since some of the project documents provide breakouts for just 1 well. In other words, in subsequent comparisons shortly, we will only compare 1 well NOx emissions from various projects in order to determine variability or consistency.

In addition to the activity level (in hp hours) for the equipment engines and associated NOx emissions, Table 1 also provides an indicator of the well itself typically the depth of the well. Obviously, the engine hp hr activities at a given well pad ultimately should relate to the effort required to drill the well. Well depth (for vertical wells) is therefore used as the parameter of the underlying project goal. Thus, Table 1 shows, for each project where well depth is provided, the normalized engine activity level per 1000 ft of well depth (i.e., hp hr/1000 ft). Finally, Table 1 also shows the estimated NOx emissions from the different projects in pounds/1000 ft well depth. These normalized parameters make it easier to compare across projects.

Next, we review specific findings from the data presented in Table 1.

First, it is clear that the level of reporting for NOx emissions development varies from project to project. While some of the recent 2014/2015 projects provide details of the equipment that will be used as well as line by line details of the equipment activity factors

and associated NOx emissions (including emission factors), that is not always the case, especially for the older projects. Project documents for the older projects were not always transparent with regards to such details. They should be. Without such granular detail, it is not clear how DOGGR could have reviewed the underlying documents. Certainly, such lack of detail and transparency is not acceptable from a public review standpoint.

Second, as Table 1 shows, even for the projects with equipment detail, the level of detail varies. While some projects provide more detail for equipment types, others do not. There does not appear to be any standardization in such calculations. Clearly DOGGR could request information from applications on a more standard basis. That does not seem to be occurring.

Third, the load factors used for the various engines and activities are not supported in any of the documents. Thus, the basis for using 0.37 for the backhoe in a given project; or using 0.5 for the main drill rig motor in another project is not at all clear. It is important to note that these load factors directly affect the activity levels (i.e., hp hr) that are then used in the emission calculations.

Fourth, the sizes (hp) of the equipment and the NOx emission factors used are typically not consistent across the projects. Table 2 shows the various types of equipment that are proposed to be used in the drilling phase for the projects analyzed, along with the engines sizes and the assumed NOx emission factors.

While the size of the equipment is a choice made by the project proponent, NOx emission factors should typically be consistent for similar equipment. Currently, different engine emission standards (Tier 3 or Tier 4, for example) apply to engines in California depending on when the engines were manufactured. Clearly, when a specific project is being proposed, the project proponents know what engines will be used; and therefore there should be solid support for the emission factor whether from actual test data or from manufacturers (via guarantees, supported, in turn, by test data). In Table 2, there appears to be considerable variation in the emission factors for the mid range engines between 300 600 hp.

TABLE 2
EQUIPMENT SIZES AND NOX EMISSION FACTORS

EQUIPMENT-PROJECT	SIZE [HP]	NOX EF [G/HP-HR]
Welder-Blackwells Corner	20	2.247
Small Generator-Rhythm	45	3.592
Small Generator-Terrebone	45	3.592
Small Generator-Sherman 1-23	45	3.592
Generator-Rio Viejo	45	3.731
Generator-Sherman 1-23	75	3.731
Backhoe-Blackwells Corner	91	2.057
Drill Rig Motor #1-Sherman 1-23	200	2.043
Draw Works-Sherman 1-23	200	1.979
Crane-Rhythm	226	2.196
Crane-Terrebone	226	2.196
Crane-Sherman 1-23	226	2.196
Mud Pumps-Sherman 1-23	300	3.02
Crane-Rio Viejo	375	1.805
Backhoe-Rhythm	400	1.602
Backhoe-Terrebone	400	1.602
Backhoe-Sherman 1-23	400	1.602
Forklift-Blackwells Corner	400	1.277
Backhoe-Rio Viejo	400	1.654
Forklift-Rio Viejo	400	1.277
Crane-Blackwells Corner	485	1.805
Generator-Blackwells Corner	500	2.656
Draw Works-Blackwells Corner	540	1.607
Pump-Blackwells Corner	1000	3.851
Drill Rig Motor #1-Rhythm	1477	1.504
Drill Rig Motor #1 (Idle)-Rhythm	1477	1.504
Drill Rig Motor #2-Rhythm	1477	1.504
Drill Rig Motor #2 (Idle)-Rhythm	1477	1.504
Backup Drill Rig Motor #3-Rhythm	1477	1.504
Drill Rig Motor #1-Terrebone	1477	1.504
Drill Rig Motor #1 (Idle)-Terrebone	1477	1.504
Drill Rig Motor #2-Terrebone	1477	1.504
Drill Rig Motor #2 (Idle)-Terrebone	1477	1.504
Backup Drill Rig Motor #3-Terrebone	1477	1.504
Drill Rig Motor #1 (Idle)-Sherman 1-23	1477	1.504
Drill Rig Motor #2-Sherman 1-23	1477	1.504
Drill Rig Motor #2 (Idle)-Sherman 1-23	1477	1.504
Backup Drill Rig Motor #3-Sherman 1-23	1477	1.504
Drill Rig Motor-Rio Viejo	1600	1.491
Drill Rig Motor-Rio Viejo	1600	1.491
Idle Drill Rig Motor-Rio Viejo	1600	1.491

It is also worth comparing the NOx emission factors against the relevant CA emission standards. For example, for the largest engines, size 750 hp (560 kW) and greater, the NOx standard for engines manufactured after 2006 2010 is 3.5 grams/kW hr or 2.61 grams/hp hr.[3] Yet, the vast majority of the NOx emission factors used for these sized engines is significantly lower at around 1.5 grams/hp hr. Why that is so or what makes these engines able to meet the lower (and unenforceable) assumed emission factor is not explained by DOGGR. We note that in one instance, the assumed emission factor of 3.851 grams/hp hr for a 1000 hp engine was significantly higher than the standard for 2006 and later engines likely because an older engine was proposed to be used. Why a 2014 project would be allowed to use a pre 2006 engine is also not explained by DOGGR.

The factors for the Terrebonne and Rhythm projects are consistent because both projects are proposed by the same operator; however, that is generally not the case. While most project proponents purport to use computer programs as a basis for the NOx emission factor, it is not clear what options are used in such programs (such as engine descriptions, controls, if any on such engines, the age and type of the engines, etc.) to derive the resultant emission factors. As we will discuss later, as a general matter, the emission factors appear to be significantly lower than factors used in other jurisdictions. While engines used for such activities may, indeed, have lower emission factors, since there is no verification of the NOx emission factors assumed by the project proponents, there is simply no reliable means to verify that actual engines used in the field are comparable to those used in the analyses put forth by the operators. This is a significant shortcoming.

Fifth, we compare the calculated activity levels (in hp hr/1000 ft of well drilled) for the various projects (where the data was available to make this comparison), in Table 3.

The projects are listed, in order to increasing well depth. While there is some reason to believe that the activity level might increase as the well depth increases, there does not seem to be any consistency whatsoever. For example, for the two relatively shallow wells at Blackwells Corner and Sherman 1 23, the difference (and directionality) of the activity levels is striking. The shallower well at Blackwells Corner is estimated to use almost 5 times the hp hr as the deeper well as Sherman 1 23. Similarly, there appears to be directionality (i.e., increase in activity levels with depth), the large differences in the calculated activity levels are not clear or supported. For example, why there should be an almost 50% increase in activity level at Terrebonne as compared to Rhythm (both proposed by the same project proponent) is not clear. Nor it is clear why either of these two projects should be so much smaller in activity as compared to the slightly deeper well at Rio Viejo. It is this type of comparison, during review, that DOGGR should be conducting so that the basis of the differences, to the extent there are any, can be fleshed out and understood. Whether these large differences and inconsistencies can be explained by underlying geological differences or not should be

TABLE 3
NORMALIZED ACTIVITY LEVELS AND WELL DEPTHS COMPARISON

PROJECT	WELL DEPTH	ACTIVITY LEVEL (HP-HR/1000-FT)
Blackwells Corner	1,300	63,309
Sherman 1-23	2,150	13,842
Rhythm	12,500	25,409
Terrebonne	13,500	37,198
Rio Viejo	14,000	64,743

TABLE 4
COMPARISON OF NOX EMISSIONS ON A PER WELL AND PER 1000-FT DRILLED BASIS

PROJECT	WELL DEPTH [FT]	NOX [TONS/ WELL]	NOX [LB/1000 FT]
Blackwells Corner	1,300	0.27	415.4
Sherman 1-23	2,150	0.08	74.4
Rhythm	12,500	0.54	86.8
Terrebone	13,500	0.86	127.1
Rio Viejo	14,000	1.50	214.3
Tamarack #1	14000	2.43	[1]
Jedessa		0.82	[1]
Patricia McKellar		5.5	[1]
Rancho Grande 1		1.1	[1]

[1] Not enough detail to calculate

explored. To the extent formation differences cannot explain such differences, it is clear that there are likely to be fault assumptions in activity factors.

Sixth, and finally, we compare the NOx emissions levels on a per well as well as per 1000 ft drilled basis in Table 4.

Not surprisingly, given the significant unexplained variations in the NOx emission factors as well as the activity factors, we have significant reported variations in the NOx emissions on both per well and per 1000 ft basis even for similar depth wells. For example, note the wide difference in the NOx emissions per well between Blackwells Corner and Sherman 1 23. There is no explanation for why the Sherman 1 23 well drilling emissions are as low as estimated. Similarly, note the wide range in the NOx emissions for the 4 deeper wells ranging from 0.54 to 2.43 pounds on a per well basis (a factor of 4+) and also on a per 1000 ft depth basis ranging from 86.8 pounds to 214.3 pounds a factor of almost 3, for the three projects for which this parameter could be computed.

C. COMPARISONS TO OTHER JURISDICTIONS

In the previous section, we have shown the significant and unexplained variations in activity levels, emission factors, and resultant NOx emissions from the various projects, on normalized (i.e., per well, and per 1000 ft drilling) basis.

We have also shown that NOx emission factors, particularly for the larger engines, appear to be too low in most instances.

Since oil and gas drilling is not limited to just Kern County, we reviewed NOx emissions analyses or studies conducted by others. Below we report on some of our findings.

In 2009 and later in 2014, Texas undertook a fairly extensive analysis of drill rig emissions associated with oil and gas exploration in parts of Texas. Actual activity data were solicited via phone and e mail and collected from numerous rig operators and companies. Based on this, and using emission factors consistent with EPA's standards and models, NOx (and other pollutant emissions) inventories were developed. Distinct differences were noted in rig types for three sets of wells: vertical wells less than 7000 feet; vertical wells greater than 7000 feet; and horizontal/directional wells. Table 5 below shows the summary of rig and activity parameters.

Most useful for our comparison, the Texas study also developed emission factors for various pollutants, including NOx for the vertical (less than 7000 ft and greater than 7000 ft) and horizontal/directional wells. The study reported that the estimated NOx emissions in 2013 2015 per 1000 ft were around 0.36 tons or

TABLE 5
SUMMARY OF RIG AND ACTIVITY PARAMETERS FROM TEXAS (2009)[4]

MODEL RIG CATEGORY	RIG TYPE	ENGINE TYPE	# OF ENGINES	AVERAGE AGE (YRS)	ENGINE SIZE (HP)	HOURS/1,000 FT DRILLED	AVERAGE LOAD (%)
Vertical <= 7,000 ft	Mechanical	Draw Works	1.60	7	442	30.8	51.8
		Mud Pumps	1.69	6	428	29.4	45.9
		Generator	0.97	4	330	28.3	70.4
Vertical > 7,000 ft	Mechanical	Draw Works	2.01	25	455	35.9	47.4
		Mud Pumps	1.62	18	761	33.2	46.0
	Electrical		2.15	2	1,381	62.6	48.5
Horizontal/Directional	Mechanical	Draw Works	2.00	15	483	50.1	41.1
		Mud Pumps	2.00	6	1,075	36.4	42.6
		Generator	2.00	10	390	26.8	69.0
	Electrical		2.03	2	1,346	47.3	52.5
All	All	Completion	1.00	Default	350	10.0	43.0

720 pounds per 1000 ft for the vertical wells less than 7000 feet. For vertical wells greater than 7000 feet the study estimated the NOx emissions to be 0.0876 tons (or 175 pounds in 2013), 0.0828 tons (or 166 pounds in 2014) and 0.0746 tons (or 149 pounds in 2015) all per 1000 feet.[5]

Comparing the calculated NOx emissions per 1000 ft as provided in Table 4 (and Table 1, Attachment B) for the various Kern County projects, we see that the emission for the two shallow well projects Blackwells Corner (415.4 pounds) and Sherman 1 23 (74.4 pounds) are significantly lower than the 720 pounds per 1000 ft as estimated by the Texas study the value for Sherman 1 23 at almost 10 times smaller.

While the comparisons for the deeper well projects are a little better, the factors calculated for the Rhythm (86.8 pounds) or Terrebonne (127.1 pounds) are also significantly smaller than the values estimated by Texas.

A different Texas study discussed the NOx emission factors for various drilling operations. For example, hydraulic pump (or mud pump) engine emission factors were determined to be 5.081 grams/hp hr in 2013 and 4.775 grams/hp hr in 2014.[6] While newer engines may be in used in Kern County which may explain the much lower emission factors used, as shown in Table 2 above, one cannot be certain given the lack of verification that actual factors are not, in fact, much higher as indicated in the Texas study.

In yet another study conducted in 2012 by the Ozone Transport Commission, relying on work done in the Western US by WRAP, the overall drilling emissions from oil and gas wells were reported to be in the range of 2.26 tons/well to 9.78 tons/well.[7] This is a significantly bigger range compared to the calculated values for NOx emissions per well in Table 4. Except for the Tamarack #1 and Patricia McKellar projects, estimated Kern County project NOx emissions are significantly smaller.

The comparisons to studies done by other jurisdictions above indicates that, in most cases, NOx emissions estimated by project proponents in Kern County are significantly lower on a comparable basis. Without appropriate actual field data and strong verification of claims made by project proponents (and accepted by DOGGR), it is not possible to simply rely on the claims of the proposed NOx emissions from oils and gas drilling activities in Kern County.

D. RECOMMENDATIONS

In view of the significant uncertainties and likely significant underestimation of NOx emissions from oils and gas drilling activities, we recommend the following:

i. improve the transparency and usefulness of the documents submitted to DOGGR by requiring a minimum of set of project related details such as:
   - well depth and direction;
   - specific lists of equipment;
   - specific details for each engine including manufacturers data and test results;
   - support for assumed load factors for each engine;
   - support for the assumed activity levels, particularly on a per well basis (i.e., the hp hr/well) consistent with well depth and formation details;
   - support for each NOx emission factor used, including test data;

ii. improve the DOGGR website so that the public can access details on actual activity levels post project such as actual numbers of days of drilling; actual equipment used, etc.; and

iii. improve verification of actual field equipment used and activity levels as compared to those in the submitted documents pre project; and document actions taken to resolve uncertainties between pre project and post project data.

TABLE 1 — COMPARISON OF ACTIVITY LEVELS AND NOX EMISSIONS FROM VARIOUS PROJECTS

Project: Rhythm | Apr-15

Drilling Phase Only Equipment	Qty	Size [hp]	Hrs/Day	Duration [days/proj]	Total Hrs [hrs/proj]	Load Factor	hp-hr/project [hp-hr]	# Wells	Depth/ well [ft]	hp-hr/1000 ft	NOx EF [g/hp-hr]	Nox [lb/hr]	Nox [lb/day]	Nox [tons/ proj]	Nox [lb/ 1000ft]
Backhoe	1	400	4	25	100	0.37	14800				1.602	0.523	2.091	0.026	
Crane	1	226	8	2	16	0.29	1049				2.196	0.317	2.538	0.003	
Drill Rig Motor #1	1	1477	24	25	600	0.5	443100				1.504	2.449	58.767	0.735	
Drill Rig Motor #1 (Idle)	1	1477	24	8	192	0.05	14179				1.504	0.245	5.877	0.024	
Drill Rig Motor #2	1	1477	24	25	600	0.5	443100				1.504	2.449	58.767	0.735	
Drill Rig Motor #2 (Idle)	1	1477	24	8	192	0.05	14179				1.504	0.245	5.877	0.024	
Backup Drill Rig Motor #3	1	1477	1	33	33	0.05	2437				1.504	0.245	0.245	0.004	
Small Generator	2	45	12	25	300	0.74	19980				3.592	0.527	6.329	0.079	
All-Project							952824	3	12500	25409		6.999	140.49	1.63	86.8
All-1-Well ONLY								1						0.54	

Project: Terrebone | Apr-15

Drilling Phase Only Equipment	Qty	Size [hp]	Hrs/Day	Duration [days/ proj]	Total Hrs [hrs/proj]	Load Factor	hp-hr/project [hp-hr]	# Wells	Depth/ well [ft]	hp-hr/1000 ft	NOx EF [g/hp-hr]	Nox [lb/hr]	Nox [lb/day]	Nox [tons/ proj]	Nox [lb/ 1000ft]
Backhoe	1	400	4	40	160	0.37	23680				1.602	0.523	2.091	0.042	
Crane	1	226	8	2	16	0.29	1049				2.196	0.317	2.538	0.003	
Drill Rig Motor #1	1	1477	24	40	960	0.5	708960				1.504	2.449	58.767	1.175	
Drill Rig Motor #1 (Idle)	1	1477	24	8	192	0.05	14179				1.504	0.245	5.877	0.024	
Drill Rig Motor #2	1	1477	24	40	960	0.5	708960				1.504	2.449	58.767	1.175	
Drill Rig Motor #2 (Idle)	1	1477	24	8	192	0.05	14179				1.504	0.245	5.877	0.024	
Backup Drill Rig Motor #3	1	1477	1	48	48	0.05	3545				1.504	0.245	0.245	0.006	
Small Generator	2	45	12	40	480	0.74	31968				3.592	0.527	6.329	0.127	
All-Project							1506520	3	13500	37198		6.999	140.49	2.57	127.1
All-1-Well ONLY								1						0.86	

TABLE 1 - COMPARISON OF ACTIVITY LEVELS AND NOX EMISSIONS FROM VARIOUS PROJECTS (CONT.)

Project: Sherman 1-23 | July 14

Drilling Phase Only Equipment	Qty	Size [hp]	Hrs/Day	Duration [days/ proj]	Total Hrs [hrs/proj]	Load Factor	hp-hr/ project [hp-hr]	# Wells	Depth/ well [ft]	hp-hr/1000 ft	NOx EF [g/hp-hr]	Nox [lb/hr]	Nox [lb/day]	Nox [tons/ proj]	Nox [lb/ 1000ft]
Backhoe	0	400	4	40	160	0.37	0				1.602	0.000	0.000	0.000	
Crane	0	226	8	2	16	0.29	0				2.196	0.000	0.000	0.000	
Drill Rig Motor #1	1	200	24	4	96	0.5	9600				2.043	0.450	10.810	0.022	
Drill Rig Motor #1 (Idle)	0	1477	24	8	192	0.05	0				1.504	0.000	0.000	0.000	
Drill Rig Motor #2	0	1477	24	40	960	0.5	0				1.504	0.000	0.000	0.000	
Drill Rig Motor #2 (Idle)	0	1477	24	8	192	0.05	0				1.504	0.000	0.000	0.000	
Backup Drill Rig Motor #3	0	1477	1	48	48	0.05	0				1.504	0.000	0.000	0.000	
Generator	1	75	24	4	96	0.42	3024				3.731	0.259	6.218	0.012	
Mud Pumps	1	300	24	3	72	0.42	9072				3.02	0.839	20.133	0.030	
Draw Works	1	200	24	4	96	0.42	8064				1.979	0.366	8.796	0.018	
Small Generator	0	45	12	40	480	0.74	0				3.592	0.000	0.000	0.000	
All-Project							29760	1	2150	13842		1.915	45.96	0.08	76.1

Project: Blackwells Corner | May-14

Drilling Phase Only Equipment	Qty	Size [hp]	Hrs/Day	Duration [days/ proj]	Total Hrs [hrs/proj]	Load Factor	hp-hr/ project [hp-hr]	# Wells	Depth/ well [ft]	hp-hr/1000 ft	NOx EF [g/hp-hr]	Nox [lb/hr]	Nox [lb/day]	Nox [tons/ proj]	Nox [lb/ 1000ft]
Crane	1	485	6	2	12	0.29	1688				1.805	0.560	3.358	0.003	
Backhoe	1	91	2	1	2	0.37	67				2.057	0.153	0.305	0.000	
Forklift	1	400	2	4	8	0.2	640				1.277	0.225	0.450	0.001	
Generator	2	500	24	2	48	0.74	35520				2.656	4.333	103.992	0.104	
Pump	1	1000	24	2	48	0.74	35520				3.851	6.282	150.780	0.151	
Draw Works	1	540	24	2	48	0.34	8813				1.607	0.650	15.611	0.016	
Welder	1	20	4	2	8	0.34	54				2.247	0.034	0.135	0.000	
							82302	1	1300	63309		12.237	274.63	0.27	423.0

[1] CALCULATIONS FOR 1S/1W. PROJECT WILL BE 1S/2W OR 2S/1W-SEE IS.

TABLE 1 - COMPARISON OF ACTIVITY LEVELS AND NOX EMISSIONS FROM VARIOUS PROJECTS (CONT.)

Project: Rio Viejo | May-14

Drilling Phase Only Equipment	Qty	Size [hp]	Hrs/Day	Duration [days/ proj]	Total Hrs [hrs/proj]	Load Factor	hp-hr/ project [hp-hr]	# Wells	Depth/ well [ft]	hp-hr/1000 ft	NOx EF [g/hp-hr]	Nox [lb/hr]	Nox [lb/day]	Nox [tons/ proj]	Nox [lb/ 1000ft]
Backhoe	1	400	4	30	120	0.37	17760				1.654	0.540	2.159	0.032	
Crane	1	375	8	2	16	0.29	1740				1.805	0.433	3.462	0.003	
Forklift	1	400	4	40	160	0.2	12800				1.277	0.225	0.901	0.018	
Drill Rig Motor	1	1600	24	30	720	0.5	576000				1.491	2.630	63.111	0.947	
Drill Rig Motor	1	1600	12	30	360	0.5	288000				1.491	2.630	31.556	0.473	
Idle Drill Rig Motor	1	1600	24	10	240	0.02	7680				1.491	0.105	2.524	0.013	
Generator	2	45	4	16	64	0.42	2419				3.731	0.311	1.244	0.010	
							906399	1	14000	64743		6.873	104.96	1.50	213.8

[1] CALCULATIONS FOR 1S/1W. PROJECT WILL BE 2S/6W-SEE IS.

Project: Older/Other

	# Wells	Depth/well [ft]	hp-hr/1000 ft	NOx EF [g/hp-hr]	Nox [lb/hr]	Nox [lb/day]	Nox [tons/proj]	Nox [lb/1000 ft]
Project: Jedessa Apr-14	1	Unknown					0.82	
Project: Tamarack #1	1	14000					2.43	
Project: Patricia McKellar	1	Unknown					5.5	
Project: Rancho Grande 1	1	Unknown					1.1	

ENDNOTES

1 See Weekly Activity Report issued by DOGGR dated December 27, 2014 available at ftp://ftp.consrv.ca.gov/pub/oil/weekly_summary/2014.

2 We note that drilling activities with attendant emissions of various pollutants, including NOx, are not just limited to drilling for oil and gas. For example, numerous wells are also drilled in the area for water as well. We have not included emissions from non-oil related well drilling activities.

3 http://www.arb.ca.gov/regact/offrdcie/frooal.pdf

4 Table 6.6, Drilling Rig Emission Inventory for the State of Texas, Final Report Prepared for: Texas Commission on Environmental Quality, Eastern Research Group, Inc., July 15, 2009 (revised August 20, 2014). For more details, see Table D.2 and D.3 in this report. Available at http://www.tceq.state.tx.us/assets/public/implementation/air/am/contracts/reports/ei/5820783985FY0901-20090715-ergi-Drilling_Rig_EI.pdf

5 Ibid., see Tables F.1 and F.2.

6 Table 3-5, Specified Oil and Gas Well Activities Emissions Inventory Update, Final Report, prepared for: Texas Commission on Environmental Quality, Air Quality Division, by Eastern Research Group, Inc., August 1, 2014. Available at https://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5821199776FY1426-20140801-erg-oil_gas_ei_update.pdf

7 p. 10. Technical Information, Oil and Gas Sector, Significant Stationary Sources of NOx Emissions, October 17, 2012. Available at http://www.otcair.org/upload/Documents/Meeting%20Materials/Final%20Oil%20%20Gas%20Sector%20TSD%2010-17-12.pdf

EXPLORE, ENJOY, AND



SIERRA CLUB

PROTECT THE PLANET

EXHIBIT D

Contact:
Amber Mace, CCST
ambermace@ccst.us
(916) 492-0996 (office)
(510) 326-0685 (cell)

FOR IMMEDIATE RELEASE
July 9, 2015

California Council on Science and Technology and Berkeley Lab Release Scientific Assessment of Hydraulic Fracturing in California

SACRAMENTO—In collaboration with the Lawrence Berkeley National Laboratory (Berkeley Lab), the California Council on Science and Technology (CCST) today released a peer-reviewed independent scientific assessment that discusses how hydraulic fracturing and acid well stimulation could affect water, atmosphere, seismic activity, wildlife and vegetation, and human health in California. The report also identifies knowledge gaps and alternative practices that could avoid or mitigate these possible impacts.

The report was prepared for the California Natural Resources Agency in response to Senate Bill 4. Issued today are the second and third volumes in a three-volume CCST study of hydraulic fracturing and acid well stimulation in California. Volume I was released in January 2015.

"We applaud state leaders for seeking an independent scientific assessment to inform policy choices about hydraulic fracturing and acid stimulation. CCST was created as an independent organization via the Legislature to do exactly this kind of careful scientific evaluation," said CCST Executive Director Dr. Susan Hackwood.

A science team composed of Berkeley Lab researchers and subcontractors developed the findings based on publically available data, original analyses, and a review of relevant literature.

CCST appointed members of a steering committee based on technical expertise and a balance of viewpoints. "CCST assembled a steering committee for this report from some of the finest experts on oil and gas production, environment, water, risk assessment and geology," said CCST's Dr. Jane C. S. Long, the Steering Committee Chairman and science lead of the assessment.

Dr. Jens Birkholzer, the Principal Investigator of the assessment and Division Deputy of Berkeley Lab's Earth Sciences Division, added, "A highly qualified group of scientists with many years of research experience worked intensely for over a year

to collect, analyze and interpret a wide variety of available information on hydraulic fracturing and acid stimulation in the state. " Dr. Long adds, "This study would not have been possible in this short timeframe without the expertise and Herculean effort of the Berkeley Lab team."

The steering committee in collaboration with the science team developed conclusions and recommendations under seven major principles designed to improve the safety of hydraulic fracturing and acid stimulation in California:

Maintain, expand and analyze data on the practice of hydraulic fracturing and acid stimulation in California. Based on a review of published literature and official and voluntary databases, one-fifth of oil and gas production in California over the last decade came from wells that had been subject to hydraulic fracturing. Compared to practices in other states, current hydraulic fracturing in California tends to be performed in shallower vertical wells as opposed to horizontal and requires much less water per well. Operators in California use about 800 acre-feet (about a million m^3) of water per year for hydraulic fracturing. This does not represent a large amount of freshwater compared to other human water use. Depending on the local scarcity of water, recycling the water used to create hydraulic fractures may have modest benefits. Far more water is used for enhanced oil recovery using water or steam flooding in the same fields, and large volumes of water of various salinities and qualities get produced along with the oil. Produced water from oil and gas production, appropriately tested and treated, has potential for beneficial reuse. The report recommends identifying opportunities for water conservation and reuse in the oil and gas industry as a whole.

The report also points out the need for improving and modernizing public record keeping for oil and gas development

Prepare for potential future changes in hydraulic fracturing and acid stimulation practice in California. Near-term expanded production in the Monterey Formation seems unlikely, but the state should request a reliable, scientific assessment of this potential. The report identifies the footprint of potential production in the Monterey Formation and none of this geography is more than 20 km from existing oil and gas production. The state should monitor drilling into this formation as an indication of potential new production. Use of hydraulic fracturing will most likely continue in and near existing oil fields in the San Joaquin Basin and to a lesser extent in other areas of California.

Account for and manage both direct and indirect impacts. *Direct* impacts of hydraulic fracturing are caused by the activity of hydraulic fracturing itself. All the major potential direct impacts identified in this study (such as potential contamination of groundwater) are due to the use of hazardous chemicals. The report recommends full disclosure of chemicals used, disallowing the use of any chemical that has unknown environmental properties, and limiting the use of hazardous chemicals to avoid some of the potential impacts.

Hydraulic fracturing enables oil and gas development where it would otherwise not occur. The impacts of this development are *indirect* impacts of hydraulic fracturing. The report recommends evaluation of indirect impacts of concern (such as disposal of produced water, habitat disruption, emissions, health impacts, oil spills *etc*.) for all oil and gas development, rather than just the portion of development enabled by well stimulation.

Manage water produced from hydraulically fractured or acid stimulated wells appropriately. The report finds that operators dispose of over half of the produced water from hydraulically fractured in pits which allow water to percolate into the ground and thus could contaminate groundwater. The report recommends phasing out disposal in percolation pits unless appropriate testing, treatment and regulatory oversight are implemented.

The report also concludes that, to date, there have been no recorded cases of induced seismicity linked to disposal of produced water by underground injection in California, but given the risks seen in other regions and California's propensity for earthquakes, more research and monitoring is needed.

Add protections to avoid groundwater contamination: This assessment did not find recorded negative impacts from hydraulic fracturing chemical use in California, but no agency has systematically investigated possible impacts. The report does identify a few locations in the San Joaquin Valley and Los Angeles Basin where shallow hydraulic fracturing occurs near protected groundwater. This presents the possibility that groundwater may be at risk and recommends that these situations get closer attention, monitoring and oversight.

One important possible pathway for hydraulic fracturing chemicals to leak is through hydraulic fractures intersecting other nearby wells. The report recommends a review of the effectiveness of regulations designed to prevent these potential subsurface contamination pathways.

Understand and control emissions and their impact on environmental and human health: In California, oil produced from hydraulically fractured reservoirs emits fewer greenhouse gases per barrel than oil produced in other ways, such as steam injection.

The report also notes that toxic air pollutant concentrations may be more elevated near active oil and gas development than regional averages. The report recommends measuring toxic air contaminant concentrations and monitoring health risks and impacts near all oil and gas wells to assess the need for further controls. Such controls may include emissions controls and limits on the proximity of oil and gas development to human populations to protect human health.

Take an informed path forward: The report identifies a set of important data gaps and detailed research priorities to address many remaining unanswered questions

about the impacts of well stimulation-enabled oil and gas production in California, and recommends establishing a standing scientific advisory committee to inform decisions on the regulation of oil and gas development.

The full three-volume report, a summary report and an executive summary can be viewed at: http://ccst.us/publications/WST

Volume I, which was released in January 2015, describes how well stimulation technologies work, how and where operators deploy these technologies for oil and gas production in California, and where they might enable production in the future.

Volume II, issued today, discusses how hydraulic fracturing and acid stimulation could affect water, atmosphere, seismic activity, wildlife and vegetation, and human health in California.

Volume III, also released today, presents four case studies that assess environmental issues and qualitative risks for specific geographic regions: Offshore, the Los Angeles Basin, the Monterey Formation, and the San Joaquin Basin.

The **Summary Report** summarizes the issues in all three volumes and provides all the conclusions and recommendations for the series.

###

The California Council on Science and Technology is a nonpartisan, not-for-profit corporation established in 1988 via a unanimous vote of the California Legislature. Bringing together world-class expertise from academia, the national labs, companies and a broad array of Senior Fellows who are distinguished scientists and technical experts, CCST offers expert advice to the Governor, the Executive Branch and the Legislature on science and technology-related policy issues. In recent years, CCST has produced a series of reports on California's technical innovation, water, energy, STEM and digitally enabled education. Please visit ccst.us.

Lawrence Berkeley National Laboratory addresses the world's most urgent scientific challenges by advancing sustainable energy, protecting human health, creating new materials, and revealing the origin and fate of the universe. Founded in 1931, Berkeley Lab's scientific expertise has been recognized with 13 Nobel prizes. The University of California manages Berkeley Lab for the U.S. Department of Energy's Office of Science. For more, visit www.lbl.gov. The Office of Science is the single largest supporter of basic research in the physical sciences in the United States, and is working to address some of the most pressing challenges of our time. For more information, please visit science.energy.gov.

0047-1

The comment is a general introduction. No response is necessary and it is noted for the record.

0047-2

Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-3

Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-3 cont'd

0047-4

The comment is correct that the EIR acknowledges significant and unavoidable environmental impacts. EIR, Section 5.2. The comment regarding public controversy is noted for the record. The existence of public controversy is not considered substantial evidence that a project may have significant environmental impacts. "Substantial evidence" means include facts, reasonable assumptions predicated upon facts, and expert opinion support by facts. CEQA Guidelines 15064(f)(4), (5)

Please see GR GHG-1 regarding climate change and greenhouse gas emissions. Regarding California's current drought, please see response 43-171-173, 43-180 and 43-181.

The Revised Amended Ordinance has been further revised to include a cap of 3,649 well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with additional CEQA review as described in the Revised Amended Ordinance. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0047-5

See GR-17: EIR Review Time/Comment Period.

0047-6

The comment is a general introduction. No response is necessary and it is noted for the record.

0047-7

The accurate citation to *County of Inyo v. City of Los Angeles* (1977) 71 Cal. App. 3d 185, 193 is noted for the record and included in the final EIR. Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-8

Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-9

Please see GR-2 regarding the approach to County-wide analysis of the Project and GR-3 regarding the "shelf life" of the EIR.

0047-10

Please see GR-2 regarding the approach to County-wide analysis of the Project and GR-3 regarding the "shelf life" of the EIR.

0047-10 cont'd

0047-11

Please see GR-2 regarding the approach to County-wide analysis of the Project. Kern County currently contains approximately 75 active oil and gas fields, and the analysis of well projections forecasts up to 3,659 permits per year. (Please see GR 8 regarding the well forecasts.) It is not practical for the County to prepare a program EIR for the Revised Amended Ordinance, to be followed by future project environmental reviews to be conducted on every single well or groups of wells. The County lacks the resources to process thousands of oil and gas Negative Declarations and/or EIRs each year. The economic consequences for operators would be severe, delaying drilling for many months during the preparation of costly individualized CEQA documents. Moreover, such individualized review would be highly repetitive, as the thousands of Negative Declarations and EIRs would re-analyze the same impacts and prescribe the same mitigation for each new well or group of wells throughout the County. Accordingly, an important purpose of the Revised Amended Ordinance and this EIR is to eliminate time-consuming and costly discretionary reviews of individual well and field development activities, by establishing a ministerial site plan review process which incorporates mitigation identified in this EIR. As such, future County actions processing individual site plans will not trigger further CEQA review by the County. In addition, in the vast majority of cases, this process will avoid the need for responsible agencies to prepare additional CEQA documents for individual well or field development proposals when they are considering the discretionary decisions within their respective jurisdictions.

The Revised Amended Ordinance has been further revised to include a cap of 3,649 well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with additional CEQA review as described in the Revised Amended Ordinance. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0047-12

Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-13

Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-13 cont'd

0047-14

The commenter's legal citations are noted for the record and included in the final EIR.

0047-15

The commenter's legal citations are noted for the record and included in the final EIR.

0047-16

Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-16 cont'd

0047-17

Please see GR-2 regarding the approach to County-wide analysis of the Project. As noted above, the Revised Amended Ordinance has been further revised to ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA, including as a result of technology breakthroughs permitting greatly increased production. (See Pub. Res. Code 21166.)

0047-18

The comment is a general introduction of ministerial review. No response is necessary and it is noted for the record. Please see GR-1 regarding the ministerial permit process.

0047-19

See GR-01: Ministerial Permit Process. **0047-19 cont'd**

0047-20

A determination as to whether an application conforms to implementation standards and conditions in the zoning code is definitionally a ministerial process. CEQA Guidelines §§ 15357; § 15369. Please see GR-1 regarding the ministerial permit process.

0047-21

See GR-01: Ministerial Permit Process.

0047-22

The comment states that the DEIR could have done more to discuss various categories of mitigation measures that are "feasible" and "possibly environmentally superior," but does not suggest any specific mitigation measures for the County to consider.

CEQA does not require analysis of every imaginable mitigation measure. (*Gilroy Citizens for Responsible Planning v. City of Gilroy* (2006) 140 Cal.App.4th 911, 935; *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1989) 209 Cal.App.3d 1502, 1519.) An EIR should focus on mitigation measures that are feasible, practical, and effective. (*Napa Citizens for Honest Gov’t v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 365; *Concern Citizens of South Central Los Angeles v. Los Angeles Unified School District* (1994) 24 Cal.App.4th 826, 841.) The mitigation measures selected for inclusion in the DIER meet these criteria. (See also *Los Angeles Unified School District v. City of Los Angeles* (1997) 58 Cal. App. 4th 1019, 1028–1030 ["In keeping with the statute and guidelines, an adequate EIR must respond to specific suggestions for mitigating a significant environmental impact unless the suggested mitigation is facially infeasible."].)

Please see GR 16, which further addresses the level of specificity required in the mitigation measures. Please see GR-1 regarding the ministerial permit process.

0047-22 cont'd

0047-23

See GR-01: Ministerial Permit Process.

0047-24

The commenter's opinion regarding the nature of the mitigation measures is noted for the record. Please see GR-1 regarding the ministerial permit process.

0047-25

The commenter's legal citations are noted for the record and included in the final EIR. Please see GR-1 regarding the ministerial permit process.

0047-26

The commenter's legal citations are noted for the record and included in the final EIR. Please see GR-1 regarding the ministerial permit process.

0047-27

Please see GR-1 regarding the ministerial permit process, GR-16 regarding standards for adequate mitigation measures under CEQA, including enforceability, and GR 19 regarding the MMRP.

0047-27 cont'd

0047-28

Please see GR-1 regarding the ministerial permit process, GR-16 regarding standards for adequate mitigation measures under CEQA, including enforceability, and GR 19 regarding the MMRP. The Revised Amended Ordinance, included in Section 7.1.3, also includes additional requirements and details regarding enforcement and self-certification procedures.

0047-29

Please see GR-1 regarding the ministerial permit process, GR-16 regarding standards for adequate mitigation measures under CEQA, including enforceability, and GR 19 regarding the MMRP. The Revised Amended Ordinance, included in Section 7.1.3, also includes additional requirements and details regarding enforcement and self-certification procedures.

0047-30

Compliance documentation will be required as part of the routine administration and implementation of the Revised Amended Ordinance, and mitigation measure compliance will be tracked as part of the MMRP process.

0047-30 cont'd

0047-31

The comment is a general introduction of air impact analysis. No response is necessary and it is noted for the record.

0047-32

The comment is a general introduction of hydrology impact analysis. No response is necessary and it is noted for the record.

0047-33

The referenced Exhibit is noted for the record. Please refer to GR Air-1 and GR Air-4, regarding the air quality methodology and emissions estimates. Please see GR 8 regarding future well projections. Please also see GR-2 regarding the approach to County-wide analysis of the Project. Please see GR 16 regarding mitigation measures.

0047-34

Please see GR-2 regarding the approach to County-wide analysis of the Project. Please also see GR Air-1.

0047-35

Please see GR-8 regarding well projections. Please also see GR Air-4 regarding air quality analysis methodology. Please see GR-8 regarding well projections.

0047-35 cont'd

0047-36

Please see GR Air-4 regarding air quality analysis methodology. Please also see GR-21, regarding use of best available data.

0047-37

Please see GR Air-1 and GR Air-2 regarding the air quality analysis in the DEIR and the effectiveness of mitigation measures and the Emission Reduction Agreement (ERA). The San Joaquin Valley Air Pollution Control District is in agreement with the County with regard to use of ERAs, and has used them for many projects in in the past.[1]

[1] *See, e.g.*, SJVAPCD *2014 Annual Report, Indirect Source Review Program* (2014) at p.1 ("a developer can further reduce the project's impact on air quality by entering into VERA with the District to address the mitigation requirements under California Environmental Quality Act (CEQA). Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which funds are then used by the District to administer emission reduction projects on behalf of the project proponent. The District has entered into over twenty VERAs since 2005."), http://www.valleyair.org/ISR/Documents/2014-AnnualISRReport.pdf.

0047-38

Please see GR Air-2 regarding the Emission Reduction Agreement. Please also see GR-16. The commenter notes that the data prepared by Vector Environmental, Inc. was not included in the DEIR. The report to which the commenter refers was a draft report created as part of the air quality analysis, but was never completed. All of the supporting information used in both the incomplete Vector report draft and in drafting the DEIR was available to the public upon request to the County. Some parties obtained the supporting information via a California Public Records Act request. It is evident from the comment that the commenter received the supporting information for review. The DEIR was not required to include this material. To keep the EIR to a manageable length, source documents used in preparing an EIR need not be included in the EIR. *See* CEQA Guidelines § 15148. Scientific, engineering, and technical reports and similar documents relied on in preparing an EIR need not be incorporated into the body of the EIR or in an EIR appendix. *Id.*; *see also Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR); *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou* (2012) 210 Cal. App. 4th 184, 219 (an EIR may summarize information in a technical report without appending the report or incorporating the report by reference); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173 (the EIR's hydrological analysis was not incomplete when a study relied on in determining the drainage report was not included in the EIR).

0047-38 cont'd

0047-39

See GR-08: Future Well Projections.

0047-40

The commenter's states that a "common sense analysis" suggests that higher numbers of well failures will take place each year than estimated in the EIR. The analysis of well failure rates in the EIR, page 4.6-7, is supported by substantial evidence from DOGGR and the California Council on Science and Technology (CCST). The EIR also cited the study by Jordan and Benson (2009), which analyzed well blowout rates in California Oil and Gas District 4, which includes Kern County, in order to assess well blowout risks between 1991 and 2008. The analysis quantifies probabilities of well blowout risks for several well types, including wells in non-thermal fields, thermal fields, steam injection wells, and thermally enhanced production wells. Based on multiple data sources from DOGGR, Jordan and Benson (2009) conclude an annual blowout rate of two wells per year in District 4 for between 2005 and 2008. Based on the continual improvement of industry practices in well construction and production, together with DOGGR's permanent SB 4 regulations relating to well stimulation treatment, it was reasonable for the EIR to rely on the study's well failure rate of 2 wells per year in District 4. This study represents the best available information; please see GR 21.

0047-41

Please see GR-Water-02 regarding exempt aquifers and underground injection, GR-Geo-1 regarding produced water and induced seismicity, and GR-21 regarding the use of best available information.

0047-42

Please see GR-Water-02 regarding underground injection and exempt aquifers. GR-Water-02 discusses subsequent correspondence between DOGGR and UICEPA regarding the further evaluation of injection wells. These are not "unofficial letters" but compliance reports required of DOGGR by USEPA exercising its oversight authority for the UIC program.

0047-42 cont'd

0047-43

An updated water supply assessment has been included in the final EIR in Appendix T-1

0047-44

The commenter's legal citations are noted for the record and included in the final EIR.

0047-45

The commenter's legal citations are noted for the record and included in the final EIR.

0047-46

The comment is correct that, because the EIR finds some impacts significant and unavoidable, the County must adopt a statement of overriding considerations in order to approve the Project. The County will comply with this requirement.

0047-46 cont'd

0047-47

The commenter's opinion regarding the quality of the cumulative air impacts analysis is noted for the record.

0047-48

The comment states the Project's cumulative air quality impacts are underestimated in the DEIR and the DEIR fails to list other projects or ongoing activities that cause cumulative air quality and health burdens for Kern County residents. The commenter does not specify any other projects or ongoing activities that it states should have been addressed. An adequate discussion of significant cumulative impacts must include either a list of past, present, and probable future projects producing related or cumulative effects, or a summary of projections from an adopted local, regional, or statewide plan, related planning document, or related environmental document that describes conditions contributing to the cumulative effect. CEQA Guidelines §15130(b)(1). The DEIR's cumulative analysis uses the plan/projection approach, and includes both the KCGP and the regional growth plan and projections included in the Kern COG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) approved in 2014.

As discussed in Section 4.3.5 of the DEIR, implementation of these regional plans (Section 3.7, Cumulative Projects), and any projects associated with these plans would be required to comply with the goals, policies, and implementation measures of applicable federal and local laws and land use standards imposed by the respective jurisdictions within which each related project is located. DEIR at 4.3-115. The SJVAPCD's attainment plans are designed to ensure the future attainment of State and federal ambient air quality standards. A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. Cal Code Regs. §15064(h)(1). Please see GR-22.

The DEIR analyzed the Project's consistency with existing air quality plans, assessed localized impacts, and provided a detailed comparison of the Project's operational emissions to emissions of the entire SJVAB and the Kern County SJVAB to assess the Project's contribution to cumulative air quality impacts. DEIR at 4.3-117 – 4.3-120. Forecasts reflect both anticipated growth and controls, as updated by CARB. DEIR at 4.3-119. As described in the DEIR (see Table 4.3-42), the Project would contribute between two and 14% of criteria pollutant emissions in the SJVAB, or between 19% and 79% of Kern County's contribution. The DEIR determined that the contribution of Project-related impacts to air quality would remain significant and unavoidable after mitigation based on the current nonattaintment status of regional pollutants resulting from past and present development. As the DEIR explains, air pollution is largely a cumulative impact and future attainment of State and Federal ambient air quality standards is a function of successful implementation of the SJVAPCD's attainment plans. The SJVAPCD's thresholds of

significance for criteria pollutants are based on District Rule 2201 (New Source Review) offset requirements. The District's attainment plans demonstrate that project-specific net emissions increase below New Source Review (NSR) offset requirements will not prevent the District from achieving attainment. Consequently, emission impacts from sources permitted consistent with NSR requirements are not individually significant or cumulatively significant. While emissions exceed significance thresholds, as described in GR-Air-1 and GR-Air-2, the Project's operational emissions are required to be fully offset under the suite of Air Quality Mitigation measures. Nonetheless, since the County does not have legal authority over air quality planning, and is also relying on the SJVAPCD for achievement of certain air quality mitigation, the County is conservatively finding that potential cumulative impacts are significant and unavoidable.

The DEIR's analysis of cumulative air quality impacts satisfies CEQA and CEQA Guidelines requirements. *See, e.g.*, CEQA Guidelines § 15130. Authority cited by the commenter, *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214, which provides a general statement of the purpose of CEQA, is noted for the record, but does not affect this conclusion. Please see GR Air-1 for a discussion of the air quality impacts analysis in the DEIR.

0047-49

Please see comment 48.

0047-50

Please see GR Air-3 regarding the Health Risk Assessments. As explained in the DEIR, MMs 4.3-1–4.3-4 will ensure that emissions of criteria pollutants will not increase due to the Project.

0047-51

Please see GR-Air-3 and GR Air-6 regarding setbacks.

0047-52

See Global Response (GR)-Air 2.

0047-53

The comment is a general conclusion. No response is necessary and it is noted for the record.

0047-54

The EIR includes a comprehensive evaluation of available water supplies, including the significant current overdraft of groundwater, as explained in the Water Supply Assessment (WSA, Appendix T) and as further updated in GR Water 5. Please note that the WSA has been revised to reflect minor corrections or additional information as described in GR Water-05. None of the revisions significantly affects the EIR analysis or conclusions.

0047-55

Please see response 54. Data on groundwater supplies were obtained by reviewing detailed publicly available reports and water management plans prepared by the local water agencies and water districts within the Project Area. These local agencies are the best sources of information on available groundwater resources and management, and are required to update their management plans every five years. Based on supply and demand estimates developed from the detailed water management plans and reports, including agricultural demand, the WSA concluded that there is no surplus water in the Project Area and that the Kern County Subbasin is in an existing overdraft condition. This information was incorporated into the analysis of available groundwater supplies for purposes of the EIR. CEQA analysis requires reasonable disclosure based on best available information, but does not require "perfect" information; please see GR 21. Please also see GR Water 03 regarding the Sustainable Groundwater Management Act (SGMA). The SGMA creates a new process for addressing regional groundwater supplies throughout the state. The SGMA will require that agricultural, municipal, and industrial activities account for current and future uses of water and

create sustainable plans for managing the resource. Under these circumstances, it would be speculative to predict long-term allocations to any sector, as those will result from the SGMA process. While the EIR finds that oil and gas activity uses very little groundwater compared to other uses, significant impacts to groundwater supply are identified and mitigation measures are proposed. MM 4.17-2 and 4.17-3 require the Applicant to work with the County in the SGMA process to increase the re-use of produced water from oil and gas activities.

0047-55 cont'd

Please see response 54. Data on groundwater supplies were obtained by reviewing detailed publicly available reports and water management plans prepared by the local water agencies and water districts within the Project Area. These local agencies are the best sources of information on available groundwater resources and management, and are required to update their management plans every five years. Based on supply and demand estimates developed from the detailed water management plans and reports, including agricultural demand, the WSA concluded that there is no surplus water in the Project Area and that the Kern County Subbasin is in an existing overdraft condition. This information was incorporated into the analysis of available groundwater supplies for purposes of the EIR. CEQA analysis requires reasonable disclosure based on best available information, but does not require "perfect" information; please see GR 21. Please also see GR Water 03 regarding the Sustainable Groundwater Management Act (SGMA). The SGMA creates a new process for addressing regional groundwater supplies throughout the state. The SGMA will require that agricultural, municipal, and industrial activities account for current and future uses of water and create sustainable plans for managing the resource. Under these circumstances, it would be speculative to predict long-term allocations to any sector, as those will result from the SGMA process. While the EIR finds that oil and gas activity uses very little groundwater compared to other uses, significant impacts to groundwater supply are identified and mitigation measures are proposed. MM 4.17-2 and 4.17-3 require the Applicant to work with the County in the SGMA process to increase the re-use of produced water from oil and gas activities.

0047-56

Please see response 54. Data on groundwater supplies were obtained by reviewing detailed publicly available reports and water management plans prepared by the local water agencies and water districts within the Project Area. These local agencies are the best sources of information on available groundwater resources and management, and are required to update their management plans every five years. Based on supply and demand estimates developed from the detailed water management plans and reports, including agricultural demand, the WSA concluded that there is no surplus water in the Project Area and that the Kern County Subbasin is in an existing overdraft condition. This information was incorporated into the analysis of available groundwater supplies for purposes of the EIR. CEQA analysis requires reasonable disclosure based on best available information, but does not require "perfect" information; please see GR 21. Please also see GR Water 03 regarding the Sustainable Groundwater Management Act (SGMA). The SGMA creates a new process for addressing regional groundwater supplies throughout the state. The SGMA will require that agricultural, municipal, and industrial activities account for current and future uses of water and create sustainable plans for managing the resource. Under these circumstances, it would be speculative to predict long-term allocations to any sector, as those will result from the SGMA process. While the EIR finds that oil and gas activity uses very little groundwater compared to other uses, significant impacts to groundwater supply are identified and mitigation measures are proposed. MM 4.17-2 and 4.17-3 require the Applicant to work with the County in the SGMA process to increase the re-use of produced water from oil and gas activities.

0047-57

The EIR provides a project-level review of ground and surface water impacts. Please see GR-2 regarding the approach to County-wide analysis of the Project.

0047-58

This introductory comment is noted. Please see Responses 0046-61 through 0046-82.

0047-59

This introductory comment is noted. Please see Responses 0046-61 through 0046-82.

0047-60

This introductory comment is noted. Please see Responses 0046-61 through 0046-82.

0047-60 cont'd

0047-61

Please see Global Responses Alt-1 and Alt-2. Regarding the comment's suggestion that the EIR combine the unspecified benefits of various alternatives, such analysis is not required by CEQA. The EIR fully evaluates six alternatives to the Project: No Project Alternative (Alternative 1); CUP Alternative (Alternative 2); Reduced Ground Disturbance Alternative (Alternative 3); No Hydraulic Fracturing Alternative (Alternative 4); Low-Emission Enhanced Oil Recovery (EOR) Technology Alternative (Alternative 5); Recycled Water Alternative (Alternative 6). For each alternative, the EIR provides a detailed description of the alternative, compares its impacts to those of the Project, and evaluates the relationship between the alternative and the Project objectives. In addition, Table 6-1 of the Draft EIR sets forth a matrix that provides a summary comparison of the significant impacts of each alternative to the project and the remaining alternatives for each impact category analyzed in the EIR. This analysis, combined with the detailed evaluation of each alternative's impacts as compared to the Project provides the information necessary to weigh the relative advantages and disadvantages of each alternative and to permit a reasonable choice thereof. As such, the EIR is not defective for not discussing variations on the alternatives it does consider. *See Village of Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal.App.3d 1022, 1028-1029.

0047-62

Please see Global Response Alt-2.

0047-63

Please see Global Response Alt-2. To the extent this comment intends to suggest that the Project would allow more oil and gas development in the Project Area, and thus cause greater impacts, than would otherwise occur under "no project" conditions, this comment is incorrect. The Project would establish a new administrative approval process for new oil and gas well permits, but it would not allow for greater oil and gas development in the Project Area than would otherwise be authorized under "no project" conditions. In fact, the EIR contains substantial evidence demonstrating that future oil and gas development in the Project Area will have fewer adverse impacts than would otherwise occur under "no project" conditions. Moreover, there is no evidence that future oil and gas activities in the Project Area would have reduced environmental impacts, as compared to Project conditions, simply by subjecting each oil and gas well to an individual discretionary approval process.

0047-64

Please see Global Response Alt-2.

0047-65

Please see Global Responses 1, 2, and Alt-2.

0047-66

Please see Responses 0047-61 and 0043-246, and Global Response Alt-2.

0047-67

Please see Global Response Alt-2. Please also see GR-12 for a discussion of the CCST report generally, GR-13 for a discussion of CCST's conclusions regarding hydraulic stimulation, and GR-21 regarding the use of best available information.

0047-68

Please see Responses 0062-61 and 0079-246, and Global Response Alt-2.

0047-68 cont'd

0047-69

Please see Responses 0062-61 and 0079-246, and Global Response Alt-2. Please see GR-Water-4 regarding the feasibility of a potable water use ban.

0047-70

Please see Response 0049-33 and Global Response Alt-2. The Project objectives related to the promotion of the oil and gas industry in Kern County do not conflict with state policy. As commenter correctly notes, it is a policy of the state to reduce reliance on fossil fuels. However, it also a policy of the state to regulate "all methods and practices known to the oil industry for the purpose of increasing the ultimate recovery of underground hydrocarbons[.]" Pub. Res. Code § 3106(b). Moreover, Kern County is a leader in the promotion of renewable energy development. According to the California Energy Commission, as of June 30, 2015, Kern County has 100 renewable energy facilities online, providing 4,372 megawatts renewable capacity (CEC, 2015). These numbers far exceed any other county in California. Please see GR-Water-4 regarding the feasibility of a potable water use ban.

0047-71

Please see Global Response Alt-1.

0047-72

Please see Global Response Alt-1.

0047-73

Please see Global Response Alt-1.

0047-74

Please see Response 0049-33 and Global Response Alt-1.

0047-75

Please see Response 0062-71 and Global Response Alt-1.

0047-76

Please see Global Response Alt-1.

0047-77

Please see Global Response Alt-1.

0047-78

Please see Global Response Alt-1.

0047-79

Please see Global Response Alt-1.

0047-80

Please see Global Response Alt-1.

0047-80 cont'd

0047-81

Please see Global Response Alt-1.

0047-82

The comment is a general introduction of the California Council on Science and Technology's report on well stimulation. No response is necessary and it is noted for the record.

0047-83

Please see GR-12 regarding the CCST report generally.

0047-83 cont'd

Please see GR-12 regarding the CCST report generally.

0047-84

Please see GR-12 regarding the CCST report generally, GR-13 regarding the CCST report's conclusions on well stimulation technology, GR-15 regarding the CCST report's conclusions on hydraulic stimulation, and GR-Geo-1 regarding the CCST report's conclusions on induced seismicity.

0047-85

Please see GR-Air-8 regarding the CCST report's conclusions on well stimulation air emissions and GR-Air-9 regarding the CCST report's conclusions on air emissions.

0047-86

Please see GR-12 regarding the CCST report generally, GR-13 regarding the CCST report's conclusions on well stimulation technology, GR-15 regarding the CCST report's conclusions on hydraulic stimulation, GR-Geo-1 regarding the CCST report's conclusions on induced seismicity, please see GR-Air-8 regarding the CCST report's conclusions on well stimulation air emissions, and GR-Air-9 regarding the CCST report's conclusions on air emissions.

0047-87

Please see GR-12 regarding the CCST report generally. Regarding the substantial evidence of expected levels of future oil and gas development, including well stimulation, in existing oil fields the Project Area, please see GR-8.

0047-88

Please see GR-12 regarding the CCST report generally and GR-13 regarding the CCST report's conclusions on well stimulation technology. Regarding concerns regarding well stimulation at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6.

0047-89

Please see GR-12 regarding the CCST report generally and GR-13 regarding the CCST report's conclusions on well stimulation technology.

0047-90

Please see GR-12 regarding the CCST report generally. Regarding migration corridors, please see responses 44-95 through 44-97.

0047-91

The commenter's quotations from the CCST report are noted. Please see GR-12 regarding the CCST report generally. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.3.

0047-91 cont'd

The commenter's quotations from the CCST report are noted. Please see GR-12 regarding the CCST report generally. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0047-92

The commenter's opinion regarding the discussion of the CCST oil and gas well stimulation report is noted for the record.To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0047-92 cont'd

The commenter's opinion regarding the discussion of the CCST oil and gas well stimulation report is noted for the record.To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0047-93

Exhibit A is a copy of the comment's request for extension of time dated July 20, 2015 and the County's response dated July 23, 2015. The exhibit is noted. Please see GR-17 regarding the comment period for review of the EIR.

0047-94

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-94 cont'd

Exhibit B is a report prepared by Dr. Sahu regarding the DEIR. The Exhibit is noted for the record. The Exhibit provides background information about the air quality analysis and is cited in support of the commenter's statements regarding the EIR. Please see responses 26, 33, 34, 35, 36, 37 and 48. Please also see GR Air-4 which addresses the report's issues with the air quality methodology and analysis.

0047-95

Exhibit C is a report entitled *On the Underestimation of NOx Emissions from Oil Well Drilling Activities in Kern County, CA* by Dr. Ranajit Sahu

commissioned by the Kern-Kaweah Chapter of the Sierra Club. Please see GR Air-4 which addresses this report.

0047-96

Exhibit D is a press release regarding the release of the complete CCST report, dated July 9, 2015. The exhibit is noted. Please see responses 83, 86.

48 Natural Resource Defense Council

September 11, 2015

Via Certified U.S. Mail and Electronic Mail

Christopher B. Mynk, AICP
Supervising Planner
MynkC@co.kern.ca.us
Kern County Planning Department
Public Services Building
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

Re: Comments on the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(c), Including Implementation of All future Activities Undertaken Pursuant to the Amendment

To Mr. Mynk:

On behalf of the Natural Resources Defense Council (NRDC), which has 1.4 million members and activists, 250,000 of whom are Californians, we write to submit comments on the Draft Environmental Impact Report (DEIR) for an Amendment to Chapter 19.98 of the Kern County Zoning Ordinance and future oil and gas activities undertaken pursuant to that amendment. 0048-1

I. Introduction

The Kern County Planning and Community Development Department (KCPCDD) has prepared an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to identify and evaluate potential impacts associated with future oil and gas exploration, development, and production activities in the Project Area expected to be undertaken pursuant to the Amended Zoning Ordinance. The proposed Project includes (1) an amendment to Title 19 of the Kern County Zoning Ordinance, Chapter 19.98 (Oil and Gas Production) and related sections of the Kern County Zoning Ordinance for future oil and gas activities and (2) all future activities undertaken pursuant to that amendment. 0048-2

The DEIR assumes 2,697 new producing wells per year or 67,425 wells in the next 25 years. DEIR Section 3.5 p. 3-30. Chapter 19.98, as amended, would require a permit from the Kern County Planning and Community Development Department prior to drilling any new exploratory or production wells. As part of that permit process there would be "Conformity Review," which the amendment seeks to make a non-discretionary or ministerial process. Applicants would be left to self-certify their project's compliance with the Zoning Ordinance during construction and upon completion. 0048-3

In short, under this proposed permitting scheme no further CEQA review would be required until those, i.e. 25-year and/or 67,425 well, thresholds are crossed, at which point the County will consider if further review is mandated.

0048-4

Our evaluation of the Project concludes it that fails to consider recent scientific recommendations for mitigating the impacts of well stimulation and it impermissibly attempts to avoid future CEQA review by grossly abusing the definition of a "project" under CEQA. The DEIR's alternatives analysis eliminates feasible, possibly environmentally superior options without basis. Finally, as detailed *below*, the Project will result in significant environmental impacts that have not been disclosed or mitigated in the DEIR.

0048-5
Continued

KCPCDD can and must do more to describe and mandate various categories of mitigation that existing studies demonstrate are likely to be important and feasible methods of reducing impacts at many sites across Kern County. These mitigation measures should set a floor for future mitigation that KCPCDD in further, site-specific CEQA review, would require. (See arguments below for why this EIR cannot serve as the final CEQA review for any well.) For example, as we discuss below, KCPCDD can and must do more to describe and mandate mitigation for the air quality, groundwater, surface water, hazards and hazardous materials, and seismic impacts of well stimulation.

0048-6
Continued

The DEIR includes numerous mitigation commitments that are not enforceable because they are not included in the proposed regulations or any supplemental permit conditions. Mitigation measures that are suggested in the DEIR itself that are unenforceable (i.e., not codified through regulatory or other mechanisms) should be acknowledged as such and reduced efficacy of mitigation due to the lack of enforcement should be analyzed and disclosed.

0048-7
Continued

II. The DEIR lacks the insights of the state's scientific study on the impacts of well stimulation.

The state recently underwent an independent scientific assessment (CCST Study) of well stimulation in California,[1] as mandated by Senate Bill 4. The study makes several findings and recommendations that should be considered and incorporated in the Final Kern County EIR.

0048-8

Those recommendations include, among several others, measures to identify opportunities for water conservation and reuse in the oil and gas industry; a recognition that oil resource assessments and future use in the Monterey Formation of California "remain uncertain"; acknowledgement that important investigation of impacts of fracking on hydrology have not been investigated; a recommendation that the use of hazardous and poorly understood chemicals should be limited; a determination that further work is needed to limit habitat fragmentation and wildlife impacts; a recognition that we should phase out disposal of produced water in percolation pits; a recommendation for better testing to evaluate the water chemistry of fracking and acid stimulation produced water chemistry; a call for further testing before reuse for irrigation is permitted; a recognition that underground injection as a disposal method brings with it risks of seismic activity; a stated need to control toxic air emissions from oil and gas

0048-9
Continued

[1] Available here: https://ccst.us/projects/hydraulic_fracturing_public/SB4.php.

production wells and measure their concentrations; and a finding that we need to better assess the current level of and impact on public health and worker safety near and from oil and gas activity. 0048-9 Continued

A few key findings and conclusions from the recent report include: 0048-10

- "Operators currently dispose of wastewater from hydraulically fractured wells in percolation pits and also likely have occasionally injected wastewater contaminated with stimulation chemicals into protected groundwater. These practices should stop."
- "Operators have unrestricted use of many hazardous and uncharacterized chemicals in hydraulic fracturing. [T]he use of chemicals with unknown environmental profiles should be disallowed. The overall number of different chemicals should be reduced, and the use of more hazardous chemicals and chemicals with poor environmental profiles should be reduced, avoided, or disallowed." 0048-11
- "Shallow hydraulic fracturing presents a higher risk of groundwater contamination, which groundwater monitoring may not detect. This situation warrants additional scrutiny. Operations with shallow fracturing near protected groundwater could be disallowed or be subject to additional requirements regarding design, control, monitoring, reporting, and corrective action..." 0048-12
- "The majority of impacts associated with hydraulic fracturing are caused by the indirect impacts of oil and gas production enabled by the hydraulic fracturing." 0048-13
- "Emissions concentrated near all oil and gas production could present health hazards to nearby communities in California." 0048-14

Given what we already know about the dangers of well stimulation, it is irresponsible to proceed without incorporating the best science related to an assessment of the risks specific to California. Regulating in the scientific dark unnecessarily increases the risks to human health and the environment. All three volumes of the statewide study should inform the Kern County EIR process. 0048-15 0048-16

III. The DEIR is inappropriately framed as a project-level EIR.

At the behest of Western States Petroleum Association (WSPA), California Independent Petroleum Association (CIPA), and Independent Oil Producers Agency (IOPA) (collectively "Applicants"), the KCPCDD hereby seeks to create a "streamlined permitting" process whereby no further CEQA review would be required for an expansive spectrum of future oil and gas activities within unincorporated Kern County for the next 25 years, or 67,425 wells, and potentially beyond. DEIR at 2-23. 0048-17

As an initial matter, the DEIR is inappropriately framed as a *project* EIR. Instead, the DEIR should be treated as a *program* EIR, which could be used to tier off of but would require additional cite-specific review on a case-by-case basis. The DEIR's scope is far too extensive for project-level EIR analysis. 0048-18

A project EIR typically focuses "primarily on the changes in the environment that would result from [a single] development project." 14 Cal Code Regs §15161 ("CEQA Guidelines"). By way of contrast, and pursuant to CEQA Guidelines section 15168, a program EIR is "used for a series of related actions that can be characterized as one large project." *Ctr. for Sierra Nevada Conservation v. Cnty. of El Dorado*, 202 Cal. App. 4th 1156, 1171 (2012). Because it covers and 0048-19

0048-19 Continued

considers a series of actions, a program EIR often requires further analysis, but can save time and effort by being the first "tiered EIR." *See Natural Resources Defense Council, Inc. v. City of Los Angeles*, 103 Cal.App.4th 268, 282 (2002).

0048-20

As the California Supreme Court has explained, "a *program* EIR is distinct from a *project* EIR" in that the latter is "prepared for a specific project and must examine in detail site-specific considerations." *Ctr. for Sierra Nevada Conservation*, 202 Cal. App. 4th at 1184. The proposed Kern County DEIR contemplates not one but a "series of related actions," and the temporal, geographic, and substantive breadth and scope of those covered actions render the level of site-specific analysis and consideration that CEQA requires at the *project* level not just impracticable but impossible. *Id*. at 1171.

0048-21

The DEIR purports to consider and reach conclusions as to the impact of an unprecedented amount of activity for a project-level EIR: a suite of oil and gas activities in a 3,700 square mile area for the next 25 years. This attempt to preemptively conduct CEQA review on a wide-ranging list of activities (from hydraulic fracturing to building evaporation ponds and constructing pipelines), across a diverse and complex County, and deep into future decades during a drought and time of both climate change and technological advancement, is an abuse of CEQA and—if permitted—would render CEQA and the public environmental review process it mandates a farce.

0048-22

Under CEQA, a project EIR must include an accurate, stable, and consistent description of the proposed project. The project description must contain sufficient specific information about the project to allow a complete evaluation and review of its environmental impacts. CEQA Guidelines § 15124. Here, the DEIR lists twenty hypothetical categories of construction activities and seventeen hypothetical operational activities that are to be considered, and therefore covered, by this environmental impact review. DEIR at 3-35, 3-36.

0048-23

The activities covered by this DEIR include:
Geophysical or "seismic" surveys; well pad preparation; well testing; road construction; electrical distribution line and substation construction; well drilling; well completion; construction of oil or gas treatment facilities; construction of water treatment facilities; steam generator construction; construction of tankage and containment structures; pipeline installation; construction of sumps, evaporation ponds, and percolation ponds; installation of produced water injection wells; construction of fencing; administrative facility construction; well re-working and workovers; well stimulation; decommissioning and abandonment of wells; reactivation of idle wells; geophysical monitoring; treatment of produced water, oil, and gas; water management; enhanced oil recovery activities; injection wells; sump pits; percolation and evaporation ponds; vegetation control; spill prevention procedures; non-hazardous solid waste management; well, pipeline, tank, and vessel testing and maintenance; centralized oil/water separation; operating steam generators; operating electrical substations; operating administrative buildings and personnel housing; and distribution of crude oil. DEIR at 3-35-59.

0048-24

Any one of those activities might warrant project-level CEQA review, and yet, here the DEIR attempts to consider them all at once and for the next 25 years. Such a boundless project description entirely defeats the purpose and mandate of CEQA. A "finite project description is indispensable to an informative, legally adequate EIR." *County of Inyo v. City of Los Angeles*, 71

CA3d 185, 192 (1977). Without an accurate description on which to base the EIR's analysis, CEQA's objective of furthering public disclosure and informed environmental decision making are stymied.

0048-24
Continued

In *Santiago County Water Dist. v. County of Orange*, the Court of Appeal considered the sufficiency of a project-level EIR that purported to examine the consequences of permitting a company to operate a sand and gravel mining operation. *Santiago Cnty. Water Dist. v. Cnty. of Orange*, 118 Cal. App. 3d 818 (Ct. App. 1981). Because that EIR failed to give sufficient information concerning the delivery of water to the proposed sand and gravel mine, the court held that it was as a whole inadequate. *Id.* at 829. As that court explained, a project description that omits integral components of the project results in an EIR that fails to disclose all of the impacts of the project. *See id.* Here, the integral components of the EIR, and the ones that are lacking, are impossible for the agency, public, or a court to identify because the huge scope and concomitant high level of generality of the DEIR. Without such specific identification of the components of the project, any environmental review is rendered meaningless.

0048-25
Continued

As the court stated in *San Joaquin Raptor/Wildlife Rescue Ctr. v County of Stanislaus*, "[a]n accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." *San Joaquin Raptor/Wildlife Rescue Ctr. v. Cnty. of Stanislaus*, 27 Cal. App. 4th 713, 730 (1994), *as modified* (Sept. 12, 1994). It is basic logic that an accurate and stable project description is necessary so that the lead agency and the public have enough information to "ascertain the project's environmentally significant effects, assess ways of mitigating them, and consider project alternatives." *Sierra Club v. City of Orange* 163 Cal. App. 4th 523, 533 (2008).

0048-26

In this case, the "project" is so broadly defined—and the activities included are at such a high level of generality and hypothetical—that the site-specific review required for a project level EIR is not just lacking, it's not possible. To pretend otherwise is to deprive the public and decision-makers from the level of considered environmental review CEQA demands.

0048-27

The sole potential benefit of a project-level EIR for such an expansive amount of activity is a reduction in the administrative burden on the County, which hopes to eliminate the need for any further CEQA review of the listed oil and gas activities. As attractive as that reduction in paperwork may be, a wholesale evaluation of 67,425 oil and gas wells, and all related activities, in the largest oil producing County in California, with no continuing process for re-evaluating the effects of specific projects, sets a dangerous precedent, is a disservice to the public and our environment, and makes a mockery of CEQA.

0048-28
Continued

It makes no sense to rely on a static document to protect our health and environment for the next 25 years from a changing industry, environment, and climate. Oil and gas drilling is a heavy industrial activity with—as the DEIR as well as the California statewide EIR acknowledge—numerous significant unmitigable effects. There are constant technological advances in this field that must be considered both for their potential negative impact to the environment and for any possible new mitigation to ameliorate those impacts. Furthermore, we live in a time of climate change, drought, and uncertain oil futures. For all these reasons, environmental review far into the future is untenable and ill-conceived.

0048-29

0048-30

For these reasons, the DEIR should be reconceived of as a program EIR that will serve as a first-tier general document. The DEIR should make clear that future oil and gas activity in unincorporated Kern County will require site-specific CEQA review. *See In re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceedings*, 43 Cal.4th 1143, 1173 (2008) (when a program EIR is broad "later project-level EIR's may not simply tier from the [program EIR] analysis and will require an independent determination and disclosure of significant [site-specific] environmental impacts").

0048-31

IV. The DEIR and proposed zoning ordinance's "ministerial" permit process fails to recognize that the County retains significant discretion in decision-making.

0048-32

The proposed amendment to Chapter 19.98 of Kern County's zoning laws attempts to establish a ministerial permit procedure dubbed the "Oil and Gas Conformity Review" or "Minor Activity Review" for approval of future oil and gas activity. DEIR at 3-9. Under this proposed system, applicants would self-certify compliance and obtain permits for oil and gas wells, including fracking and acid matrix stimulation wells, without further public notice or environmental review. *See* Proposed Kern County Zoning Ordinance §§ 19.98.090(B); 19.98.100(C); 19.98.120(B).

0048-33

Approval of the proposed permits, however, necessarily requires discretion, and any attempt to shield them from CEQA by misnaming them ministerial is a violation of CEQA.

0048-34

Discretionary projects are defined by the CEQA Guidelines as actions requiring "the exercise of judgment, deliberation or decision," § 15357; *see also* CEQA Guidelines § 15002(i) ("CEQA applies in situations where a governmental agency can use its judgment in deciding whether and how to carry out or approve a project.") A ministerial decision, on the other hand, "cannot use personal, subjective judgment in deciding whether or how the project should be carried out." CEQA Guidelines §15369. Significant for purposes of this DEIR, a ministerial permit is "limited to those approvals which can be legally compelled without substantial modification or change." *Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal.App.3d 259, 269. "Where a project involves an approval that contains elements of both a ministerial action and a discretionary action, the project will be deemed to be discretionary and will be subject to the requirements of CEQA." CEQA Guidelines § 15268(d).

0048-35
Continued

Because the review required in this case is necessarily not ministerial, however, the zoning ordinance, and any County approval of future oil and gas activities without further environmental review is in direct violation of CEQA. The DEIR and zoning ordinance themselves require the County to make discretionary decisions to determine (1) whether "the proposed use meets the implementation standards and conditions specified" in the zoning code, Proposed Kern County Zoning Ordinance §§ 19.98.090(B); 19.98.100(C); 19.98.120(B), and (2) whether individual oil and gas permits comply with the specific mitigation measures—many of which themselves require specific consideration of site-specific conditions, practicability, availability, adequacy, and/or feasibility—outlined in the DEIR.

0048-36

For example, Hazards and Hazardous Materials mitigation measure MM 4.8-6 requires that in order to minimize the risk of an oil spill, applicants adhere to best management practices, including, among others, using closed mud systems "when practical," sizing reserve pits "properly," selecting less toxic alternatives "when possible," minimizing waste generation,

recycling oil-based muds and brines when "practical," and training personnel to use "sensible" waste management practices." DEIR at 4.8-86-87. Each of these considerations, and enforcement thereof, requires discretion. 0048-36 Continued

Air quality mitigation measures MM 4.3-5(c), as a second example, allows the County to waive setback distances to sensitive receptors if setbacks are not met, as long as the County determines that the applicant can demonstrate it has achieved a certain level of risk. DEIR at 4.3-111. That determination also requires judgment and discretion. 0048-37

In summary, the proposed ordinance and DEIR outline an approval system whereby the County retains significant discretion to deny the permit application if it finds that the mitigation measures are not met. Because such consideration requires subjective judgment by the County, and because the County may deny project approval based on its own analysis, the County's approval of oil and gas permits cannot be ministerial and is subject to full review under CEQA. 0048-38

V. The DEIR's alternatives analysis eliminates feasible, possibly environmentally superior options without basis. 0048-39

The alternatives analysis is central to an EIR. As the California Supreme Court has written, "The EIR is the heart of CEQA, and the mitigation and alternatives discussion forms the core of the EIR." *In re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceedings*, 43 Cal. 4th 1143, 1162 (2008). A major goal of any EIR is to "ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 735; *see also* Cal. Pub. Res. Code § 21002.1(a). 0048-40

Given the central importance of the alternatives analysis to the integrity of its EIR, Kern County must do far more than merely go through the motions of analyzing and summarily dismissing alternatives before selecting its preferred alternative. Rather, the agency must identify and "consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation." CEQA Guidelines, § 15126.6(a). This range must include alternatives that "feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." *Id.* 0048-41

"[A]n agency may not approve a proposed project if feasible alternatives exist that would substantially lessen its significant environmental effects." *Save Panoche Valley v. San Benito Cnty.*, 217 Cal. App. 4th 503, 521 (2013) (citations omitted); *see also* Cal. Pub. Res. Code § 21081 (a); CEQA Guidelines, § 15091 (a)(3); *California Native Plant Soc. v. City of Santa Cruz*, 177 Cal. App. 4th 957, 1002 (2009). An agency's finding that an alternative is infeasible "must be supported by substantial evidence in the record." *Id.*; Pub. Resources Code § 21081.5; Pub. Resources Code § 21081(a)(3). 0048-42

In this DEIR, Kern County eliminates several alternatives from further consideration for false or misleading reasons. 0048-43

First, in considering a ban on agriculturally productive land, it determines that because the majority of the Project Area would be off limits to oil and gas activity under this alternative, it is not legally feasible. For the same reason, i.e. illegality, the second alternative—a ban on all new drilling within the County—was impermissibly eliminated as infeasible. Contrary to the 0048-44

0048-44 Continued

representations made in the DEIR, the County has broad discretion to dictate where—the location—of oil and gas activity within its jurisdiction, and it is simply incorrect that the County lacks legal authority to exclude agricultural or other lands from oil exploration and production.

0048-45

Under the California Constitution, "[a] county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws." "This inherent local police power includes broad authority to determine, for purposes of the public health, safety, and welfare, the appropriate uses of land within a local jurisdiction's borders…" *City of Riverside v. Inland Empire Patients Health and Wellness Center, Inc*., 56 Cal.4th 729, 738 (2013) (emphasis added). A County's zoning power is "one of the most essential powers of the government, one that is the least limitable," and to hold otherwise would "preclude development and fix a city [or County] forever in its primitive conditions." *Beverly Oil Company v. City of Los Angeles*, 40 Cal. 2d 552, 557 (1953) (*quoting Hadacheck v. Sebastian*, 239 U.S. 394 (1915)). In *Marblehead Land Co. v. City of Los Angeles*, for example, the Ninth Circuit upheld the denial of an injunction against a Los Angeles zoning ordinance prohibiting oil well drilling operations on the basis of the "inherent right of the city to control or prohibit [oil and gas] production" even after the landowner had leased the land to drill on it and expended a considerable sum of money on preliminary work. 47 F.2d 528 (9th Cir. 1931).

0048-46

The More Wells Within the Project Footprint alternative (DEIR at 6-13) would cap the total wells permitted per year within the Project Area at 3,500. That alternative was eliminated because it would cap the total wells and "may exacerbate the Project's significant environmental effects." DEIR at 6-13. The current proposed project has no cap on total annual wells, only an estimate and a total potential cap after 25 years. Accordingly, under the current project a total of *over* 3,500 wells per year could be drilled. Therefore, limiting wells logically would not have a greater impact on the environment than the proposed alternative, which does not limit total wells per year. DEIR at 6-13.

0048-47

The Fewer Wells Within the Project Footprint alternative (DEIR at 6-13) was eliminated for two insufficient bases. First, it was determined that limiting the number of wells to 1,500 per year would not meet the objective to provide for growth of the oil and gas industry and streamline environmental review. An additional 1,500 wells per year is growth. Furthermore, this alternative has the potential to meet all the other stated objectives and have a lower environmental impact. "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain *most* of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." CEQA Guidelines § 1526.6(a) (emphasis added). That an alternative may be inconsistent with some project objectives, therefore, may not justify its elimination from review. *See also id*. §§(c), (f). Second, the alternative was rejected as legally infeasible. For the reasons explained above, this is incorrect. A County has broad authority to limit the number of total permits per year as an exercise of its land use and police powers. This alternative warrants further consideration in the Final EIR.

0048-48

The Renewable Energy alternatives (DEIR at 6-14) would require that new oil and gas drilling operations be powered by renewable electric generation sources, such as wind and solar, rather than fossil-fuel powered electric generation sources. These alternatives were eliminated because of the variability inherent in these energy sources, but this ignores the ability to store wind and solar energy. Wind is further eliminated because it would generate noise, but that noise

is never compared to the noise of on-site generators using fossil fuel. Solar is discounted for its ground disturbance, but the degree of ground disturbance and the ability to potentially consolidate that disturbance is not quantified or considered. The alternative offers significant advantages to the Project in the impact area of air quality by reducing each well site's reliance on polluting fossil fuel combustion, and this alternative is, as the County concedes, feasible and warrants further evaluation as well.

0048-48 Continued

The Zero Net Gain alternative (DEIR at 6-16) assumes without explanation that if well permits were limited to the number abandoned there could not be growth in the County and other objectives would not be met. This is not correct. Wells are constantly retired, and new permits may be somewhat limited by the number of wells retired in any given year, but because some number of new wells would be permitted, growth would continue. Furthermore, this would have only a small impact on the ability to streamline environmental review and the other stated objectives. This alternative too warrants further consideration.

0048-49

The No Project alternative (DEIR at 6-17) is eliminated for the stated reason that it would be environmentally inferior and not meet several of the Project's objectives. The rationale for finding that the No Project alternative would be environmentally inferior is that the proposed amendments to the zoning ordinance would not be made and the status quo would continue, which authorizes "unrestricted drilling" with no County permit in much of the project area. This representation misrepresents the status quo and ignores the statewide permit process and mitigation measures mandated by the statewide EIR.

0048-50

The No Project alternative is concerned with the consequences of disapproving the project. CEQA Guidelines § 15126.6(e)(1). Here, the failure to amend Kern's zoning ordinance and implement a Kern County EIR would revert to a status quo that does not allow for oil and gas activity without any review, but rather, includes a state permit process, where the Division of Oil, Gas, and Geothermal Resources (DOGGR) acts as the Lead Agency. Under that DOGGR process, the mitigation measures set forth in the statewide programmatic EIR in addition to any further CEQA review would be required for each proposed well. Accordingly, an accurate representation of the environmental impact of the No Project alternative must consider the relative environmental impact of statewide CEQA review on a well-by-well basis with the Kern County proposed EIR process, which would conduct only a 1-time review for 25 years or 67,425 wells-worth of activity, with almost no site-specific information and without the mitigation mandated by the statewide EIR. Under these corrected comparison parameters, the No Project alternative would almost certainly be environmentally superior to the Project.

0048-51

Furthermore, contrary to the finding in the DEIR, the No Project alternative would meet almost all of the County's and industry applicants' stated objectives, except for updating the zoning ordinance, and would more fully meet some objectives than the Project. Under the No Project alternative, oil and gas industry activity would be permissible and could grow. The process would necessarily consult and cooperate with state and federal law; the applicants would have a more "streamlined" process, because only one state permit would be required; and areas warranting protection—e.g. environmentally sensitive or agricultural lands—would be not suffer lower coverage under the statewide EIR process, and indeed, because that process would be flexible over time and more responsive to changes in climate and current conditions, it would be more likely to adapt and conserve resources than the proposed 1-time CEQA review followed by a "ministerial" permit process contemplated here. Applicants' objectives would also be fully met

0048-52

0048-52 Continued

under this alternative. Applicants would enjoy greater statewide conformity and consistency, and it would be easier, not harder, to develop industry-wide best practices, performance standards, and mitigation measures because they would apply across the state and not just to one specific county, i.e. Kern. In sum, the No Project alternative is viable, environmentally superior, and can achieve most project objectives.

0048-53

The DEIR's consideration of the CUP Alternative (DEIR 6-19-21) is equally flawed. Alternative Two would be the same as the Project in all respects except it would require a conditional use permit for each well, instead of the "unrestricted, and ministerial approval of, oil and gas exploration, development, and production activities." DEIR 6-20. The DEIR claims that because the Project would mitigate with a blind eye (i.e. without site-specific analysis) it would at times have the potential to "overmitigate with respect to some oil and gas wells." (DEIR 6-21). What this analysis ignores is that the Project would be just as likely to *under*mitigate because it would be wholly unresponsive to local and site specific conditions, as well as any changes to conditions in the County that might occur over the course of the next 25 years. The DEIR makes the claim that future applicants, under the Project, "will not have the opportunity to avoid compliance with many of the Project's new development standards or conditions," but that is unsupported by the mitigation measures detailed in the DEIR, which frequently provide for applicants to employ mitigation as "feasible," or "practicable," or "available." *See e.g.* Hazardous Materials Mitigation at DEIR at 4.8-86-87. The CUP alternative meets almost all of the stated objectives, and it would also build in long-term flexibility and incorporate site-specific analysis. Both of these additions would lead to an environmentally preferable alternative, and Alternative Two warrants further consideration.

0048-54

The No Hydraulic Fracturing alternative (DEIR 6-23) was eliminated for the stated reason that any reduction in hydraulic fracturing would lead to an increased use of Enhanced Oil Recovery (or EOR) techniques. And, EOR would have a relatively higher level of emissions of greenhouse gases and criteria air pollutants. DEIR at 6-24. There is, however, no analysis included in the DEIR to help inform decision makers and to explain these conclusions. Indeed, it is questionable whether the same oil reserves that are made available using hydraulic fracturing could also be extracted using EOR. These are two distinct process that are typically used to surmount distinct extraction obstacles, and the elimination of one well stimulation process would not obviously result in a direct and corollary increase in EOR. Furthermore, there is no side-by-side comparison offered here of the GHG or emissions releases of hydraulic fracturing compared to EOR; there is compelling science that suggests quite the contrary, i.e. that the impact of hydraulic fracturing is typically greater than EOR. And, if a reduction in hydraulic fracturing led to a total reduction in oil and gas exploration in the County, it is likely that GHG and other emissions would be reduced. Finally, an elimination of hydraulic fracturing would have added environmental benefits of reducing the impacts associated with hazardous materials throughout the process. The No Hydraulic Fracturing alternative is likely environmentally superior to the Project and warrants full consideration.

0048-55

No basis is provided for rejection of the Low-Emissions Enhanced Oil Recovery Technology alternative. This alternative would replace certain existing pre-1990 steam generators within five years with new low-emissions steam generators. This alternative should be adopted, or this requirement should be adopted as a mitigation measure that is part of the Project. There is no stated basis for rejecting this alternative in the DEIR, and it meets all of the objectives while being environmentally superior. *See* DEIR at 6-25-26.

0048-56

The Recycled Water alternative also warrants further consideration. The only bases for eliminating this alternative are the initial up-front impacts of water treatment plant construction and the concern that requiring water treatment would impose economic hardship on industry and, therefore, slow the growth of oil and gas development in Kern County. First, the construction of water treatment facilities is an up-front impact with long-term benefits. The benefits of reused water must be accurately weighted against the harms of long-term shipping of fresh water across the state to supply the Kern oil operations and also the harms of injecting produced water in underground injection wells. The risks of underground injection include contamination of aquifers and must be considered in weighing the Project against this alternative. On the cost side of the equation, no analysis was conducted, or at least presented, to help inform decision makers and the public of the degree of any anticipated increased costs. And, those costs must be compared with the projected cost of fresh water during this historic drought and over the next 25 years. This alternative has numerous environmental advantages to the Project.

0048-57

To implement the policy of reducing significant environmental impacts, CEQA requires that an EIR identify both feasible mitigation measures and feasible alternatives that could avoid or substantially lessen the project's significant environmental effects. The requirement that EIRs identify and discuss alternatives to the project stems from the fundamental statutory policy that public agencies should require the implementation of feasible alternatives or feasible mitigation measures to reduce the project's significant environmental impacts. Pub Res Code § 21002.

0048-58

Here, the DEIR excludes from consideration alternatives that are apparently viable, environmentally superior, and can achieve most of the Project's stated objectives.

0048-59

VI. The DEIR understates the Project's significant air quality impacts and fails to properly mitigate these impacts.

0048-60

The San Joaquin Valley Air District is in extreme nonattainment for ozone and nonattainment for PM 2.5. The job of the Air District to bring itself into attainment for ozone will get tougher when EPA announces its new ozone rule, expected in a month or two. The DEIR has a table of ozone and PM 2.5 exceedances on pp. 4.3-8 – 4.3-9, showing 85 days of ozone nonattainment in 2012 in Arvin and 55 days of nonattainment in 2012 in Bakersfield. Diesel particulate matter emissions in 2009 were over 6,000 tons/year, with on-road diesel-fueled vehicles contribute approximately 61% of the total and an additional 38% attributed to other diesel-fueled mobile sources such as construction and agricultural equipment. DEIR 4.3-25. In Kern County in 2012, NOx emissions (an ozone precursor) were 72.3 tons/day. DEIR 4.3-31. These numbers are a public health disaster.

0048-61

Kern County will be subject to increased emissions of particulate matter and ozone (and its precursors) from the project. Emission increases associated with activities under the Project's permitted sources would come from boilers, cogeneration plants, process heaters, reciprocating internal combustion engines, steam generators, production tanks, thermally enhanced oil recovery wells, and VOCDD (flares). There will be additional emissions from unpermitted sources. DEIR 4.3-67. Off-road construction equipment will also contribute to emissions of NOx (an ozone precursor) and PM.

0048-62

The DEIR presents figures for the project's increased emissions but it is impossible to tell how those numbers were derived. There are references in terms of emissions to reports from a

consultant called “Vector” but those reports are not part of, or linked to in, the DEIR; nor are they available on the County's website. This omission violates the CEQA requirement to provide understandable and comprehensive data to the public and to decision makers and so, by itself, invalidates the entire air quality analysis in the DEIR. 0048-62 Continued

The approach of the DEIR to the permitted emissions from the project is that they will be reduced below significance by existing regulations. If that were true, the SJVAQMD would not be in nonattainment in the first place. Moreover, to the extent that permitted emissions rely on offsets or credits for their legality, there is no assurance or proof that those offsets or credits will exist or will be real, excess, permanent and enforceable if they do. 0048-63

With respect to the unpermitted emissions from the project, the DEIR takes the view that voluntary agreements will reduce these emissions below significance. This is faith-based planning and not the concrete, verifiable, enforceable mitigation measures that CEQA requires. 0048-64

The mitigation measures presented in the DEIR are weak and ineffective. The DEIR should evaluate a mitigation measure, discussed below, that would require the multi-year oil and gas drilling project to reduce emissions in the San Joaquin Valley Air District, not merely hold them even. 0048-65

A. The DEIR shows huge, negative air quality effects from the Project. 0048-66

If the Vector data and analyses are correct – which is impossible to determine from the DEIR – the DEIR shows huge, negative air quality impacts from construction and operational emissions associated with the project. 0048-67

Tables 4.3-12 and 4.3-13 (at pp. 4.3-77 to 78) show that emissions associated with well construction activities would exceed SJVAPCD Construction Emissions Threshold. Since the San Joaquin Valley Project region is nonattainment for PM10, PM2.5, and ozone, well construction-related criteria pollutant emissions would result in considerable net increase of the criteria pollutants NOX, VOC, CO, PM10 and PM2.5 and would be significant impacts. 0048-68

With respect to operational emissions, the DEIR admits that such emissions would exceed the SJVAPCD Operational Emissions and therefore would represent a potentially significant impact. The annual contribution of PM10 and PM2.5 would be almost 30 times the threshold. The emissions of ozone precursors (NOx, ROG, and CO) would exceed their respective thresholds: NOX would be almost 50 times the threshold, VOC more than 170 times the threshold, and CO more than eight times the threshold. 0048-69

The EIR claims that all emissions increases from permitted equipment plus the 10% allowance from non-permitted equipment would be required to be fully offset pursuant to District Rule 2201. But, as noted above, there is no showing that such offsets would exist or would be consistent with CAA requirements. 0048-70

The DEIR summarizes air quality impacts from permitted stationary sources, permit-exempt equipment, and mobile sources at a Project level as resulting in emissions levels that would exceed SJVAPCD Operational Emissions Threshold. Only the permitted stationary sources would be required to be offset because it is a condition of SJVAPCD air permits. Since the remaining emissions would exceed the SJVAPCD Construction Emissions Threshold and would 0048-71

not be offset, operational emission would result in considerable net increase of the criteria pollutants NOX, VOC, CO, PM10 and PM2.5 and would be significant. 0048-71 Continued

The DEIR also asserts that mandated emission reductions will be achieved by a menu of options that range from paying a calculated mitigation fee for use in doing emission reduction projects through a grant-type program, to applicants' changing equipment on existing operations or proposing projects for implementation instead of paying the fee. As we will discuss below, the mitigation measures required in the DEIR come nowhere close to this. 0048-72

Based on this imaginary mitigation, the DEIR claims that impacts from the project will not be significant after mitigation. This conclusion is unsupported in the record. 0048-73

The disclosed air quality impacts due to the Project are significant, adverse, and large. The Project's impacts, however, are understated. The Project is expansive and includes a wide spectrum of activity (see discussion of activity *above*), and accordingly the sources of emissions are also myriad. In its current form, however, the DEIR's source list of volatile organic compounds (VOCs) and other air toxic emissions is incomplete. Well stimulation emissions in the DEIR are restricted to diesel particulate emissions from pumps/engines. This anemic universe of potential emissions sources is not consistent with Federal rulemaking. The sources of air emissions covered by the 2012 New Source Performance Standards, for example, include emissions from completion of hydraulically fractured wells, equipment leaks, pneumatic controllers, pneumatic pumps, storage tanks, and compressors (in some cases).[2] Here, the DEIR's analysis is missing fugitive VOCs from completions of hydraulically fractured wells. There is also no consideration of air quality threats from equipment leaks, compressors, infiltration ponds, sumps, or separators none of which are currently subject to permits or emission limits. As noted above, the potential for health threats from the volatilization of stimulation chemicals present in produced water or wastewater was not included in the DEIR. 0048-74

In addition, the Project would have significant, unavoidable odor impacts. The analysis of odors, however, is incomplete. The odor analysis includes no discussion of the chemical constituents responsible for odors and whether air quality issues may be the source. Nor does the DEIR discuss the public health impacts from the chemicals causing the odors. 0048-75

B. The proposed mitigation measures will not be effective. 0048-76

The proposed mitigation measures appear at DEIR pages 4.3-68 et seq. The DEIR identifies Impact 4.3-1 as: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. The proposed mitigation measures, which allegedly will reduce the impacts below significance, are: 0048-77

- *MM 4.3-: Get a permit and comply with AQMD rules*. As noted above, if this were effective, the SJVAQMD would not be in non-attainment for PM and ozone. Also, the permit system depends heavily on offsets which may or may not exist or comply with the Clean Air Act at the time they are needed. 0048-78
- *MM 4.3-2: Develop a fugitive dust control plan*. This does nothing for particles smaller than PM 10 or for NOx emissions. The mitigation measure claims to reach particles as 0048-79

[2] *See* http://www.epa.gov/airquality/oilandgas/pdfs/og_table_081815.pdf.

small as PM 2.5 but, in general, particles that small are not generated from fugitive dust but rather from combustion emissions, which this mitigation measure does not address. 0048-79 Continued

- *MM 4.3-3: Off-road construction equipment requirements*. This requires most construction equipment to meet California Tier 3 standards and limits idling to 5 minutes. However, there is cleaner, Tier 4 equipment available and, given the SJVAQMD's state of non-attainment, it should be required. See EPA Tier 4 rules; California Tier 4 rules. 0048-80
- *MM 4.3-4: On-road heavy duty diesel haul equipment*. For NOx control, California 2007 or Tier 3 engines are required. However, cleaner California and EPA 2010 engines are available and should be required; these are notable for much lower NOx emissions that 2007 engines. 0048-81

Impact 4.3-2 is: Violate Any Air Quality Standard as Adopted in (c)i or (c)ii, or Established by EPA or Air District or Contribute Substantially to an Existing or Projected Air Quality Violation. The proposed mitigation measures are MM 4.3-1 through MM 4.3-4 as discussed above. The DEIR asserts that the Level of Significance After Mitigation will be less than significant. This is pure fantasy – there is no showing that the four mitigation measures listed above will keep the SJVAQMD in attainment or are the best or most feasible mitigation measures available. 0048-82

Impact 4.3-3 is: Expose Sensitive Receptors to Substantial Pollutant Concentrations. The health risk assessment shows that the potential cancer risk exceeds the current CEQA significance thresholds (as of May 2015), for drilling a 10,000-foot well in any Project year, and for drilling a 5,000-foot well in year 2015, and for operations of the oil processing equipment. 4.3-110. The DEIR claims that the health risk assessment was prepared using the OEHHA 2015 guidelines; if that is not so, the numbers would likely be higher by as much as a factor of three. The emission factors used in the modeling are said to be from the totally opaque Vector study. Nonetheless, the DEIR asserts that the Level of Significance After Mitigation will be Less than significant. 0048-83

The setback distances provided for by the DEIR are based only on risks related to diesel particulate matter during well construction. The setback distance fails to consider VOC/air toxics emissions from completions, air toxics emissions from processing equipment, or emissions during well production. Although cancer risk was considered significant (10 in a million) at distances under 800 feet from oil processing equipment, no setback distance was included to protect public health or schools at these distances. The setback distances for wells in the DEIR are also inconsistent with CARB Recommended Minimum Setback Distances between sources of diesel PM and sensitive populations (500 ft. minimum). 0048-84

Finally, the CCST Study noted that "most of the hydraulic fracturing in the San Joaquin Basin occurs shallower than 300m (1,000 ft.)"[3]. Therefore many wells in Kern County will be below the threshold of depth requiring a setback in the DEIR (<2,000 ft.). The DEIR fails to explain that as described many of the wells in Kern County will not have setback requirements. This directly contradicts the findings from the CCST Study noting the concentration of emissions at production sites which could threaten human health and the recommendation that health-protective setbacks be required to protect the health of vulnerable populations. 0048-85

[3] CCST 2015. An Independent Scientific Assessment of Well Stimulation in California Volume III p.268

0048-86

The identified mitigation measures are: 0048-87

- MM 4.3-5: The Site Plan Application shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 3,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). 0048-88
    a. If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required.
    b. If there are sensitive receptors within the potential impact area, then additional information must be provided showing the setback from the closest edge of the well pad to the property line of the nearest sensitive receptor. The minimum distances shall be as follows: ….4.3-111 0048-89
    c. If the above setbacks cannot be met, the Applicant shall implement the following risk minimization measures, or other such measures that are demonstrated by the Applicant to achieve a level of risk less than the threshold risk level: 0048-90
        1. Placement of engines in the potential impact area away from the sensitive receptors. 0048-91 0048-92
        2. Utilize directional drilling to locate rig away further from the sensitive receptor(s). 0048-93
        3. Use of late-model engines, low-emission diesel products, alternative cleaner fuels (e.g., natural gas or liquefied petroleum gas), engine retrofit technology, add-on devices such as diesel particulate filters or oxidation catalyst, and/or other options as such become available to reduce emissions from off-road and other equipment. 0048-94
        4. Utilize electricity line power if available. 0048-95
        5. Shutdown all equipment when not in use, and otherwise minimize engine idling by limiting idling to 15 minutes. 0048-96
        6. Use of automatic rigs. 0048-97
        7. Assist and pay to relocate residents to an area hotel during well construction, drilling, and completion activities. 0048-98
- MM 4.3-6: Applicants shall include in their Worker Environmental Awareness Program information on how to recognize the symptoms of Valley Fever and to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Workers exposed to fugitive dust shall be provided with the option of using a filter fitted over their nose and mouth, secured by a strap, including training for appropriate mask practices as part of the Worker Environmental Awareness Training Program. 0048-99

It is impossible to assess the strength of these mitigation measures because the underlying emissions factors cannot be tested given the information in or linked to the DEIR. 0048-100

- Impact 4.3-5: Results in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region is Nonattainment Under an Applicable Federal or State Ambient Air Quality Standard including Releasing emissions which exceed quantitative threshold for ozone precursor. 0048-101
- Implement MM 4.3-1 through MM 4.3-4, as described above. As we have discussed, there is no showing that these mitigation measures will be available or effective in the future. 0048-102

0048-103

- MM 4.3-8: For Project facilities or equipment that are not required to offset emissions under a District rule as described in MM 4.3-1, and for Project vehicle and other mobile source emissions, the County will enter into emission reduction agreement with the San Joaquin Valley Air Pollution Control District, pursuant to which the Applicant shall pay fees to fully offset Project emissions of oxides of nitrogen, reactive organic gases, and particulate matter of 10 microns or less in diameter (including as applicable mitigating for reactive organic gases by additive reductions of particulate matter of 10 microns or less in diameter) (collectively, "designated criteria emissions") to avoid any net increase in these pollutants. The air quality mitigation fee shall be paid to the County as part of the Site Plan review and approval process, and shall be used to reduce designated criteria emissions to fully offset Project emissions that are not otherwise required to be fully offset by District permit rules and regulations.

0048-104

As an alternative to paying the fee, an Applicant may reduce emissions for one or more designated criteria emissions through actual reductions in air emissions from other Applicant sources, as submitted to the County and validated by the District. This Project offset requirement shall be enforced by the County and verified by San Joaquin Valley Air Pollution Control District. If a voluntary emission reduction agreement is not executed by the County and San Joaquin Valley Air Pollution Control District, then each Applicant must mitigate for the full amount of designated criteria pollutants as verified by the San Joaquin Valley Air Pollution Control District, with evidence of such District-verified offsets presented as part of the Site Plan Conformity Review application documentation.

0048-105

Examples of feasible air emission reduction activities that may be funded by air quality fees paid by Applicant or proposed and implemented by the Applicant under the emission reduction agreement include, but are not limited to, the following:

0048-106

a. Replacing or retrofitting diesel-powered stationary equipment such as motors on generators, pumps and wells with electric or other lower-emission engines that are not subject to Title V reductions.

0048-107

b. Replacing or retrofitting diesel-powered school, transit, municipal and other community mobile sources such as buses, car fleets, and maintenance equipment, with electric or other lower-emission engines.

0048-108

c. Reducing emissions from public infrastructure sources such as water and wastewater treatment and conveyance facilities, and reducing water-related emissions through water conservation and reclamation. Funding lower-emission equipment and processes for local businesses, schools, non-profit and religious institutions, hospitals, city and county facilities.

0048-109

Mitigation fees in this sense are a license to pollute, without any showing that the projects funded by the fees will reduce emissions of NOx, ozone and other pollutants enough to make a difference. Not surprisingly, the DEIR lists the Level of Significance After Mitigation for this cumulative impact as significant and unavoidable.

0048-110

C. The DEIR fails to analyze additional mitigation measures that may be effective.

0048-111

Only two additional mitigation measures are discussed, both of which are quickly rejected at page 4-3.122:

0048-112

> Require oil and gas projects to generate their own clean electricity during production using photovoltaic (PV) solar, direct line power, or both, to eliminate all needs for operational power diesel generator onsite.

0048-113

> There should be a percent limit on the amount of time they can flare gas.

0048-114

What is not discussed is the obvious measure that no well should be drilled and/or operated until the well proponent can show real, surplus, effective mitigation measures such that there will be a *reduction* in emissions of ozone, ozone precursor or PM 2.5 emissions in the SJV Air Basin. Holding emissions to no net increase will harm, not help, the Air District's long and so far ineffective efforts to come into attainment for these criteria pollutants. At minimum, the Air District should obtain U.S. EPA approval for forward-looking attainment demonstrations for these substances before a single new well is begun.

0048-115

The air quality analysis in the DEIR is so flawed that it needs to be re-done. All the emissions modeling inputs, methodology and outputs should be available to the public and to the decision makers. The proposed mitigation measures are laughably weak and need to be enhanced. Otherwise, the Air District is looking at additional decades of unhealthy air.

0048-116

VII. The DEIR fails to fully disclose, analyze, and mitigate the Project's potential impacts to hydrology and water quality.

0048-117

A. The DEIR's water supply and demand scenarios fail to consider potential demand increases that could result from development of the Monterey Formation.

0048-118

The three future water supply and demand scenarios considered in the DEIR do not adequately assess the range of possible activity, in particular the possibility of development of unconventional resources in the Project Area and resultant impacts on water demand and waste water handling needs and methods. As stated in the DEIR, "The three scenarios focus on potential variation in the amount of surface pond disposal, injection well disposal, and reuse of produced water that could occur under future conditions." In other words, the scenarios focus primarily on potential changes in water disposal practices, and none of the three scenarios considers the potentially significant increase in water demand and wastewater management needs that could result from development of the Monterey Formation source rock play.

0048-119

Development of the Monterey Formation source rock play would likely require the use of high volume hydraulic fracturing, as has been used to develop other tight oil plays such as the Bakken in North Dakota and Eagle Ford in Texas. As stated in the DEIR, the average fracturing operation in California uses about 0.38 AF of water. A limited number of wells that target Monterey Formation unconventional resources exist in California, and these wells use water

0048-119 Continued

volumes for hydraulic fracturing greatly in excess of this average. Horizontal wells in the Rose Field targeting the McClure Shale member of the Monterey Formation used an average of 1.3 acre feet of water per well for hydraulic fracturing, or more than three times the CA average.[4] Horizontal wells in the Lost Hills Field targeting the McDonald Shale member of the Monterey Formation used an average of 8 acre feet of water per well for hydraulic fracturing, or more than 21 times the CA average.[5]

0048-120

While the prospect for large-scale development of this play is highly uncertain, production of these resources is likely to require much larger volumes of fresh water than current production methods in the project area and could significantly increase the volumes of wastewater that subsequently need to be managed. The analysis of hydrology and water quality is incomplete due to the failure to analyze a scenario that considers development of unconventional resources.

B. The DEIR's claims regarding spill incidence and volume are unsupported and its mitigation measures for spills are inadequate.

0048-121

0048-122

The DEIR states that the frequency of occurrence of spills and spill volumes are expected to be low in all phases of oil and gas operations. The supposed support for this claim is the statewide DEIR for well stimulation, which includes the number of spills in the Project Area from 2009-2014 and the range of spill sizes. This analysis however does not include a statistical analysis of the frequency of occurrence or size of spills. A 2015 report prepared for the Natural Resources Defense Council (NRDC) by the UCLA Institute of the Environment and Sustainability (UCLA-IES) found that while the number of spills in Kern County was found to have decreased, this was attributed to the decrease in oil and gas production rather than a change in operational practices.[6]

0048-123

Moreover, the spill analysis in the statewide DEIR is far from complete. The spills represented only include spills of hazardous materials reported to the California Office of Emergency Services (OES). As detailed in the UCLA-IES report for NRDC, spills reported to OES are subject to reporting thresholds and only include listed hazardous substances and therefore do not represent a full accounting of all spilled materials that may have adverse environmental or health impacts.[7] The statewide DEIR clearly states, "It is additionally noted that this data is considered incomplete due to differences in how reporting is logged and variations in local regulations for when reporting is required." The UCLA-IES report concurs with this, stating, "…the CA OES data format is incomplete, disorganized, and difficult to analyze effectively."[8] As such, the claims made in the DEIR that the incidence of spills and volumes are expected to be low are completely unsupported.

---

[4] California Division of Oil, Gas, and Geothermal Resources. 2015. Interim Well Stimulation Disclosures Index. Available at: ftp://ftp.conservation.ca.gov/pub/oil/Well_Stimulation_Treatment_Disclosures/20140507_CAWellStimulationPublicDisclosureReport.xls

[5] *Ibid.*

[6] Caryotakis, A., Davies, I., Hafiz, S., Niketen, J., Noakes, D., Wang, R., and Wu, A. 2015. An Analysis of Hazardous Materials Spills with a Focus on Oil and Gas Production: A 2015 Undergraduate Practicum Project for the UCLA Institute of the Environment and Sustainability. Report prepared for the Natural Resources Defense Council. *See* Attachment 1.

[7] *Ibid.*

[8] *Ibid.*

0048-124

Among the most commonly cited environmental impacts of oil and gas production are degradation of soils and water caused by releases of hydrocarbons and produced water.[9] The critical importance of properly mitigating the risk of spills and leaks is demonstrated by the many tens of studies describing the environmental impacts of hydrocarbon and produced water releases.[10] A multi-year, interdisciplinary study of hydrocarbon and produced water releases at an oil production site in Oklahoma undertaken by the United States Geological Survey ("USGS") found that soil and groundwater at the site were still polluted after more than 60 years of natural attenuation.[11] Contamination caused by releases of hydrocarbons and produced water can be extremely technologically and financially difficult to remediate, if not impossible. The DEIR does not include any mitigation to address impacts to hydrology and water quality from spills beyond stating that operators must comply with existing law. This is completely inadequate and unacceptable.

0048-125

C. The DEIR fails to adequately disclose and mitigate the potential impact of drilling fluids.

0048-126

Regarding the potential impacts of drilling fluids, the DEIR states, "…drilling activities do not typically utilize high concentrations of potential constituents of concern," and, "…the generally low concentrations of drilling or rework-related constituents added to drilling fluids reduces the likelihood that temporary drilling fluid and mud contact with water-bearing formations would cause a significant impact to groundwater quality." These statements are completely unsupported. California does not require operators to disclose the chemical contents of drilling fluids, which can include chemical products such as weighting agents, clay, organic colloids, polymers, thinners, surfactants, inorganic chemicals, lost circulation material, and other specialty chemicals. The DEIR contains only a generic list of possible drilling fluid additives, listed by trade name, as reported by one operator. The well-by-well identity of the chemical components of drilling fluids, and therefore the potential environmental or human health impacts, are unknown. This is a significant undisclosed and unmitigated impact to hydrology and water quality.

0048-127
Continued

D. The DEIR fails to adequately disclose, analyze, and mitigate the potential impacts of improperly designed, constructed, or maintained wells.

0048-128

Proper well design and construction are crucial first step to ensuring long-term mechanical integrity. Oil and gas wells represent one of the most likely pathways for contaminants to reach protected water because the wellbore directly connects protected water and introduced or naturally occurring contaminants.[12] Casing, cement, and other well construction materials must

0048-129

[9] Kharaka, Y. K., & Dorsey, N. S. (2005, June). Environmental issues of petroleum exploration and production: Introduction. *Environmental Geosciences, 12*(2), 61-63.

[10] Otton, J. K. (2006). *Environmental aspects of produced-water salt releases in onshore and estuarine petroleum-producing areas of the United States - a bibliography.* Retrieved from U.S. Geological Survey Open-file report 2006-1154: http://pubs.usgs.gov/of/2006/1154/pdf/of06-1154_508.pdf

[11] Kharaka, Y. K., Otton, J. K., & eds. (2003). *Environmental impacts of petroleum production - Initial results from the Osage-Skiatook Petroleum Environmental Research Sites, Osage County, Oklahoma.* U.S. Geological Survey Water-Resources Investigations Report 03-4260.

[12] See, e.g. U.S. Environmental Protection Agency, Office of Drinking Water. (1980, May). *Statement of Basis and Purpose, Underground Injection Control Regulations.* Retrieved from

0048-129
Continued

therefore isolate these sources of contaminants from protected water. Failure to do so, as a result of poor well design and/or construction, is a frequently cited cause of environmental impacts to groundwater.[13] Proper well design, construction, maintenance, and plugging are therefore paramount to protecting groundwater. California's current well construction rules are outdated and inadequate and must be updated to reflect technological advancements in oil and gas extraction techniques. Operators must demonstrate that wells will be designed and constructed to ensure both internal and external mechanical integrity. The DEIR must include mitigation measures to ensure proper well design, construction, and maintenance.

E. The DEIR fails to adequately disclose, analyze, and mitigate the potential impacts of the use of produced water for irrigation.

0048-130
Continued

The recent statewide scientific study of well stimulation by the California Council on Science and Technology (CCST) found that required testing and treatment of produced water destined for reuse may not detect or remove contaminants of concern.[14] The DEIR must include mitigation measures requiring disclosure, testing, and treatment of produced water destined for reuse to detect and remove chemicals of concern including but not limited those that are naturally present and also chemicals used in drilling, stimulation, maintenance, workover, and enhanced recovery operations.

F. The DEIR fails to adequately disclose, analyze, and mitigate the potential impacts of percolation pits.

0048-131

0048-132
Continued

California is one of the few states that allow the outdated practice of disposing of potentially toxic oil and gas waste water into percolation pits/ponds, which are designed to allow this waste to infiltrate groundwater. The DEIR that, "…the disposal of produced water to earthen, unlined ponds in Project Area has impacted groundwater quality." The recent statewide scientific study completed by the California Council on Science and Technology highlighted the significant risk that these pits pose to groundwater and recommended that the practice should be stopped.[15] The DEIR does not include any mitigation to address the significant threat to hydrology and water

0048-133

---

http://www.epa.gov/ogwdw/uic/pdfs/rept_uic_statemt_basis_purpose_uic_1980.pdf ; Kharaka, Y. K., & Dorsey, N. S. (2005, June). Environmental issues of petroleum exploration and production: Introduction. *Environmental Geosciences, 12*(2), 61-63.; Jackson, R. B., Vengosh, A., Carey, J. W., Davies, R. J., Darrah, T. H., O'Sullivan, F., et al. (2014). The Environmental Costs and Benefits of Fracking. *Annual Review of Environment and Resources, 39*, 327-362.

[13] See, e.g. URS Corporation. (2006). Phase I hydrogeologic characterization of the Mamm Creek Field area in Garfield County: Prepared for the Board of County Commissioners, Garfield County, Colorado.; Papadopulos & Associates, Inc. (2008). Phase II hydrogeologic characterization of the Mamm Creek Field area, Garfield County, Colorado: Prepared for the Board of County Commissioners, Garfield County, Colorado.; Pennsylvania Department of Environmental Protection. (2009, November 4). Consent Order and Agreement between Cabot Oil and Gas Corporation and the Pennsylvania Department of Environmental Protection. Retrieved August 30, 2012, from http://loggerhead.epa.gov/arweb/public/pdf/2141700.pdf; Darrah, T. H., Vengosh, A., Jackson, R. B., Warner, N. R., & Poreda, R. J. (2014). Noble gases identify the mechanisms of fugitive gas contamination in drinking-water wells overlying the Marcellus and Barnett Shales. Proceedings of the National Academy of Sciences, 111(39), 14076-14081.; Dusseault, M. B., Jackson, R. E., & Macdonald, D. (2014). Towards a Road Map for Mitigating the Rates and Occurrences of Long-Term Wellbore Leakage. University of Waterloo and Geofirma Engineering LTD.

[14] California Council on Science and Technology. 2015. *An Independent Scientific Assessment of Well Stimulation in California, Volume II, Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulations.*

[15] California Council on Science and Technology. 2015. *An Independent Scientific Assessment of Well Stimulation in California, Volume II, Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulations.*

quality from percolation pits beyond stating that operators should comply with current law. This is completely inadequate. 0048-133 Continued

G. The DEIR fails to adequately disclose, analyze, and mitigate the potential impacts of underground injection operations, including disposal and enhanced oil recovery (EOR). 0048-134

California's rules for underground injection are outdated and inadequate and oversight and enforcement of the program is lax, endangering the drinking water of millions of people. A 2010 review of California's Underground Injection Control (UIC) program found a number of significant deficiencies, which may be endangering groundwater and have yet to be corrected.[16] More recently, it was revealed that the State of California has improperly permitted more than 2,500 Class II Underground Injection Control (UIC) wells to inject oil and gas wastewater and other fluids into federally protected Underground Sources of Drinking Water (USDWs).[17] There are also potentially hundreds or thousands more wells located geographically within the boundary of an exempt aquifer, but where the fluids being injected in to that well are migrating into non-exempt USDWs. These actions seriously endanger California's dwindling and drought-threatened groundwater as well as the public health and safety of Californians who rely on this groundwater for drinking, irrigation, or other uses. The DEIR does not include any mitigation to address the significant threat to hydrology and water quality from underground injection operations beyond stating that operators should comply with current law. This is completely inadequate. 0048-136

H. The DEIR fails to adequately disclose, analyze, and mitigate the potential impacts of well stimulation operations, including hydraulic fracturing and acidizing. 0048-137

As discussed above, the CCST recently published the first ever statewide, comprehensive scientific assessment of the potential environmental impacts of well stimulation in California. The researchers found that well stimulation activities and oil and gas development in general can result in a range of impacts to the environment and human health, including to hydrology and water quality, but much more data is needed to completely analyze the risks. The reports also include a long list of recommendations to begin addressing these impacts. The DEIR fails to disclose or analyze the significant impacts detailed in the CCST Study or to implement the recommended mitigation measures. 0048-138

VIII. The DEIR fails to fully disclose, analyze, and mitigate the Project's potential hazards and hazardous materials impacts to public health, air, and water quality. 0048-139

The DEIR's evaluation of stimulation chemicals is incomplete and its findings are not incorporated into health risk analysis. Chemical information was obtained from FracFocus.org, a voluntary chemical disclosure registry, from reports dated between 2012 and 2014 in Kern County. Reporting to FracFocus is voluntary; as such, only three of the six major operators in 0048-140

[16] Horsley Witten Group, Inc. 2011. *California Class II Underground Injection Control Program Review.*
[17] California Department of Conservation Division of Oil, Gas and Geothermal Resources, 2015. "General Information Underground Injection Control (UIC)." Web. 10 Sept. 2015.

Kern County (Aera Energy LLC, Chevron USA, Inc; and California Resources Corporation, formerly Occidental Oil and Gas) have submitted a substantial number of chemical disclosure reports. In addition, voluntary reporting yields little accountability for operators to report well stimulation activities and quality of reporting can vary greatly. Additionally, chemical information is disorganized and strewn throughout the document; this lack of organization directly obstructs the ability of readers to understand and analyze this information further.

0048-140
Continued

Toxicity data used to evaluate impacts to public health from stimulation chemicals were sparse and incomplete. The DEIR analysis did not include other exposure pathways (e.g. inhalation, skin contact, etc.) that were included in the CCST Study. This report also failed to evaluate endocrine disruption and bioaccumulation potential, both relevant health endpoints for stimulation chemicals. Additionally, no regulatory thresholds were applied to chemicals to evaluate potential health hazards.

0048-141
Continued

The DEIR failed to conduct a robust health hazard assessment regarding chemicals used in well stimulation fluids. The minimal, and inadequate, analysis that was conducted was not included in the health risk analysis and therefore ignored when discussing the potential for hazards and threats to public health. The DEIR concludes that risks would not be significant after implementation of mitigation measures; however, that conclusion lacks analysis and is not consistent with the CCST Study. That recent independent report concluded that data gaps in the identity and toxicity of chemicals used for well stimulation result in significant uncertainties regarding the potential impacts of those chemicals.

0048-142
Continued

As noted above, the DEIR does not consider the CCST Study's recommendation that applicants be required to restrict stimulation chemicals to those with known and non-toxic risk profiles. The Final EIR should consider this feasible mitigation measure that would have potential positive impacts to human health, air, and water quality.

0048-143

IX. Conclusion

KCPCDD's proposed Project attempts to shield all oil and gas activity, including well stimulation, in unincorporated Kern County from any further CEQA review. By purporting to analyze hypothetical, future conditions that are largely unknown and unknowable at this time, the profound risks to public health and safety from the Project have been completely obscured, robbing the public of its right to engage in the CEQA process and impeding decision-makers in contravention of the very purpose of CEQA review.

0048-144
Continued

The DEIR fails to adequately disclose, analyze, and mitigate the Project's significant environmental impacts. KCPCDD must give full consideration to the alternatives that would provide environmental benefits not provided by the Project and were eliminated without adequate basis or rationale, including a drilling ban on agriculturally productive lands, a drilling ban on all lands, the fewer wells alternative, the renewable energy alternative, the no project alternative, the CUP alternative, the no hydraulic fracturing alternative, the low-emissions EOR technology alternative, and the recycled water alternative.

0048-145
Continued

KCPCDD should impose a moratorium on well stimulation in Kern County until it can address the flaws in, and recirculate for public comment, a revised DEIR.

0048-146

Respectfully submitted,

Giulia C.S. Good Stefani
Project Attorney
Natural Resources Defense Council (NRDC)

Briana Mordick
Staff Scientist
Natural Resources Defense Council (NRDC)

Attachment

0048-147

Attachment 1

An Analysis of Hazardous Materials Spills with a Focus on Oil and Gas Production

A 2015 Undergraduate Practicum Project for the
UCLA Institute of the Environment and Sustainability

Client: Natural Resources Defense Council

Advisor: Dr. Felicia Federico

Team: Alex Caryotakis, Ian Davies, Sarah Hafiz, Justine Niketen, Daniel Noakes, Ruoyu Wang, Alison Wu

---





Table of Contents

I. Executive Summary 4
II. Introduction 5
III. Background 5
A. Non-Traditional Oil and Gas Production: Well Stimulation Treatments 5
1. Production Process 5
2. Chemicals Used 5
3. Pollution Pathways 6
B. Public Health and Environmental Effects of Well Stimulation Treatments 8
1. Water Pollution: 8
2. Air Pollution: 10
C. Environmental Justice 10
D. Regulatory Background 11
1. Hazardous Materials and Oil and Gas Regulation 11
IV. Methodology 17
A. Data Sources 17
1. Spill Data 17
B. Spill Volume vs. Spill Count 19
C. Number and Volume of Spills 20
1. Spill Count 20
2. Volumetric Analysis 20
D. Spill Characteristics 21
1. What types of hazardous materials were released? 21
2. What percentage of releases were contained? 21
3. What percentage of releases affected waterbodies? 22
4. Were there reported injuries or fatalities? 22
5. Who provided clean-up services? 22
E. Spatial Analysis 22
1. Distribution of Oil and Gas Related Spills in Kern County 22
2. Geocoding Oil and Gas Related Spills in Kern County 23
3. Visualizing Well Data 24
4. Spill and Well Density 25
5. Land Use Analysis 25

F. Spills from Conventional and Unconventional Oil and Gas Production 25
1. Spill volume per unit production in Los Angeles and Kern Counties 25
2. Effect of Hydraulic Fracturing on Spill Frequency 26
V. Results 27
A. Number and Volume of Spills 27
1. Number of Reported Spills 27
2. Annual Volumetric Analysis of Spills 28
3. Statistical Distribution of Spill Volumes 31
B. Spill Characteristics 33
1. What types of hazardous materials were released? 33
2. What percentage of releases were contained? 34
3. What percentage of releases affected waterbodies? 35
4. Were there reported injuries or fatalities? 35
5. Who provided clean-up services? 37
C. Spatial Analysis 38
1. Spatial Distribution of Oil and Gas Related Spills in Kern County 38
2. Spill and Well Density 39
3. Land Use Analysis 42
D. Spills from Conventional and Unconventional Oil and Gas Production 43
1. Spill volume per unit production in Los Angeles and Kern Counties 43
2. Effect of Hydraulic Fracturing on Spill Frequency 44
VI. Discussion and Conclusions 46
VII. Recommendations 47
A. The California Office of Emergency Services (Cal OES) 47
B. The California Division of Oil, Gas, and Geothermal Resources (DOGGR) 48
VII. Appendices 49
Appendix A: 49
Appendix B: 49
Appendix C: 49
Appendix D: 49
Appendix E: 50
VI. References 65

I. Executive Summary

Our team analyzed reported hazardous material releases in California to assess the number, volume, characteristics and trends over time, with particular attention paid to oil and gas related releases. Within a nine-year period from 2006 to 2014, we analyzed characteristics that included substance, location, site characteristics, containment, water body impacts, injuries or fatalities, and cleanup services. Our analysis found that spill frequency remained constant in California from 2006 to 2014, but total spill volume increased 69% from 2013 to 2014. Oil and gas spills in Kern County decreased, mirroring the decrease in California oil production. We also sought to determine if there were differences in the number of spills associated with unconventional oil and gas production (hydraulic fracturing) compared to conventional production; however, we were unable to conduct a meaningful statistical analysis due to data limitations relating to both spills and oil wells. We include recommendations for the Division of Oil, Gas, and Geothermal Resources (DOGGR) and the California Office of Emergency Services (Cal OES) around improving the quality and accessibility of their data.

II. Introduction

The United States' oil production is at a 15 year high (Heinberg, 2013). New methods of oil extraction, namely hydraulic fracturing, have allowed oil and gas producers across the nation and in California to extract more oil than was possible in decades before. However, with these new methods of extraction come a host of new concerns, including the potential for groundwater contamination and hazardous chemical spills.

The goal of this project was to analyze hazardous materials spills in California, to understand their frequency, location, and characteristics, and to determine if there are relationships between oil and gas production methods and hazardous materials spills.

This report provides: a background on the processes and regulations relating to oil and gas production and hazardous material releases (Section C), our analysis methodology (Section D), and the results, conclusions and recommendations resulting from our research (Sections E-H).

III. Background

A. Non-Traditional Oil and Gas Production: Well Stimulation Treatments

1. Production Process

Hydraulic fracturing, often called "fracking", is a well stimulation process used to extract oil and natural gas from reservoir rocks of low permeability, usually fine-grained sandstones and shales (FracFocus, 2015a). In hydraulic fracturing, large amounts of water and chemical additives are injected into a well at high pressures to fracture the rock formation and allow for extraction of the trapped hydrocarbons.

After hydraulic fracturing has occurred but before production begins (i.e. before oil or gas begins flowing through the well), fracturing fluid may return through the wellbore to the surface as flowback water which is then stored and reused in other drilling operations. However, up to 90% of fracking fluid may remain underground (Lutz et al., 2013). After production has begun, "produced water", which has had contact with oil and gas, returns to the surface (Geological Society of America, 2015; EPA, 2012b).

Based on available well data, an estimated 100 to 150 wells per month are hydraulically fractured in California, mostly for heavy crude oil (Jordan et al., 2014).

2. Chemicals Used

Although water comprises over 99% of fracking fluid by weight, a variety of chemicals are also used. The composition of fracking fluid is adapted to the requirements of each well. Common components include acids to dissolve material and reduce clogging, friction reducers, and surfactants to improve flow through pipes (Colborn et al, 2011).

A study conducted by Congressional Committee on Energy and Commerce shows that a about 2500 products and 750 chemicals are used by 14 companies (Waxman, 2011). The most widely used chemical was methanol (found in 342 products), followed by isopropyl alcohol (274 products), 2-butoxyethanol (126 products) and ethylene glycol (119 products). (Waxman, 2011). Twenty-nine of the reported products were known or possible carcinogens, regulated contaminants under the Safe Drinking Water Act, or hazardous air pollutants under the Clean Air Act. Additionally, many unconventional oil and gas operators use proprietary chemicals in their fracking fluids. These "trade secret" chemicals are protected from disclosure (Waxman, 2011).

When flowback water returns to the surface, it is made up mostly of the original fluid and chemical mix with a salinity content that increases as a function of time since initial injection. Produced water, on the other hand, contains hydrocarbons as well as naturally occurring chemicals from within the rock formations. These chemicals typically include hyper saline reservoir water, oil and other hydrocarbons, and toxic elements like radium, barium and strontium. All of these chemical characteristics vary with the geology of the exploited formation (Vengosh et al., 2014).

Due to the overlap of many chemicals used in both processes, it is difficult to differentiate between spills and contamination from traditional oil and gas operations and those from WSTs. However, efforts have been made to more effectively and appropriately attribute spills to WSTs, such as using boron and lithium as tracers from shale formations (Warner et al., 2014). These techniques, coupled with greater transparency for proprietary chemical disclosures, are promising advances in tracing spills and contaminant migration to unconventional oil and gas sources.

3. Pollution Pathways

In hydraulic fracturing, waste materials are generated during both the fracturing and production phases. The main areas of concern lie in pollution from above ground spills during the handling, transport, and storage of waste and in the potential for unrecovered subsurface fracturing fluid to migrate to aquifers, and groundwater contamination from natural gas leaks around fractured wells (Vengosh et al., 2014). Pollution pathways are divided into direct and indirect processes.

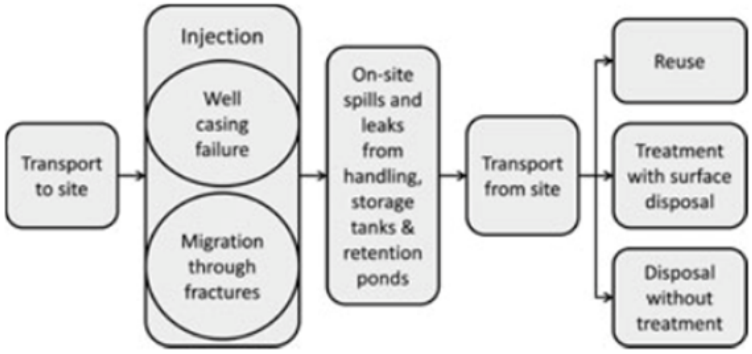


Figure 1: Potential pollution pathways from hydraulic fracturing. (Source: Rozell & Reavan, 2012)

a) Direct Pollution

Direct pollution is the (mostly subsurface) contamination of soil or groundwater resulting from high-pressure fracturing and the withdrawal of fluids and hydrocarbons. There is concern that the high-pressure fracturing process can create pathways for fracking fluid and hydrocarbons, especially methane, to migrate into aquifers used for drinking water and irrigation. Other pathways are well-casing failures and seal failure near the mouth of the wellbore. Statistical analysis of hydraulic fracturing contamination events suggests that well failure, not high-pressure fracturing, causes most groundwater pollution (Darrah et al., 2014).

Another study suggested that fluid migration through fractures is a high potential risk, but waste disposal contamination risk is several orders of magnitude larger (Rozell et al., 2012). In nearly all studies of this kind, uncertainty over pollution pathways made it difficult to determine the degree of threat posed by fluid migration. Nearly all studies emphasize the much greater risk that mishandling, illicit dumping, and unregulated disposal of produced water waste poses to natural resources in the U.S.

b) Indirect Pollution

Indirect pollution is soil or water contamination resulting from processes related to hydraulic fracturing that occur beyond the fracturing and withdrawal process. This includes the transport, storage, and disposal of flowback and produced water.

Although hydraulic fracturing generates less wastewater than conventional methods per unit of resource produced, especially in California, proper disposal of produced water from unconventional oil and gas operations is a serious environmental concern (Lutz et al., 2013). According to an EPA study, the most common disposal process for hydraulic fracturing waste involves separating fracturing fluids from the recovered oil and gas, pumping it into trucks, treating it to proper disposal standards at a plant, and injecting it into wells (California Research Bureau, 2014). Every step of this process presents a possible pollution pathway for produced water. Wastewater treatment facilities are sometimes used for disposal, but are often unable to completely remove the radioactive elements and total

dissolved solids (TDS) that produced water carries (Lutz et al., 2013). Because of this, between 95-98% of wastewater from fracking in the US is injected into Safe Drinking water Act (SDWA) Class II underground injection control (UIC) wells (see section Oil and Gas Regulations) (Lutz et al., 2013).

Offsite commercial disposal is used mostly by small operators for whom building, running, and closing an onsite disposal facility is not economically feasible (Argonne, 2009). In California, the water that is not injected underground is mostly disposed of through settling ponds or is treated for beneficial reuse, such as agriculture (Argonne, 2009). In Kern County, increased scrutiny has fallen on the use of unlined ponds for produced water disposal. Several studies, including one in 2014 by Clean Water Action, demonstrated that waste in unlined pits near McKittrick, CA migrated into wells used for irrigation and drinking water (Clean Water Action, 2014).

B. Public Health and Environmental Effects of Well Stimulation Treatments

1. Water Pollution:

This review looked for instances of the release of chemicals from fracturing operations into water resources via the pathways previously discussed. Excluded were studies on the disposal of treated hydraulic fracturing wastewater directly into surface waters, as the majority of fracturing fluid in California is disposed of via underground injection or in wastewater pits (DOGGR, 2014). The discussion below includes two studies on contamination of water resources via underground pathways, one on surface spills, and one on instances of improper underground injection disposal of hydraulic fracturing waste.

a) Indirect:

A study by Gross et al., in the *Journal of the Air and Waste Management Association* analyzed whether surface spills at hydraulic fracturing operations led to groundwater contamination, specifically of benzene, toluene, ethylbenzene, and xylene (BTEX) chemicals. The Colorado Oil and Gas Conservation Commission (COGCC) database provided data on surface spills at sites in Weld County, Colorado between July 2010 and July 2011 (Gross et al, 2013). Researchers analyzed 77 spills. Groundwater samples collected at the spill sites showed that benzene levels were 2.2 times higher, toluene levels 3.3 times higher, ethylbenzene levels 1.8 times higher, and xylene levels 3.5 times higher than groundwater samples collected outside the spill area. BTEX levels tended to decrease rapidly with time and distance from the spill site (Gross et al, 2013). However, the study serves as a demonstration of the potential of surface spills to directly affect groundwater quality.

The second study provides a recent example of mismanagement of underground fracking wastewater disposal occurred within Californian Class II injection wells. In September 2014, the State Water Board conceded to the EPA that 9 underground injection control wells injected wastewater from natural gas operations into drinking water aquifers

protected under the Safe Drinking Water Act. The board tested 8 public wells within a 1 mile radius of the UIC wells in question and found that four exceeded the Maximum Contaminant Level (MCL) for nitrate, arsenic, and thallium (Bishop, 2014; Schon, 2014).

b) Direct:

A study by Fontenot et al., in *Environmental Science and Technology* looked at water quality in 100 private wells surrounding the Barnett Shale formation in North Texas. Historic levels of arsenic, nitrates and volatile organic compounds (VOCs) from the United States Geological Survey were compared to current groundwater quality in 91 wells within a 5 kilometer radius of active natural gas extraction operations, 4 wells with no active operations within a 14 kilometer radius, and 5 inactive, control wells (Fontenot et al, 2013). The results showed that mean total dissolved solids (TDS) in active extraction areas exceeded the maximum contaminant level (MCL) set by the EPA, but historical data indicated similar levels for the region. Similarly, researchers observed methanol and ethanol in samples from both the active and inactive study areas. The chemicals were not correlated with distance to the nearest gas well (Fontenot et al, 2013). The constituents found to be higher in active areas than inactive areas were arsenic, selenium, and strontium. The researchers suggest a variety of contributing factors to this contamination, including mechanical disturbances from drilling activity, reduction of the water table from groundwater withdrawals, and faulty drilling equipment and well casings (Fontenot et al, 2013).

A study by Osborn et al., in the *Proceedings of the National Academy of Science* looked at methane contamination in drinking-water wells in the Marcellus and Utica shale formations in northeastern Pennsylvania and upstate New York, comparing wells within areas of active natural gas exploration and wells in inactive areas. Of 60 wells studied, 51 showed methane contamination. Concentrations of methane were 17-times higher nearby natural gas drilling operations (Osborn et al, 2011). Even more, the authors used stable isotope analysis to differentiate between shallow, naturally occurring methane and deep, thermogenic methane associated with fracking. Thermogenic methane was found to be the source of contamination at active sites, while biogenic methane was common at inactive sites (Osborn et al, 2011). The study also looked at general groundwater contamination associated with fracturing fluids. Using a contemporary sample of 68 wells and the historical data of 124 wells in the Catskill and Lockhaven aquifers, the researchers used three indicators of contamination: major inorganic chemicals, stable isotope signatures of water, and isotopes of dissolved constituents. The study found no connection between active drilling areas and general contamination in nearby wells (Osborn et al, 2011).

It is important to keep in mind that much of the literature on public health effects of WST fluid or spill contamination is limited by knowledge of the specific chemical composition of fracturing fluid. Incomplete MSDS information, a lack of Chemical Abstract Service (CAS) numbers to uniquely identify chemicals and chemical mixes, and trade secret claims by operators limited the all of the above studies and others of their kind. In addition, without baseline information on water quality or isotope tracking, it is difficult to impossible to causally link hydraulic fracturing operations to groundwater contamination. The study by Gross et al provided no measure of historical background levels of BTEX, therefore causality is not certain. In fact, a review by Samuel Schon faults the study by

Osborn et al., for not providing geochemical measurements of dissolved methane (Schon, 2014).

Next, it is worthy to note that many of the studies on hydraulic fracturing chemicals and accidental release come from outside California. The study from the *Journal of Human and Ecological Risk Assessment* obtained product and chemical information from Colorado, Wyoming, New Mexico, Texas, Washington, Montana, Pennsylvania, and New York. The three other cited studies come from the Barnett, Marcellus, and Utica shale formations. In all, much of the published literature on hydraulic fracturing and its effects on groundwater are from study areas outside of California, likely due to the fact that the state does not have as extensive of a hydraulic fracturing industry as other parts of the US (US Department of Energy, 2011). Thus, one should keep in mind the difference between California fracking and general American fracking amount when weighing the probability of groundwater quality damage from fracking.

In all, the above studies give context for the public health concerns of hydraulic fracturing fluid and the ways in which it may enter groundwater. More research is needed to steadfastly claim a causal connection between fracking and groundwater contamination; however, data point to probable risk.

2. Air Pollution:

A recent independent study by P. Macey et al, "Air Concentrations of Volatile Compounds near Oil and Gas Production" examined the air concentrations of volatile compounds in hydraulic fracturing sites through a community-based exploratory study in five American states: Ohio, Pennsylvania, Arkansas, Colorado, and Wyoming. A total of 75 volatile organics were measured through passive air samples near industrial operations. Levels of eight of these volatile chemicals were found to exceed federal guidelines (Macey, 2014). Benzene, formaldehyde, and hydrogen sulfide were the most common compounds to exceed acute and other health-based risk levels (Macey, 2014). For instance, the exposure to benzene experienced in five minutes at one Wyoming site was equal to the exposure experienced living in LA for two years. Benzene is known to cause irritation of the skin, eyes, and upper respiratory tract (U.S. EPA 2011). Long-term exposure may cause blood disorders, reproductive and developmental disorders, and cancer (Outdoor Air, 2011). Hydrogen sulfide levels in the Wyoming site were also 90 to 60,000 times greater than the recommended levels at one given time during the study period (Francis, 2014). Hydrogen sulfide can cause respiratory tract and eye irritation, headaches, poor memory, and loss of appetite among other symptoms (Francis, 2014).

C. Environmental Justice

According to the EPA, environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. EPA, 2014a).

A study by Srebotnjak et al. examined which communities were the most disproportionately at risk due to oil and gas drilling in California. According to their research, approximately 5.4 million Californians (14 % of the state's population) live within

one mile of an existing oil and gas well (Srebotnjak, 2014). In addition, 1.8 million of these individuals live in already environmentally polluted areas (Rotkin-Ellman, 2014). Approximately 92% of the individuals within those 1.8 million are people of color. The demographics of the population living near wells in California consist primarily of Hispanics/ Latinos (Srebotnjak, 2014).

A separate study analyzed one particular oil and gas community in Kern County, California. Kern County has more than 63,000 of the state's 84,434 active and new oil and gas wells (Rotkin-Ellman, 2014). The researchers found that one in three residents live within one mile of an oil or gas well (35% of the county's population) (Rotkin-Ellman, 2014). These individuals are at a greater risk of potential health impacts. According to the Desert Renewable Energy Conservation Plan, Kern County's total population size is about 839,153 with 61.4% belonging to a minority group (Desert Renewable Energy Conservation Plan, 2014). The percent of low-income individuals in Kern County is 22.5%. California as a whole has a minority population of 59.9%, with 15.3% falling within the low-income population. (Desert Renewable Energy Conservation Plan, 2014)

D. Regulatory Background

1. Hazardous Materials and Oil and Gas Regulation

a) Hazardous Material Release Regulations

Reporting is to be made to the Office of Emergency Services. The California Code hat the immediate reporting of a hazardous material spill to land is only required if there is "reasonable belief" that the spill may pose a threat to public health, property, or the environment. A written report of the spill initially called into OES is required 30 days after the release and sent to the Chemical Emergency Planning and Response Commission. The reportable quantities of chemicals can be found on two lists. The first is the Extremely Hazardous Substances list. The second is the more detailed Consolidated List of Chemicals (California Office of Emergency Services, 2014a).

b) Oil and Gas Regulations

i. Federal Level Regulations

Some hazardous material from conventional oil and gas production has been exempted from CERCLA, CWA, and RCRA. CERCLA requires the clean up of hazardous substances, however, substances derived from oil and gas production are not required to be reported under CERCLA unless reaching waters of the United States and creating a "sheen" or "film". The Clean Water Act regulates the discharges of pollutants into the waters of the United States. It excludes sediment as a pollutant when it is generated from oil and gas production. Last, RCRA governs the disposal of hazardous wastes. It exempt oil and gas produced water and drilling fluids from monitoring and disposal requirements (U.S. EPA, 2002, 2012, 2014b).

ii. State Level regulations :

In California, DOGGR monitors oil and gas production in California. DOGGR oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells (California Department of Conservation, 2014).In recent years, DOGGR acknowledged the gaps in regulations placed on oil and gas production and the information provided to the division about hydraulic fracturing (California Department of Conservation, Division of Oil Gas and Geothermal Resources (DOGGR), 2014). In 2011, Senator Pavley drafted Senate Bill 4 in 2013, passed in September 2013, which directly deals with WST reporting. Senate Bill 4 was enacted by the California legislature due to five concerns: (1) Hydraulic fracturing and well stimulation treatments are increasing in California. (2) The state considers current scientific information on the risks of well stimulation treatments incomplete. (3) The legislature believes that government and industry transparency is vital. (4) Public disclosure is important so as to allow the public to determine if they are being exposed to WST chemicals, (5) the legislature would like to understand the components of produced water used in WST so that it may be reused or treated (California Environmental Law and Policy Center, 2015)

SB4 requires: (1) an independent scientific study on well stimulation treatments to be conducted by the Secretary of California's Natural Resources Agency, (2) development of WST regulations by DOGGR including threshold values for acid volume used, disclosure requirements of chemical composition of well stimulation fluids, and source and volume information of all water used, (3) public disclosure of WST fluid composition (4) an end to the ability of operators and suppliers to claim trade secret protections on many of their products, (5) the creation of a permitting process for WST operation, (6) that landowners within 500 feet of a horizontal project of a WST or within a 1500 foot radius of the wellhead be notified of treatment, (6) that SWRCB to develop regional or well specific groundwater monitoring criteria by July 15, 2015 (California Environmental Law and Policy Center, 2015).

Currently, the California Office of Emergency Services (Cal OES) is responsible for receiving spill reports. The Comprehensive Environmental Response and Liability Act, the Emergency Planning and Community Right-to-Know Act, and various California laws require that hazardous substance releases in excess of reportable quantities must be reported by the responsible party to the National Response Center. Furthermore, if there is an accidental release that exceeds minimum reportable quantities, it must be reported to the State Emergency Response Commission and to the Local Emergency Planning Committees. This includes any spills relating to oil and gas. Regarding oil and gas spills, any release that has caused harm or the potential to cause harm must be reported to Cal OES. Any discharge of oil into state waters must be immediately reported. The federal and state regulations on spill reporting, along with regulations specific to oil and gas spills, are summarized in the below tables.

Table 1: Summary of US Federal and State regulations governing spill reporting (Farella, Braun, and Martel, 2013).

Type of Release	Law	When to Report & to Whom	Who Reports
Oil discharge	Clean Water Act	Immediately report to	Any person in

(film/sheen/discoloration) to water surface or shoreline, or violation of water quality standards and discharge of hazardous substance [equal to or above Reportable Quantity (RQ)]	311 Code of Federal Regulations Title 33: 153.203, Title 40: 110.6	National Response Center: (800) 424-8802 or (202) 267-2675	charge of a vessel or facility (offshore or onshore)
Discharge of oil or petroleum product to surface or groundwater of the state	Water Quality Control Act California Water Code: 13272	Immediately report to the Cal OES (800)852-7550 or the appropriate Regional Water Quality Control Board	The person who causes or permits the discharge
Discharge of oil or petroleum product to marine water of the state	Oil Spill Prevention And Response Act California Government Code: 8670.25.5, 8670.26, 8670.64-8670.67, California Health And Safety Code: 25501, 25507, California Code Of Regulations: 2703, 2705	Immediately provide verbal report to Cal OES, but not later than 30 minutes after discovery of the spill or threatened release; Submit written emergency release follow-up notice within 30 days of the release and sent to Chemical Emergency Planning and Response Commission Local Emergency Planning Committee (LEPC) Notify Coast Guard in certain circumstances (800) 424-8802	Any party responsible for the discharge or threatened discharge; Responding local or state agency
Discharge of one barrel or more oil (cannot pass into or threaten the waters) in the gas and oil lease fields.	California Public Resources Code 3233	Immediately report to the Cal OES	Facility owner or operator
5 barrels or more uncontained in certain San Joaquin Valley oil fields - if no threat to state waters; 10 barrels or more contained in certain San Joaquin Valley oil fields if identified in spill contingency plan - if no threat to state waters.	San Joaquin Valley Field Rule (August 1998)		
Every rupture, explosion, or fire involving a pipeline	Elder California Pipeline Safety Act of 1981 California Government Code 51018	Immediately report to the fire department having fire suppression responsibilities and to the Cal OES.	Pipeline operator

Unauthorized release of a flammable or combustible liquid, including petroleum products and oil that escapes from secondary containment of a underground storage tank, or from primary containment if no secondary containment exists; increases the hazard of fire or explosion; or causes deterioration of the secondary containment	Underground Storage Tank Law California Health and Safety Code, 25295, 25299 California Code Of Regulations, Title 23: 2650-2652	Verbal report within 24 hours after the release was detected or should have been detected; written report within 5 working days of the release	Owners and operators of USTs
Spill or other release of one barrel (42 gallons) or more of petroleum from an aboveground storage tank, that is required to be reported	Aboveground Petroleum Storage Tank Act California Health and Safety Code 25270., 25270.12	Immediately report to the Cal OES and the CUPA/AA using the appropriate 24-hour emergency number or the 911 number, as established by the CUPA, or by the governing body of the CUPA	Owner or operator of aboveground tank facility
Any facility that accidentally releases into the environment one of the following types of chemicals in an amount greater than or equal to the minimum reportable quantity as required by the Emergency Planning and Notification regulation http://www.gpo.gov/fdsys/pkg/CFR-1996-title40-vol14/pdf/CFR-1996-title40-vol14-part355.pdf	Emergency Planning and Community Right-to-Know Act Section 304	Immediately report to the State Emergency Response Commissions and the National Response Center for any area that is likely to be affected by the release. A written follow-up is required.	Facility
PCB spill (equal to or greater than 50 parts per million) with release to surface water, drinking water supplies, sewers, grazing lands, etc.	Toxic Substances Control Act (TSCA) 40 CFR 761.120 & 761.125	Report within 24 hours to National Response Center (NRC) at 1-800-424-8802, EPA Region 7 Spill Line at 913-281-0991, and LEPC, SERC,TERC. Follow up as required by agency.	Person in charge
Hazardous substance release (equal to or greater than RQ)	Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA or Superfund) 40 CFR 302.6(a)	Report within 15 minutes to LEPC, SERC, TERC or local emergency response personnel (911 in case of transportation-related release)	Person in charge of vessel or facility

Release, fire, or facility explosion that threatens health outside the facility	Resource Conservation and Recovery Act (RCRA) 40 CFR 262.34; 263.30; 264.56 & .196; 265.56 & .196; 270.14 & .30; 273.17, .37 & .54; 279.43 & .53; 280.50, .52, .53, .60 & .61	Report within 24 hours to National Response Center (NRC) at 1-800-424-8802, EPA Region 7 Spill Line at 913-281-0991, and LEPC, SERC,TERC	Emergency coordinator or owner/operator

At the state level, hazardous material releases are regulated by three California codes: the California Government Code, the California Health and Safety Code, and the California Code of Regulations. These regulations establish the Office of Emergency Services as responsible for coordinating the reporting of spills in the state. The follow-up reporting on these spills is the responsibility of the Chemical Emergency Planning and Response Commission. The table below summarizes the most important regulations that govern spill reporting in California (Cal OES, 2014).

Table 2: California regulations governing spill reporting (Cal OES, 2014).

Law	Content
California Government Code (GC) 8589.7	The Office of Emergency Services (OES) shall serve as the central point in state government for the emergency reporting of spills, unauthorized releases, or other accidental releases of hazardous materials and OES shall coordinate the notification of the appropriate state and local administering agencies that may be required to respond (the State Lands Commission, Coastal Commission, or regional water boards for oil spills; the State Fire Marshal for a rupture or explosion involving a pipeline, DOGGR for a crude oil spill, etc) Any person subject to Section 25510 of the Health and Safety Code shall immediately report all releases to the local administering agency and each local administering agency shall notify OES.
California Health and Safety Code (HSC) Sections 25500-25519: Legislative Intent	Establishes business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on the location, type, quantity, and health risks of hazardous materials in the state is required to be submitted to firefighters, health officials, planners, and other interested persons.
HSC 255510: Release Reporting Requirements	The handler or an employee, representative, agent, etc, shall immediately report any release or threatened release of a hazardous material to the unified program agency.
HSC 25515.2: Administrative Enforcement	A business that violates the HSC article is liable to a penalty not greater than $2,000 for each day in which the violation occurs. If the violation results in or contributes to an emergency, including a fire or health problem, the business shall also be assessed the full cost of the county,

	city, fire district, or local EMS agency emergency response as well as the cost of cleaning up the hazardous materials.
California Code of Regulations, Title 19, Division 2, Chapter 4, Section 2701: Reporting Requirements	A person shall provide an immediate verbal report of any release to the administering agency and the California Emergency Management Agency as soon as (1) a persons had knowledge of the release, (2) notification can be provided without impeding control of the release (3) notification can be provided without impeding medical measures. The reporting shall include at a minimum (1) the exact location (2) the name of the person reporting, (3) the hazardous materials involved, (4) an estimate of the quantity, (5) the potential hazards involved in the release or threatened release Immediate reporting is not required if there is reasonable belief that the release poses no significant present or potential hazards to human health and safety, property, or the environment.
California Code of Regulations, Title 19, Division 2, Chapter 4, Section 2705	A written emergency release follow-up notice pursuant to 42 U.S.C section 11004(c) shall be prepared using the form specified in subsection (c) of this section and shall be sent to the Chemical Emergency Planning and Response Commission (CEPRC) no more than one month after the release.

A copy of the Emergency Release Follow-Up Notice Reporting Form can be found in Appendix A.

Continuous releases, or those releases that are continuous and stable in quantity and rate, occur without interruption or abatement, or are routine, anticipated, or intermittent, are subject to different reporting requirements than discrete hazardous material releases (EPA, 2015). Regulated federally under CERCLA and EPCRA, these releases may be subject to reduced reporting requirements. The responsible party must notify the National Response Center, or the respective State Emergency Response Commission, when the release is first identified. Afterwards, a first-year anniversary report is required to be submitted to quantify the total effect of the continuous release over the year. A complete guide to the reporting requirements for continuous releases can be found in the Appendix E.

IV. Methodology

A. Data Sources

1. Spill Data

We used data from the California Office of Emergency Services, now called California Office of Emergency Services, for hazardous material release information. The data was downloaded in January 2015 from the Cal OES website for the years 2006-2014. Recently, the data was moved to the CA OES website, however the formatting is the same. Each Microsoft Excel spreadsheet file for a specific year contains a list of all spills called into the CA OES Warning Center for the given year. . Appendix A has a link to the new data location on the CA OES website.

The following table explains the different columns within the Historical Hazmat Spill Notification spreadsheet. "Column Name" provides the spreadsheet letter and heading of each column. "Column Description" provides a definition for each column's content (written by the team and not provided by Cal EMA). "Example Entries" gives real examples of entries within each column and clarifies the idiosyncrasies and challenges of the dataset.

Not every column in the dataset is listed below, only those that were used in this project and referred to throughout this paper.

Table 2: Denoted below is the column name, a description of the data found in that column, a few examples for each column, and the analyses in which we used data from that column.

Column Name	Column Description	Example Entries	Analyses Used
A: Control #	A unique number identifier for each spill; the first two digits of the control number indicate the spill year.	'13-2536, '06-2805, '11-6123	None
D: 1. Substance	The primary substance released. Self-reported, one substance may be reported in several different ways.	Crude Oil, Oil-Crude, Diesel, Paint Flakes, Antifreeze	Types of substances spilled
E: 1. Quantity	The amount of material spilled, if known. May be a finite number, a range, or other format (such as date or time-dependent).	0.4, 500, 120-140, Apr-4, 4 GPM, a drop, N/A	Annual spill volume and box and whisker
F: 1. Measure	The unit a spill is measured in. May be volumetric or mass-based.	Bbl. (s), gallons, cups, pints, grams, pounds, tons, sheen, N/A, unknown	Annual spill volume and box and whisker

G: 1. Type	A broader category than Substance that specifies the kind of substance spilled.	Petroleum, Radiological, Railroad, Vapor, Chemical, Other, Unspecified	Types of substances spilled, number of spills, spill volume
Y: Description	Detailed description of the situation surrounding the spill.	"Caller states substance is seeping from the ground at two locations approximately 150 ft apart in an area that is known for this to occur…"	Kern oil and gas spill filtering process
Z: Contained	Indicates whether the spill was contained or not.	Yes, No, Unknown, 80%, 50%	Containment analysis
AA: Water?	Indicates whether the spill affected waterbodies or not.	Yes, No, Unknown	Spills affecting waterbodies
AC: Location	Street address, PLSS section, or rough location of the spill.	Section 3 Township 31S Range 22E, ½ Mile off Highway 65	Kern oil and gas spills spatial analysis
AD: City	City in which the spill occurred	Fellows, Orcutt, Unincorporated Kern County	None
AE: County	County in which the spill occurred.	Kern County, Los Angeles County, Santa Barbara County	Annual spill volume, box and whiskers, spill characteristic analyses
AI: Spill Site	General category that specifies the type of location the spill occurred in.	Oil Field, Refinery, Pipe Line, Merchant/Business, Residence	Spill frequency in Los Angeles and Kern counties
AS: Cleanup	Indicates who cleaned up the spill.	Contractor, Responsible Party, Site Personnel	Clean up analysis

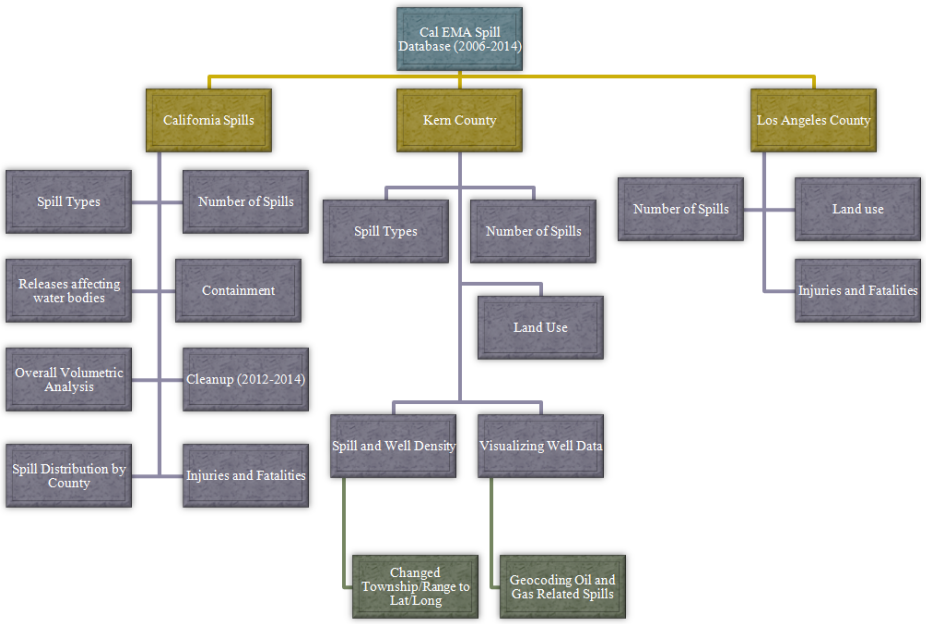


Figure 2: Methodology tree of the different analyses and procedures performed on the datasets.

B. Spill Volume vs. Spill Count

Analyses of the spill database were done both by aggregating the volume of each spill in a particular subset and in by counting each individual spill in a particular subset. The table below outlines which procedures dealt with spill volume and which dealt with spill count. The type analysis using the database column "Type" involved both volume and spill count. Petroleum type was summarized by total volume, while the remaining type categories (such as radiological or sewage) were summarized by number. The spill distribution by county analysis also involved both volume and number summaries, as a volumetric analysis was done for Kern and LA counties while remaining counties were analyzed by number of spills.

Table 3: Below is a breakdown of the procedures which analyzed spill volume and spill count.

Procedure	Spill Volume	Spill Count
Box and Whisker Plot	X	

Type Analysis	X	X
Containment Analysis		X
Waterbody Analysis		X
Injuries and Fatalities Analysis		X
Cleanup Analysis		X
Spill Frequency Analysis	X	
Spill Distribution by County Analysis	X	X

C. Number and Volume of Spills

1. Spill Count

The first step in analyzing spills in California was to understand the total number of spills reported each year. This analysis was done for all of California as well as for Kern County, Los Angeles County, Kern County oil and gas production spills, and petroleum spills (denoted as Type-Petroleum in Column G). Kern and Los Angeles counties were chosen for additional analysis since these are the two top oil producing counties in the state, accounting for 75 and 12 percent of the state's oil production, respectively, in 2009 (California Department of Conservation, 2009). Kern County oil and gas production was chosen as it provides more specific insight into oil and gas spills in Kern County. Petroleum type was chosen for additional analysis for an overall picture of oil and gas spills across the state, since oil and gas spills could not be individually filtered out for the entire state due to time limitations. We also calculated the annual number of spill incidents for each county in California from 2006 to 2014.

The analysis of spill count and all subsequent analyses excluded vapor and railroad incidents. We had insufficient data to convert vapor releases to a liquid equivalent; furthermore, such releases are likely to have impacted air quality only rather than soils or surface/ground water and therefore did not fit the traditional definition of "spills". Railroad incidents rarely involved spills, but rather were primarily train collisions involving automobiles or humans.

2. Volumetric Analysis

The total volume of spills was calculated for each year from 2006 to 2014 for all of California in addition to subtotals for Kern County, Los Angeles County, TYPE = Petroleum (Column G), and Kern County oil and gas production spills. Excluded from the calculation of petroleum spills in California is a spill of nearly 3 million gallons of kerosene in 2011. The description of this spill, number '11-5972, repeatedly refers to the spill as a "drill".

Spill quantity was reported in 12 different units (excluding "Unknown" or "N/A" values) some of which were volumetric and some of which were mass measures. To solve this problem, all volumetric measures were converted to gallons as it was the most

frequently used unit for volume. All volumetric measures had direct conversion factors to gallons except barrels; the team used the standard 42:1 gallon to barrel conversion factor used in the oil and gas industry. Spill reported in units of mass (e.g. tons, pounds, ounces, and grams) were left out of the analysis, along with "N/A" and "Unknown" measures, due to time constraints and uncertainties related to converting from mass to volume. We believe that, despite this omission, the volumetric analysis provides a good representation of the data. On average, spills reported in mass units comprised only 5.2% of all reported spills with a maximum of 9.2% in 2006 and a minimum of 3.9% in 2012. In the volumetric calculation process, several formatting changes had to be made to values in "1. Quantity" (Column E), in order for the addition function to work properly. A summary of these formatting changes can be found in the Appendix B.

We generated box and whisker plots in R to examine the statistical distribution of spill volumes across years. Each individual datum from the "Quantity" column was converted into gallons and then analyzed in R. Data that could not be analyzed in volumetric form, such as unclear quantities and mass measures, were omitted for this analysis.

D. Spill Characteristics

1. What types of hazardous materials were released?

We generated pivot tables in Microsoft Excel to analyze spill count per type category. On average, there were 18 type categories per year in California overall, which we consolidated into 7 categories: petroleum, chemical, radiological, railroad, sewage, vapor, and unspecified/other. Identical type categories were generated for Kern County and Los Angeles County spills.

We created tables to show the top 20 substances spilled each year. The tables summarized the column "1.Substance" (Column D) by spill frequency. However, inconsistent data entry into the Cal OES database required significant reformatting before the data could be analyzed.

First, many substances were reported as "unknown", "N/A", "unknown material", etc. These substances were discarded.

Second, one substance might be reported in multiple ways. It was therefore necessary to merge repeated instances of a given substance type into the summarized row by adding all the counts (e.g. "Diesel", "Diesel Fuel", "Diesel Oil", "Fuel – Diesel", "#2 Diesel", into "Diesel"). Merging all instances of repeat substance for all eight years was prohibitively time-consuming, so only rows with more than 5 counts were merged. Finally, we calculated what portion of the total yearly volume of spills these substances represented.

Through this analysis, we also want to see how well all the spills are categorized. Among those most frequently reported substances, substances such as motor oil or mineral oil are also classified into the petroleum type in Cal OES database. Although these substances are petroleum products, they are not necessary related to oil and gas production. Therefore, spills of the petroleum type cannot be used to analyze the spills of oil and gas production, since this would be an overestimation.

2. What percentage of releases were contained?

Possible responses in the "Contained" column (Column Z) within the Cal OES spills database included: "Yes", "No", "Unknown", or "X%" (see Fig. 1). Partially

contained spills were difficult to categorize based on their percentage and only accounted for <1 % of total data, so we excluded them from our analysis. We use pivot tables to generate summary statistics on spill containment.

3. What percentage of releases affected waterbodies?

The "Water?" column (Column AA) within the Cal OES spills database contained a "Yes", "No", or "Unknown" with regards to whether a spill involved water when it was released (see Fig. 1). We used pivot tables to count the annual total of each response and summarize their results.

4. Were there reported injuries or fatalities?

An analysis of injuries, fatalities, and evacuations was performed on three levels: all California spills, all Kern County Spills, and all Kern County oil and gas spills. This was done using columns "Injuries #" (Column AN), "Fatals #" (Column AP), and "Evacs" (Column AR) from the Cal OES spills database.

5. Who provided clean-up services?

The "Cleanup" column (Column AS) within the Cal OES spills database was analyzed in a grouped pivot table. This time-intensive analysis was only done on a subset of years from 2012 to 2014. Before grouping in the pivot table, an average of 7,453 unique clean-up descriptions existed for each year from 2012 to 2014. The entries frequently described the same yet reworded cleanup method and thus were ultimately grouped into 9 categories. In order from highest to lowest occurrence, the following categories were chosen: N/A, onsite, contractor, public agency, fire department, county, city, private company, and other. Explanations for each category and sample entries found within each can be found in the Appendix C. These 9 categories were chosen to organize the cleanup responses in a more understandable manner and to better understand spill severity.

E. Spatial Analysis

1. Distribution of Oil and Gas Related Spills in Kern County

Understanding the more detailed spatial characteristics of spills in California was limited by our available time, so we focused on spills related to oil and gas production in Kern County, by far the most productive county in the state.

We began with the complete Cal OES spills database and conducted a number of steps to remove all spills that were not associated with oil and gas production in Kern County. These steps were done successively from general to more specific details and only spills that were clearly not associated with oil and gas production were removed. The steps are as follows:

Filter 1: Remove all spills where the "County" column ≠ Kern

Filter 2: Sort the "1.Substance" column to remove spills where the involved substances were not oil or gas products.

Filter 3: Sort the "Agency" column to remove spills where the responsible reporting agency is not an oil or gas well operator.

Filter 4: Sort through the "Description" columns to further remove spills unrelated to oil and gas production. We used our best judgment to remove spills that did not occur on a production site.

Filter 5: Lastly, the "Spill Site" column was sorted through to remove spills containing the following keywords which indicated they did not occur on a production site: Service Station, Utility Substation, Railroad, Road Collision, Pipeline, Merchant Business, Refinery.

To verify that no spills were improperly removed from our final set of Kern County Oil and Gas Production Related Spills, we sorted the set of removed spills by "Spill Site" and added any spills with keywords "well" or "oil field" back into the dataset.

The table below shows the total spills remaining in the dataset after each successive filter was applied.

Table 4: Spills that were not directly involved with the production of oil or gas were removed from the database with each successive filter.

Year	No Filter	Filter #1	Filter #2	Filter # 3	Filter # 4
	Original Data	Filtered by "Type" column	Filtered by "County" = Kern	Filtered by spills related to oil and gas production	Excluding refinery and pipeline spills**
2006	7424	5599	291	186	158
2007	7769	5764	322	207	207
2008	8812	6146	321	181	172
2009	8391	5967	261	133	117
2010	7713	5370	223	141	121
2011	7358	5146	288	131	125
2012	7687	5396	273	97	90
2013	7630	5554	248	94	80
2014	7013	5209	218	89	77

2. Geocoding Oil and Gas Related Spills in Kern County

Responses for the "Location" column of the Cal EMA spills database were predominantly reported using the Public Land Survey System (PLSS) and were thus formatted as Township-Range-Section (TRS). For the data to be spatially represented using ArcGIS, these TRS entries needed to be converted to latitude and longitude. Because of irregular formatting of TRS entries in the database, locations were manually converted to Latitude and Longitude using the EarthPoint online conversion service (see Appendix D). Any data that was either incomplete or unreadable by EarthPoint was discarded. Due to accuracy limitations in the PLSS (where the smallest geographical units – sections – are roughly 1 square mile) the converted spills were given the latitude and longitude for the centroid of their respective PLSS section.

Additionally, locations reported as addresses or in Degrees-Minutes-Seconds were formatted so that they could be properly geocoded in ArcMap. All addresses that were

incomplete or improperly entered into the database were discarded. After conversion and formatting, all remaining data was geocoded in ArcMap 10.2/10.3 using the US-Composite Address Locator available from UCLA MapShare.

Table 5: Geocoding success.

Year	Spills Visualized	Success Rate
2014	77/89	86.9%
2013	88/94	93.6%
2012	91/96	94.8%
2011	111/125	88.8%
2010	129/141	91.5%
2009	127/160	79.4%
2008	171/215	79.5%
2007	179/206	86.9%
2006	133/148	89.9%
Total	**1106/1274**	**86.8%**

3. Visualizing Well Data

We acquired the data for conventional wells from the DOGGR AllWells database. Unconventional well data was acquired from Appendix M of the SB 4-mandated interim report conducted by the California Council on Science and Technology (CCST). Appendix M combined data from FracFocus, South Coast Air Quality Management District, Central Valley Regional Water Quality Control Board, and DOGGR and was composed entirely of hydraulically fractured wells mostly spanning 2002 to 2014. These sources contained data of varying accuracy and breadth, as different agencies have varying reporting requirements. Using their best judgment, CCST integrated the most accurate of these data based on how comprehensive reporting requirements were for a source.

For this analysis, we focused on wells that were active as of May 2015. We assumed that wells that are active have been active for at least 9 years (since 2006) and that wells which have been plugged, cancelled, buried, or idle have been so for 9 years. This assumption introduces error but is necessary because there is no date of abandonment on the majority of wells, and the list spans over 100 years. This reduces the list of traditional wells we are interested in from 138,959 to 68,129. The AllWells data included 144 wells where longitude = 0, so they were removed, bringing the total number of active conventional wells in Kern County to 67,985. Hydraulically fractured wells from Appendix M lack a similar status column, so we assume that all listed wells have been active throughout our study period.

The AllWells database contained both conventional and hydraulically fractured wells, so we eliminated the latter by deleting features from AllWells which spatially overlapped with the hydraulically fractured wells from Appendix M. We assume the accuracy of well coordinates from both AllWells and Appendix M is high enough that overlapping wells are indeed hydraulically fractured. A total of 2,965 wells were designated as hydraulically fractured and erased from AllWells. The total number of hydraulically fractured wells from AppendixM was 3,922.

4. Spill and Well Density

The accuracy of our spills was limited to anywhere within the roughly 1 square mile area of their PLSS section. To avoid overstating the accuracy of our data, we represented spill density as the number of spills within a PLSS section square. The densities of both conventional and hydraulically fractured wells were represented in the same way for the PLSS sections on which they were sited.

5. Land Use Analysis

Land use designation data was acquired from Kern County Engineering, Surveying, and Permit Services and from Bakersfield IT Division. The land use data for Kern County and the City of Bakersfield did not overlap, so they were joined and similar land-use designations were merged into large, generic classes for more coherent analysis. Wells and spills sited on lands designated for human habitation pose a greater public health risk than those on vacant land. With this in mind, we grouped land designated specifically for human habitation – like "Mobile Home", "High-density Residential", or "Suburban" – into a group to identify the frequency of high-risk spills and wells. The land use designation for every parcel on which wells and spills occurred was summed, generating a list that indicates where, according to official zoning, all spills and wells are sited.

F. Spills from Conventional and Unconventional Oil and Gas Production

1. Spill volume per unit production in Los Angeles and Kern Counties

The largest oil producing counties in the state, Los Angeles and Kern, differ in the fraction of wells which are hydraulically fractured. If hydraulic fracturing has an effect on spills, it might manifest in a comparison between these two counties. The team compared the ratio of oil spill volume to annual oil production in Los Angeles and Kern counties.

For purposes of this analysis, we looked oil spills in which the reported "Spill Site" (Column AI) was "Oil Field". To ensure that no natural gas spills were included in this sample of the data, the Type column (Column D) was filtered to exclude "vapor" spills. Spills at oil fields were used as a proxy for spills known to be associated with oil production. It was beyond the scope of this project to use the filtering process described in section 4B to identify oil production spills in areas aside from Kern County.

Oil production statistics (annual barrels produced) were obtained from the California Department of Conservation website. California oil production was reported by

county for the years 2006-2009 in the Annual Reports of the State Oil & Gas Supervisor. For the years 2010-2013, an annual report was not provided on the Department of Conservation website. To account for this gap, we took the average portion of California oil production that Los Angeles and Kern Counties accounted for over the years 2006-2009. This portion, calculated as a percentage, was then used to estimate the oil production for LA and Kern counties for the years 2010-2013. We found that, on average, LA County represents 12% percent of California oil production while Kern County represents 77% of California oil production.

The last step in this analysis was to divide annual oil field spill volume for California, Kern County, and Los Angeles county by each area's respective annual oil production. In the process of this analysis, we chose to also look at these ratios for Ventura and Santa Barbara counties, the 3rd and 4th largest oil producing counties in the state after Kern and LA counties.

2. Effect of Hydraulic Fracturing on Spill Frequency

To ascertain any effect which hydraulic fracturing may have on the frequency of spills, we calculated the number of spills per well in every PLSS section for each year from 2006 to 2014. We first looked at spills that occurred in PLSS sections with hydraulically fractured wells, then we looked at spills in sections with conventional wells but no hydraulically fractured wells. If hydraulic fracturing leads to a greater frequency of spills, we would expect the first set of spills per well to be greater than the second set occurring only due to conventional oil production.

V. Results

A. Number and Volume of Spills

1. Number of Reported Spills

Table 6 breaks down the number of spills by the subsets of primary interest – all spills, LA County, Kern County, Kern County oil and gas production spills, and petroleum spills.

Table 6: Number of spills for LA County, Kern County, California overall, and petroleum type.

Year	California – All Spills	LA County – All Spills	Kern County – All Spills	Kern County Oil and Gas Production	Petroleum Spills
2006	6,301	952	277	131	3,607
2007	6,927	1,296	310	157	3,813
2008	7,941	1,253	317	147	4,127
2009	7,126	1,083	225	112	3,654
2010	6,863	1,094	223	136	3,646
2011	6,472	983	247	110	3,449
2012	6,794	1,039	225	93	3,584
2013	6,639	1,140	240	93	3,654
2014	6,024	977	204	71	3,387

In general, Los Angeles County has the highest number of spills each year, ranging from 1,139 to 1,538 spills per year (Table 8). The second highest spills location is San Diego County, about 545 to 909 spills per year. The number of spills occurred in Kern County ranges from 254 to 358 spills per year.

The number of spills in California each year ranges between about 6,500 and 8,000 (Table 6). On average, petroleum spills account for about half of all spills in the state each year.

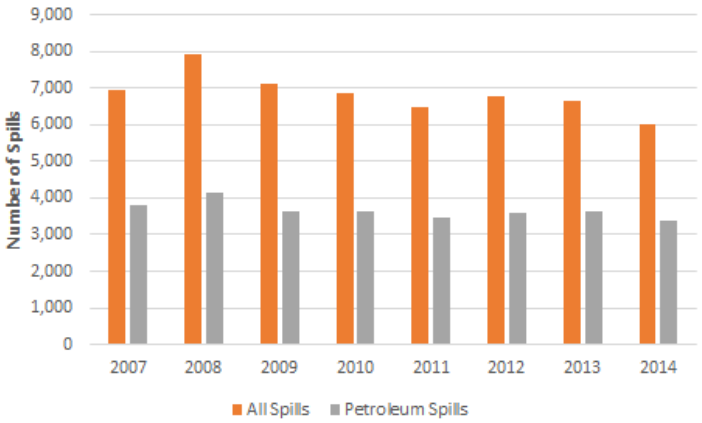


Figure 3: Number of Spills: All and Petroleum.

The number of spills in Los Angeles fluctuates over the years but shows no increasing or decreasing trend. Kern County spills have generally decreased compared to before 2008, while Kern County oil and gas spills show a fairly consistent decrease since 2008.

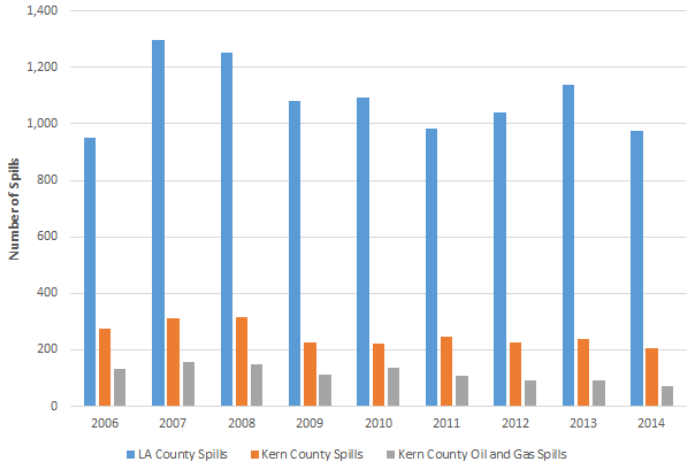


Figure 4: Number of Spills for LA County, Kern County, and Kern County Oil and Gas.

2. Annual Volumetric Analysis of Spills

The results below describe spill volume in California, Kern County, Los Angeles County, Petroleum, and Kern Oil and Gas calculations. As was mentioned in Methods, the spill volume calculations exclude vapor releases and railroad incidents.

Annual hazardous spill volume in California peaks in 2007, is fairly stable from 2008 to 2012, and rises from 2013 to 2014. The peak in 2007 is due to a spill of 160 million gallons of treated sewage at the Terminal Island wastewater treatment plant. Since this spill skewed the shape of the graph of California spill volume, it is removed in Figure 5 below.

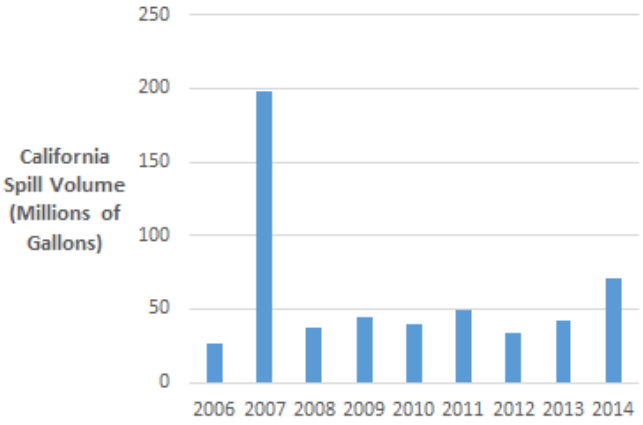


Figure 5: California Spill Volume

Kern County spill volume is fairly stable from 2007 to 2014 except for a spike in 2009 (Figure 6). This spike is primarily due to a spill of 3 million gallons of sewage.

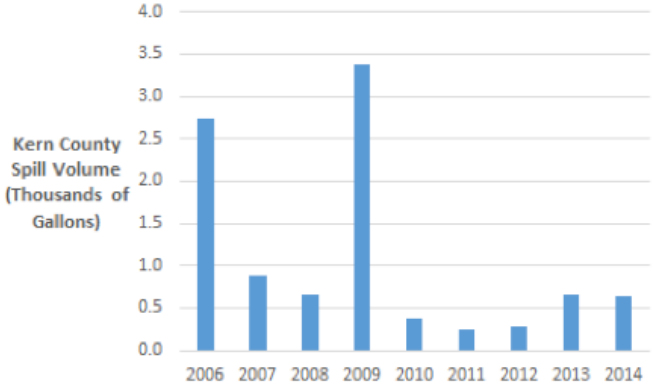


Figure 6: Kern County Spill Volume

LA County spill volume is similar to Kern County's, fairly stable with a spike in one year (Figure 7). LA spill volume also spiked in 2007 due to the large Terminal Island sewage spill seen in the California analysis, but the release is left out of this analysis so trends in LA spills can be seen more clearly. The smaller spike in LA County spill volume in 2014 is due

to spill '14-4269 of 20 million gallons of "drinking water" into Ballona Creek, reported by the LA City Watershed Protection Division.

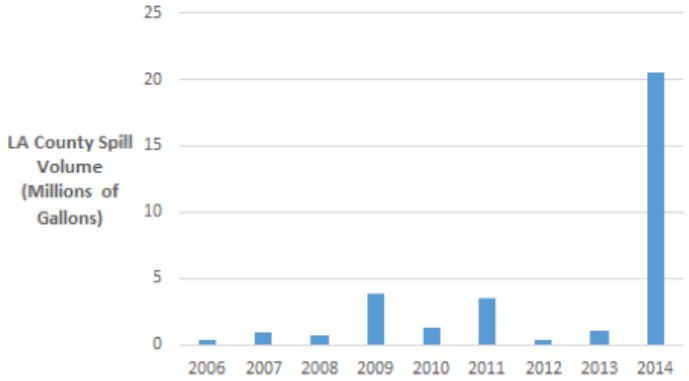


Figure 7: LA County Spill Volume

The annual volume of petroleum spilled in California exhibits a decreasing trend, falling from about 800 millions gallons in 2006 to about 500 million gallon in 2014 (Figure 8). Excluded from the calculation of petroleum spills in California is a spill of nearly 3 million gallons of kerosene in 2011. The description of this spill, number '11-5972, repeatedly refers to the spill as a "drill". During the same time period, California oil production also exhibited a downward trend.

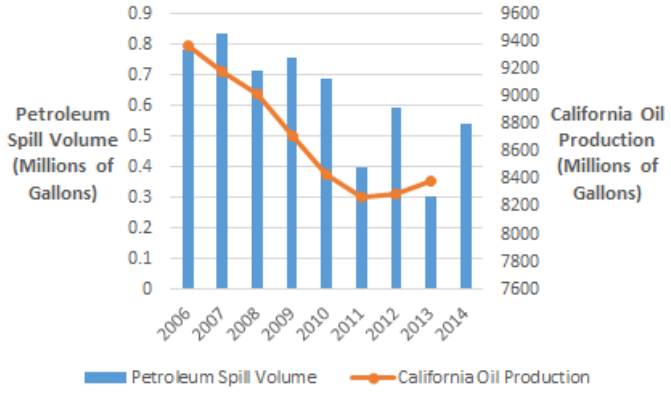


Figure 8: California Petroleum Spill Volume and California Oil Production

Oil and gas spills in Kern County for the years 2006-2014 show a general downward trend as well (Figure 9). Kern County spills predictably track the petroleum spills trend, since Kern County accounts for about 77% of the state's oil production from 2006-2013 (see section 3A).

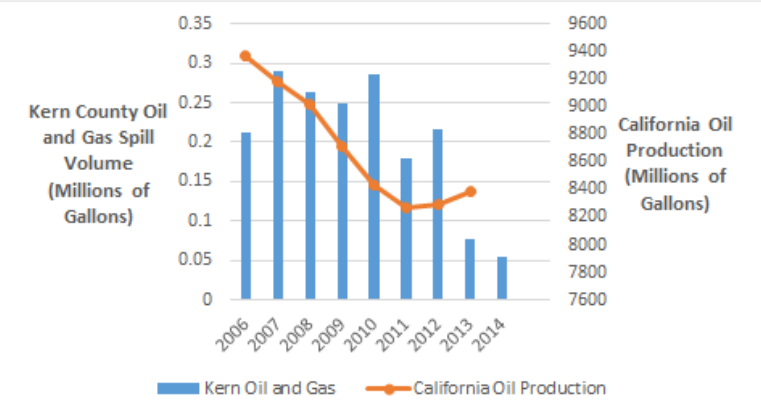


Figure 9: Kern County Oil and Gas Spills and California Oil Production

3. Statistical Distribution of Spill Volumes

Box and whisker plots of spill volume were created for all of California, Kern County, and Los Angeles County (Figures 10-12) exhibit distinct characteristics, with Kern County showing the highest median spill volume on average, followed by Los Angeles and all of California, which are very similar. Each year was also fairly consistent for all of California and Los Angeles County, with the most variation from Kern County.

The box and whiskers revealed that for all of California the median for spills from 2006-2014 stays consistent year after year. Furthermore, the plots show that there is little variation in the interquartile range. When looking at the outliers, there is one in 2007 that is higher than the rest. This is due to a large sewage spill in Los Angeles.

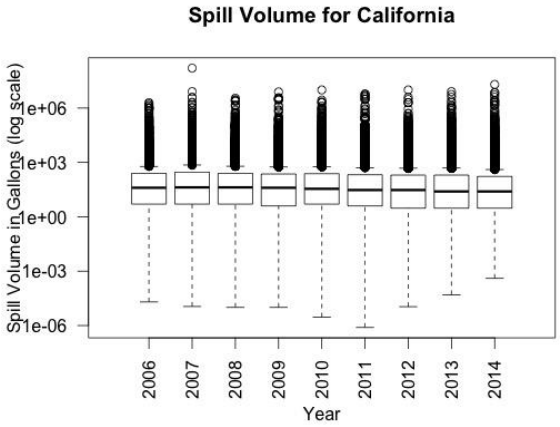


Figure 10: Box and Whisker Plot of All Spills in California

Kern County's median spill volume was higher than both LA county and California. Nevertheless, the median was still consistent for all years. However, the interquartile ranges are much higher than for all of California and for Los Angeles County. The interquartile ranges were roughly the same for all years, but did show some variation.

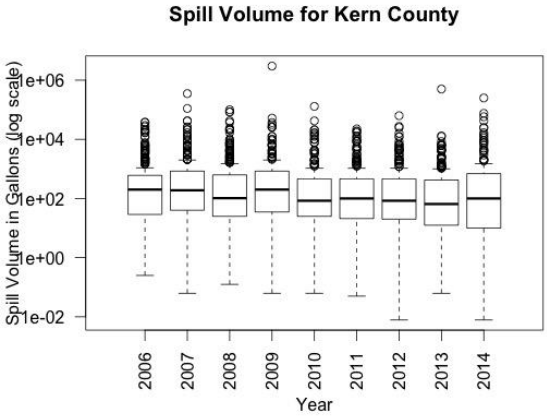


Figure 11: Box and Whisker Chart of Kern County Spill Volume

Los Angeles County's median is on a slight decreasing trend after 2007, indicating the spill volume is decreasing through time. 2007 has the highest median value and the maximum whisker length. Additionally, there is more variation in the interquartile range and the whisker lengths. The spill volume stays relatively constant throughout time.

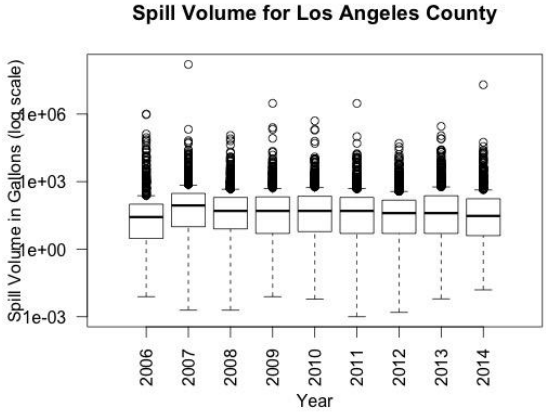


Figure 12: Box and Whisker Chart for LA County Spill Volume

B. Spill Characteristics

1. What types of hazardous materials were released?

The number of petroleum spills was greatest amongst the six categories (petroleum, sewage, chemical, other, unspecified, and radiological). Petroleum spills occurred at an average of 54% for California overall (**Figure 13**), 81% for Kern County (**Figure 14**), and 52% for Los Angeles County (**Figure 15**). The second highest category of spill by count reported for California overall and for Los Angeles County was sewage spills, followed by chemical. For Kern County the second highest category was chemical, followed by sewage.

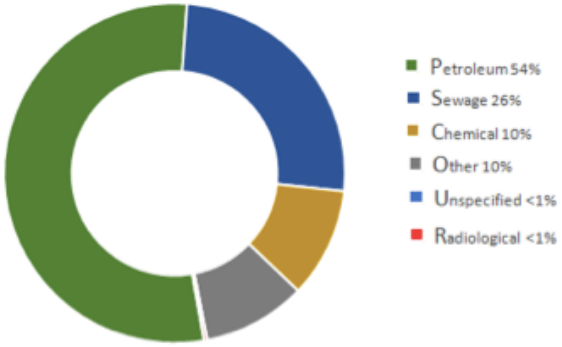


Figure 13: Average spill count by type in California (2006 - 2014)

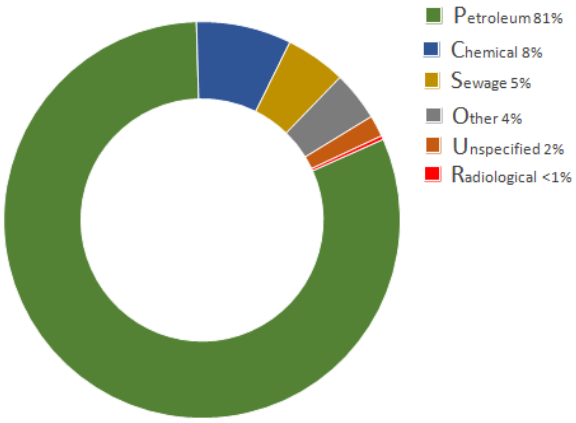


Figure 14: Average spill count by type in Kern County (2006 - 2014)

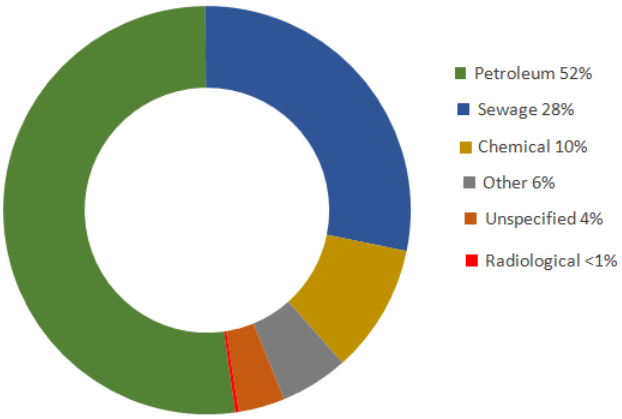


Figure 15: Average spill count by type in Los Angeles County (2006 - 2014)

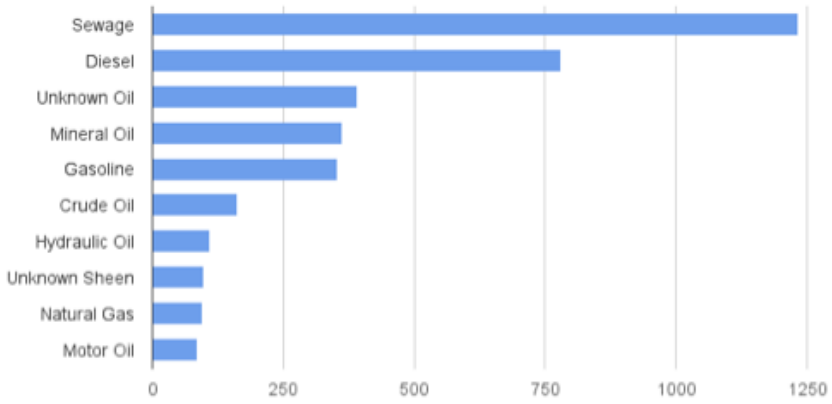


Figure 16: Most frequently reported substances by average number of spills (2006 - 2014)

The specific substance most reported in each year is sewage, followed by diesel (Figure 16). Overall, substances related to oil production have the second highest occurrence. In fact, those most frequently reported substances represent a large portion of all the hazardous materials reported. By count, on average, about 60% of reports are for a petroleum-type substance. The remaining 40% include substances with lower reported occurrences or those frequent petroleum-type substances reported using different descriptors, or both.

2. What percentage of releases were contained?

The percentage of spills that were contained after release is relatively constant from 2006 to 2014. On average, about 10% of total spills that occurred in California were reported as not contained, about 73% of total spills were contained, and about 17% were unknown.

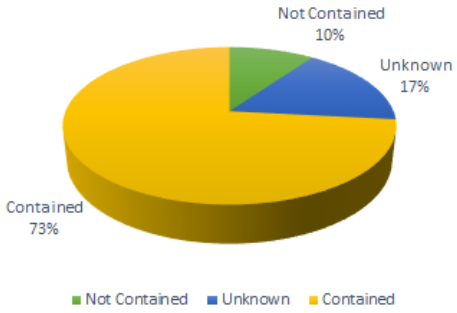


Figure 17: Percentage of spills in California by containment status as reported (2006 - 2014)

3. What percentage of releases affected waterbodies?

The percentage of releases that affected waterbodies is also relatively constant from 2006 to 2014. On average, about 37% of total spills affected water bodies (Figure 17).

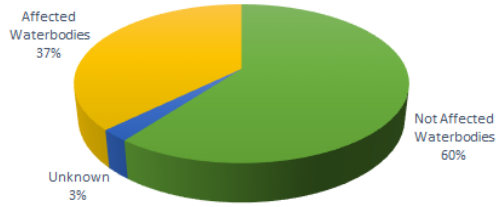


Figure 18: Average number of spills and their relation to waterbodies in California (2006 - 2014)

Of those spill that affected waterbodies, about 16% on average were not contained when reported, and about 29% have no information about containment.

4. Were there reported injuries or fatalities?

The number of injuries, fatalities, and evacuations that occurred due to hazardous spills in California was relatively consistent from 2006-2014. Some minor spikes in the data are observed, especially with the Total Evacuations line, but no discernable trend can be ascertained.

Table 7: Total counts of injuries, fatalities, and evacuations associated with spills in California and Kern County from 2006 to 2014

Location	Total Spills	Total Injuries	Total Fatalities	Total Evacuations
California	58,035	2,935	506	15,714
Kern County	2,189	137	17	611
Kern County Oil and Gas	1,213	43	3	150

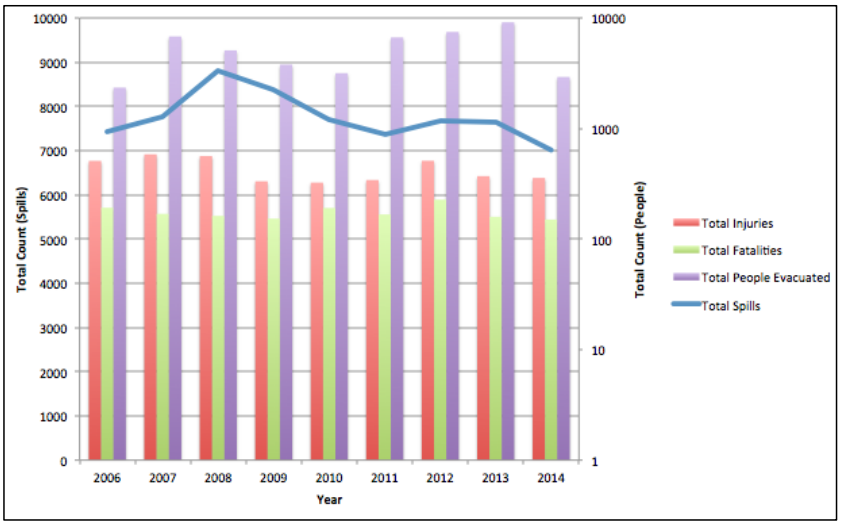


Figure 19: Injuries, fatalities, and evacuations in California from hazardous materials spills (2006 - 2014)

The number of injuries, fatalities, and evacuations that occurred due to hazardous spills in Kern County was highly variable from 2006-2014. There are major spikes in the data that do not follow any meaningful trend. This dataset has a much smaller sample size than the complete California data, so there is more volatility in the data over the years. The extreme volatility of the number of evacuations per year is generally a byproduct of one or two spills in a certain year resulting in the evacuation of 50-100 people.

Table 8: Injuries, fatalities, and evacuations in Kern County from Oil and Gas Production from 2006 – 2014.

Year	Total Spills	Total Injuries	Total Fatalities	Total People Evacuated
2006	182	2	0	0
2007	203	40	3	0
2008	171	0	0	0
2009	128	0	0	0
2010	133	0	0	0
2011	121	0	0	50
2012	95	0	0	0
2013	92	0	0	100
2014	88	1	0	0

5. Who provided clean-up services?

In California overall, 42% of spills were cleaned-up on site, usually by onsite personnel or attendants. 28% of spills were grouped as N/A, meaning these spills were either not cleaned up at the time of the call, dissipated, or a clean up was not necessary according to the reporting party. 23% of spills were cleaned by an outside contractor that could be identified as a separate entity from the responsible party. 4% of spills were cleaned by a public agency such as public works, sewer districts, or environmental health departments. The remainder of spills, less than 4%, were cleaned by the fire department, city, or county.

Table 9: Parties responsible for cleaning up hazardous releases in California (2006 – 2014)

	Onsite	N/A	Contractor	Agency	Fire Dept	City	County	Blank	Total
2012	2,894	2,053	1,420	254	100	53	23	7	6,804
2013	2,703	1,836	1,642	290	94	54	24	22	6,665
2014	2,580	1,539	1,454	274	80	67	17	13	6,024
All	8,177	5,428	4,516	818	274	174	64	42	19,493
Percent of Total	42%	28%	23%	4%	1%	1%	0.3%	0.2%	100%

C. Spatial Analysis

1. Spatial Distribution of Oil and Gas Related Spills in Kern County

Due to spill locations that were converted from PLSS to latitude and longitude, the highest spatial resolution shared by all spill and well data is approximately 1 square mile. We represented these data as PLSS sections with values for the number of overlying events. The distribution of these PLSS sections can be seen in Figures 20-22.

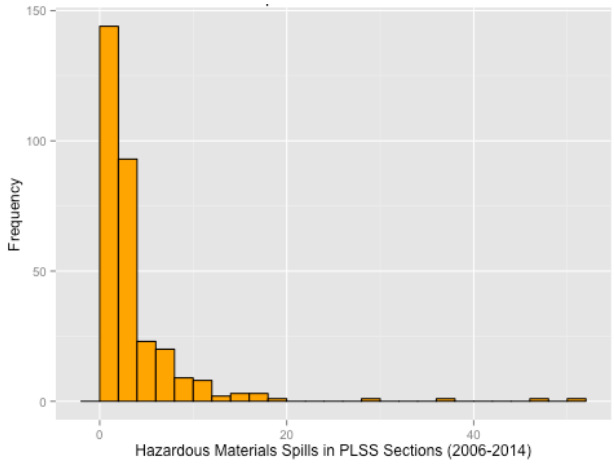


Figure 20: Distribution of hazardous material releases across Kern County PLSS sections (2006 – 2014)

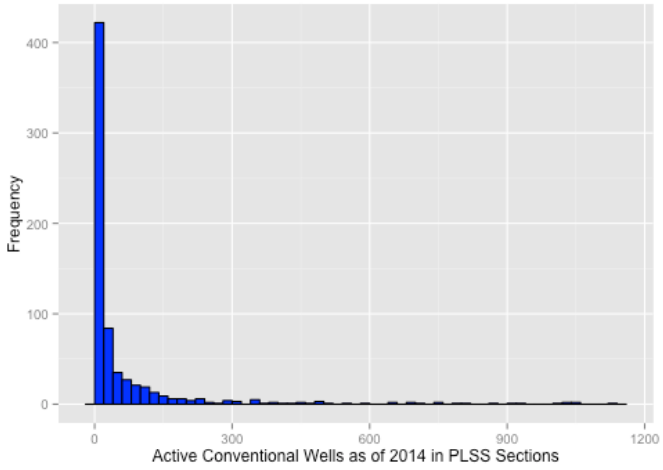


Figure 21: Distribution of convention wells across Kern County PLSS sections (2006 – 2014)

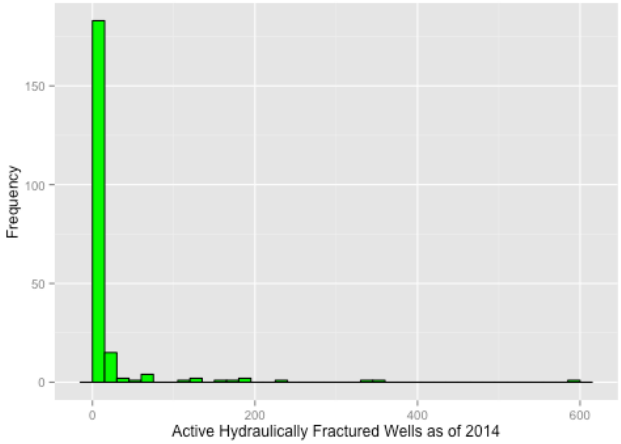


Figure 22: Distribution of hydraulically fractured wells across Kern County PLSS sections (2006 – 2014)

To maintain a scale for these histograms at which all values were visible, PLSS sections with no spills were omitted. The distribution of conventional wells, hydraulically fractured wells, and spills across PLSS sections are strongly positively skewed. This is a consequence of the spatial clustering of wells and spills – there are many PLSS sections with few or no events, and a small number of sections with a great number of clustered events.

2. Spill and Well Density

Figures 23-25 display the densities of wells and oil and gas production spills in Kern County from 2006 to 2014. The majority of wells, both conventional and hydraulically fractured, are located in the oilfields that lie in the western hills of Kern County. The rest are clustered to the north and east of Bakersfield, where several large oilfields reside. Consequently, spills related to oil and gas production are also clustered around those areas but with more sporadic, non-clustered events. This makes sense given that wells are intentionally placed on oilfields and tend to cluster on productive geology, whereas spills are unplanned. Visualizing spill and well density uncovered a number of sites with intensely frequent spills and well activity.

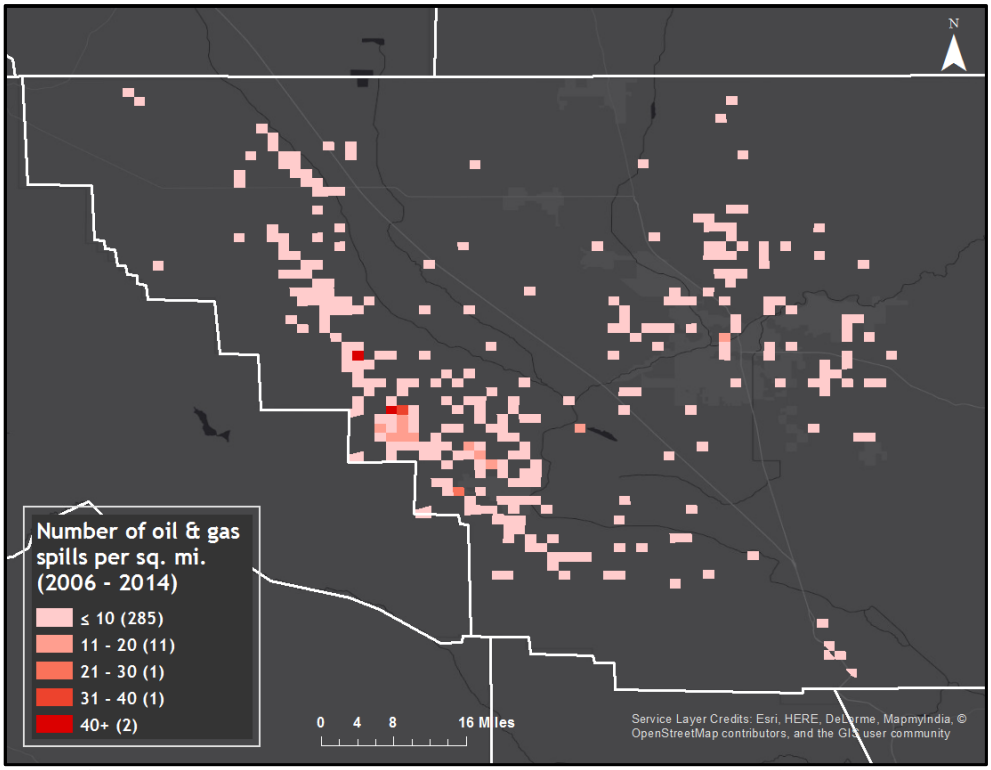


Figure 23: Density map of all hazardous material spills from oil and gas production in Kern County per PLSS section, roughly one square mile. The value assigned to the sections corresponds to the number of all overlying spills that occurred during the study period from 2006 to 2014.

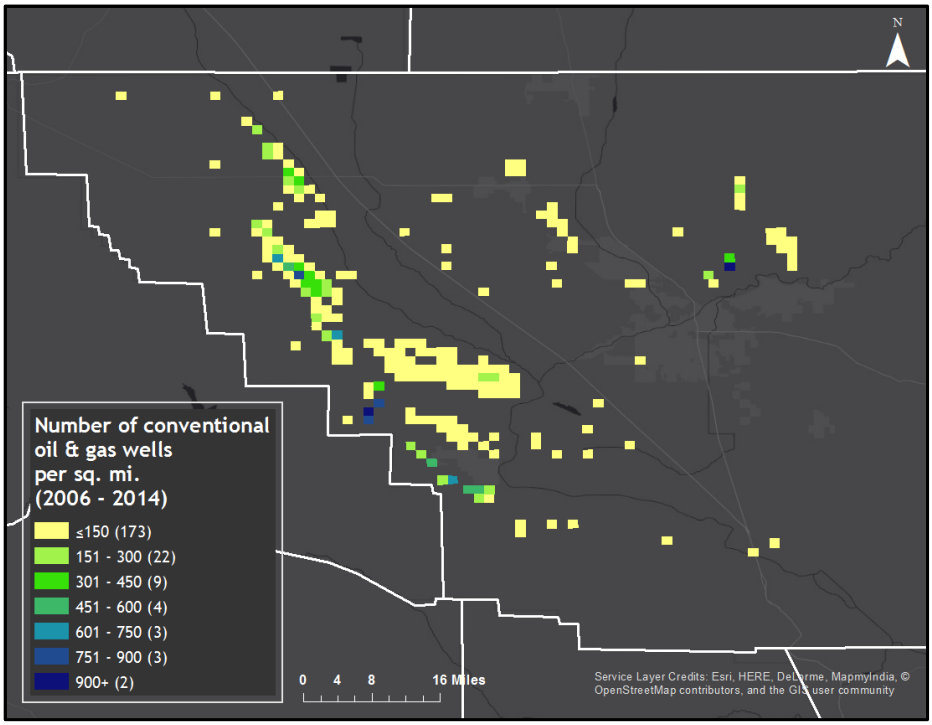


Figure 24: Density map of all conventional oil and gas wells in Kern County per PLSS section, roughly one square mile. The value assigned to the sections corresponds to the number of all overlying active conventional wells as of 2014.

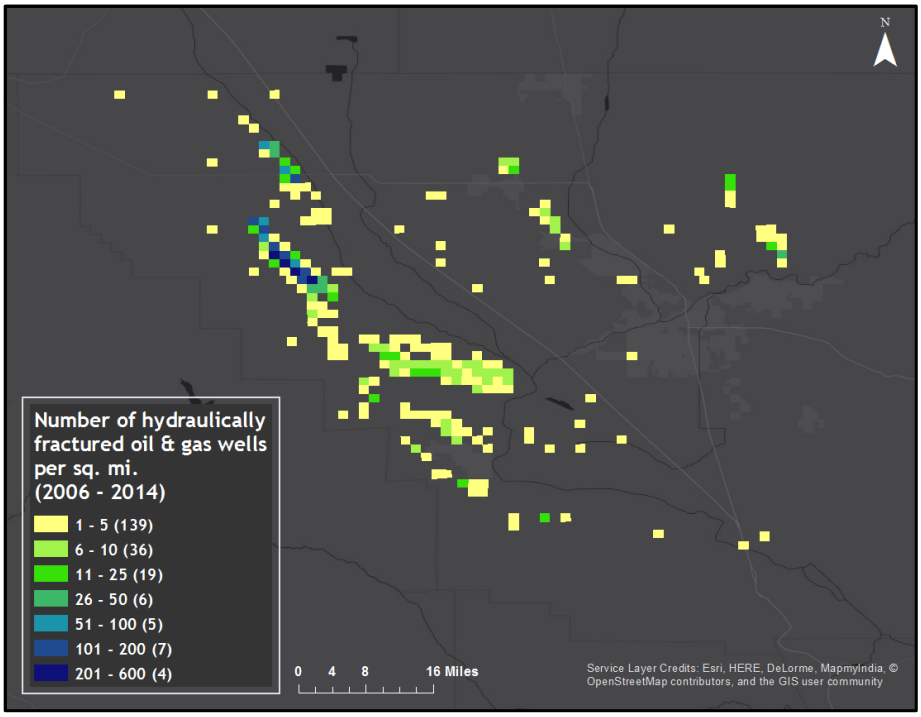


Figure 25: Density map of all hydraulically fractured oil and gas wells in Kern County per PLSS section, roughly one square mile. The value assigned to the sections corresponds to the number of all overlying active hydraulically fractured wells as of 2014.

3. Land Use Analysis

Land designated for human habitation contained 226 conventional wells, 1 hydraulically fractured well, and witnessed 52 spills related to oil and gas production from 2006 to 2014. The overwhelming number of wells and spills were sited on land that was designated by the City of Bakersfield and the County of Kern as agricultural.

Table 10: Land use designations for spills and wells in Kern County (2006 - 2014)

Land Use Type	Number of conventional wells (2006 – 2014)	Number of hydraulically fractured wells (2006 – 2014)	Number of spills (2006 – 2014)
Agriculture	56480	3894	972
Mineral Petroleum	0	0	19
Resource Management Area	3402	22	57
Heavy Industrial	632	0	38
Light Industrial	314	1	9
Service Industrial	242	1	16
Parks and Rec	298	0	1
Low Density	105	2	21

Residential			
Rural Residential	49	0	0
Mobile Home	2	0	0
Suburban	90	0	21
Estate	50	0	6
General Commercial	48	0	27
Medium Density Residential	30	0	0
Special Use	23	0	0
Other Jurisdiction	13	0	0
Publicly Owned	11	0	2
Open Space	1	0	0
School	1	0	0
Public Transit Corridor	0	0	3
Recreation Forestry	0	0	3
Urban	0	0	3
Slopes >30%	0	0	2

D. Spills from Conventional and Unconventional Oil and Gas Production

1. Spill volume per unit production in Los Angeles and Kern Counties

Kern County has a higher volume of oil production-related spills per unit of oil produced than Los Angeles County, with 3 gallons of oil spilled per 100,000 gallons of oil produced compared to 2 gallons , respectively. However, other counties such as Santa Barbara and Ventura County exhibit much higher ratios although they contribute less oil production to the state overall. Santa Barbara County has a ratio almost 4 times greater than Kern's, at 11 gallons spilled per 100,000 gallons of oil produced in the county (Table 11).

Table 11: Oil production-related spills per unit of oil produced in the four most productive counties in California

	California	Kern County	LA County	Ventura County	Santa Barbara County
Average Annual Oil Field Spill Volume (gallons)	308,700	217,000	23,600	25,000	13,700
Average Annual Oil Production (Hundreds of thousands of gallons)	87,060	65,830	10,480	3,000	1,290
Oil Spill Density (per every 100,000 gallons of production)	3.5	3.3	2.3	8.3	10.6

2. Effect of Hydraulic Fracturing on Spill Frequency

Table 12 displays the median and average number of spills per well for two sets of PLSS sections – those with hydraulically fractured wells, and those with only conventional wells. The median number of spills per well for each PLSS section is the same for sections with hydraulically fractured wells as it is for those with only conventional wells. The average number of spills per well also does not show an appreciable difference between the two sets of PLSS sections.

Table 12: Average ratio of spills per well for two sets of 1 sq. mi. PLSS sections – those with hydraulically fractured wells, and those with conventional wells but no hydraulically fractured wells.

	Spills per well in PLSS sections with hydraulically fractured wells	Spills per well in PLSS sections with conventional wells but no hydraulically fractured wells
2006	1.69	1.69
2007	6.76	2.14
2008	3.76	3.99
2009	0.78	1.60
2010	7.81	11.26
2011	0.29	1.34
2012	5.33	7.63
2013	0.22	0.25
2014	0.86	0.36
Median	1.69	1.69
Average	3.05	3.36

Our analysis of spill volume per spill for each set of PLSS sections yielded similar results, with slightly lower average spill volume for PLSS sections with hydraulically fractured wells (Table 13).

Table 13: Average ratio of spill volume per spill for two sets of 1 sq. mi. PLSS sections – those with hydraulically fractured wells, and those with conventional wells but no hydraulically fractured wells.

	Average volume per spill in PLSS sections with hydraulically fractured wells (gallons)	Average volume per spill in PLSS sections with conventional wells but no hydraulically fractured wells (gallons)

2006	1361.7	770.3
2007	1777.8	2027.6
2008	2302.5	1556.5
2009	4599.6	1457.4
2010	3664.4	8826.1
2011	2008.2	1233.2
2012	2048.7	4741.0
2013	1476.3	578.9
2014	1542.7	549.5
Average	2309.1	2415.7

VI. Discussion and Conclusions

NRDC proposed eleven research questions for our project, including: the total number and volume of releases reported annually in California, differences in characteristics between unconventional and conventional oil and gas production operations, and seven different general characteristics of hazardous spills including substance, health and environmental effects, location, site characteristics, containment, water body impacts, injuries or fatalities, and clean-up services. The last research objective was to provide conclusions and recommendations to reduce the frequency and severity of spills in California's oil and gas industry.

In general, we were able to definitively answer several questions about spill number, volume, and characteristics. The annual number of spills for all spills, petroleum spills, and LA County spills stays fairly constant throughout the study period. The number of spills for Kern County and Kern County oil and gas, however, decreases over the study period. Likewise, annual spill volume in Kern County and for Kern oil and gas spills is decreasing, mirroring the decrease in California oil production from 207 million barrels in 2009 to 199 million barrels in 2013 (California 2013 Annual Report). The volume of petroleum spills is also decreasing with time, although the number of petroleum spills stays roughly constant.

It is interesting that the number of petroleum spills does not decrease with time but the number of Kern County spills does. This could be due to the fact that petroleum spills also result from highway crashes, spills at gas stations, pipeline leaks, etc. Thus, the petroleum spill and volume analyses do not necessarily imply similar results for oil and gas production.

Our team was also asked to discern any difference in characteristics between conventional and unconventional oil and gas production. Because we were unable to associate specific spills with either mode of production-- no distinction was made in the database-- and the spatial resolution of geocoded spills was limited to one square mile, we were unable to answer this question. A lack of comprehensive data on the year in which wells were drilled also made it difficult for the team to attribute spills in certain years to certain wells.

The database did allow us to answer many questions on spill characteristics. Broadly, about half of all spills are of a petroleum substance, followed by about a quarter of sewage. Looking more closely at spill substance, we found that petroleum spills are heavily split between substances such as diesel, motor oil, or "unknown" oil.

The county with the highest annual number of releases is Los Angeles, followed by San Diego and San Bernardino. Kern County is the seventh highest county in terms of annual spill count.

73% of spills were contained, although it is unclear what exactly that may mean. It is unknown whether the 10% of spills not contained and the 17% unknown were contained after the call or simply were released into the environment without clean-up efforts. When spills were cleaned, efforts were mostly undertaken on-site by the responsible party or not at all, indicating that most spills are smaller in nature and do not require the assistance of the city, county, local government agency, or the fire department.

Our analysis of injuries and fatalities indicates that these spill events are significant and likely disruptive to businesses and local economies, since from 2006-2014 there were a total 15,714 evacuations.

We were not able to answer the questions of spill characteristics that related to health and environmental effects and site characteristics. The spills reported to the database are highly variable, thus it is difficult to predict what kinds of sites are prone to spills or to sum up the wide variety of health and environmental risks that may result from California's hazardous material releases.

An overall conclusion resulting from our study process is that the CA OES data format is incomplete, disorganized, and difficult to analyze effectively. The numerous entries of "unknown" or "N/A" indicate a lack of follow-up data entry. Although follow-up reports are required to be sent to CEPRC, these reports are apparently not coordinated with OES data collection and are not publicly available in an aggregate form. Further, a more user-friendly reporting process, such as online submittal or a mobile application, may fix some of these issues by allowing for more accurate location and substance data.

Similarly, we conclude that more user-friendly DOGGR well data could allow for a more conclusive study on the connection between unconventional oil and gas production and hazardous spills. The team acknowledges the budgetary barriers to modifying the DOGGR website to allow users to download data on specific wells across the state. However, we hope that at least new regulations under SB4 on fracking disclosure will allow for more transparent well locations in the future.

Last, our understanding of spill reporting requirements indicates that the higher spill frequency in Santa Barbara and Ventura Counties may be due to releases entering water and thus forcing the responsible parties to report, even if a spill is under the required reporting threshold. 59% of spills in Santa Barbara affected water, and if these spills had large enough volumes, spill volume per oil production could be affected. Another potential explanation for this pattern is that Kern and LA counties, being the top two oil-producing locations in the state, are more experienced in oil production so as to lower incidents and releases as barrels of production increase.

VII. Recommendations

A. The California Office of Emergency Services (Cal OES)

Compared to the call center currently used to report spills, an online reporting system might be more efficient for both Cal OES and response parties. Instead of doing the calling, people can simply report a spill by filling an online form. In order to make the reporting process more convenient, we suggest designing a mobile application as well.

When reporting the spilled substance, there should be a drop down list for the reporter to choose from in order to avoid the problem of one substance reported in multiple ways. One major reason for one substance reported in multiple ways is the lack of standardization of substance names. For example, hydraulic oil can be reported as

"hydraulic fuel" or "oil - hydraulic type". This can be solved if the drop down list is better constructed and adding searching functions when choosing the substance. Another reason for one substance reported in multiple ways is that people try to add the details of the substances when they report it. For example, diesel can be reported as "diesel, unleaded" or "#2 diesel". Instead of putting these details into the substance name, the new reporting system should allow people to add details of a substance in another field after they choose it from the drop down list.

One major obstacle we encountered when doing the spatial analysis was the inaccuracy of the spill location, especially those spills reported with township and range, because this has extremely low spatial resolution (one square mile). Therefore, it is recommended to require reporting of the well number (where applicable) as well as latitude and longitude. That is another important reason for using an mobile application since it is much easier to report one's latitude and longitude using a smartphone.

Moreover, too many of the database's fields are listed as "unknown" when describing the material, the amount released or clean-up methods. It is possible that sometimes the caller is unsure about the spill volume and doesn't know who is responsible for the cleanup, but this information needs to eventually be provided. There should be a follow-up requirement, especially for spills over threshold volume (e.g. oil spills over 42 gallons). to provide the data initially missing, thereby improving the completeness and utility of the database.

Finally, CA OES should produce an annual report of hazardous material spills and make it publically available. Currently, this information is not being disseminated or discussed.

B. The California Division of Oil, Gas, and Geothermal Resources (DOGGR)

Any robust analysis of well activity in California is severely limited by the data made available through DOGGR. Although the AllWells database included comprehensive identifying information for each well, like API number, operator, and spud date (when drilling begins on a well), there is no production information, drilling completion date, and the vast majority of abandonment dates are left blank. This information exists on DOGGR Well Finder, but the configuration of that database is such that users must click on wells individually in the interactive map to access information. Both our research and the SB 4 interim report conducted by CCST found that accessing this information in any large quantity was impossible. So that their data is useful to interested parties, we recommend that DOGGR allow users to download this information in bulk. To reduce downloads to a reasonable size while still encouraging bulk download for holistic research, DOGGR could restrict bulk download to individual oil fields or survey townships.

VII. Appendices

Appendix A:

Cal OES updated spills notification database:

http://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting

Appendix B:

Formatting changes to spill quantity.

- Taking the midpoint of any quantities given in range format, such as 10-20 (changed to 15) or Apr-5 (actually Excel mis-formatting for 4-5, changed to 4.5)
- Taking the midpoint of any "less than" quantities (Less than 100 changed to 50)
- Making conversions where possible, such as changing 100 cubic yards to cubic feet
- Making positive any negative quantities
- Some quantities had to be thrown out, such as "more than" quantities, unknown quantities, sheen, time dependent values such as gallons per minute, concentrations, such as parts per million, or estimations such as "a drop" or "several thousand".

Appendix C:

Determining the party responsible for spill cleanups.

- N/A: entries including "n/a", "no", "not necessary", "substance dissipated", etc
- Onsite: entries including "onsite", "personnel", "attendant onsite", etc
- Contractor: entries including the keyword "contractor" or the name of a confirmed environmental contractor
- Public Agency: entries including public works, sewer districts, environmental health departments
- Fire Department: City or County fire department
- Private Company: A private entity cleaned the spill, aside from a private contractor, such as "Chevron" or "SoCal Gas"
- Other: entries that did not fall into any of the above category, less than 10 per year

Appendix D:

EarthPoint PLSS Conversion service used to get the latitude and longitude for Kern County oil and gas production releases that were reported as township and range.

http://www.earthpoint.us/TownshipsSearchByDescription.aspx

Appendix E:

Extended background research.

I. Introduction

In recent years there has been a rapid development of well stimulation treatment (WST) technologies such as hydraulic fracturing, acid fracturing, and matrix acidizing within the United States (Long et al, 2015). In California, for more than 30 years, oil and gas companies have utilized WSTs as production stimulation methods to increase recovery of conventional oil and natural gas reservoirs (Long et al., 2015). An independent assessment by the Lawrence Berkeley National Laboratory on the subject of WSTs found that, in the last decade, this unconventional oil production method has grown to about one fifth of total production in the state (Long et al, 2015).This assessment found that operators have used hydraulic fracturing on 125 to 175 wells out of the approximately 300 wells drilled each month in California. The independent assessment also concludes that almost all hydraulic fracturing in California occurs primarily in the fields of the San Joaquin Basin, particularly in Kern County, where oil is the primary resource obtained.

Of particular importance to this literature review is a 2014 study conducted by *EnergyWire* (Soraghan, 2014) that found that, although drilling activity decreased in 2013 across the country, the number of spills at oil and gas production sites increased by about 17%. This study determined that the combined volume of spills in 2013 included more than 26 million gallons of oil, hydraulic fracturing fluid, wastewater, and other miscellaneous fluids, all of which are dangerous to humans, animals, and the environment. Although the study states that the increase in spills may be caused by changes in reporting practices, such as lower spill reporting thresholds, there has been no quantitative examination of the cause for the increase in spills. Therefore, an analysis of the relationship between unconventional oil and gas production technologies and the increased frequency of hazardous material gas spills is urgently required.

Our research will attempt to address this need. [for your final paper, this is where you would expand to include an overview of the entire report, but this is fine for now] After reading this literature review, the reader should better understand (1) how conventional and unconventional oil and gas production processes differ, (2) the potential environmental and public health risks are of both types of production, and (3) the regulatory landscape of oil and gas production and hazardous material spills in California.

II. Traditional Oil and Gas Production

A. Production Process

Once an oil or natural gas reserve is identified, the process of preparing the land for production begins. First, the land must be researched to compile an environmental impact assessment. To prepare the location for drilling to commence, the area must be cleared and

leveled to accommodate the drilling platform. In remote regions, access roads will be constructed (Freudenrich, 2010).

Once the land is ready, drilling can begin. To start the drilling, first a large shallow hole is constructed and lined with a conductor pipe (Freudenrich, 2010). There are seven primary components to an oilrig. The power system includes a powerful engine to provide the power for drilling. The mechanical aspect of the rig is made up of a hoisting apparatus and a turntable. The mechanism that enables rotary drilling is composed of a swivel, Kelly (polygonal tubing), turntable, drill pipe, drill collars, and drill bits. Casings provide structural support for the well. The circulation system of the rig pumps the drilling slurry into the earth at strong pressures. The derrick is the most visually recognizable aspect of the oilrig apparatus. This structure is the tall support structure that can be seen for a distance. To prevent hazards, blowout preventers mitigate pressure buildups that can lead to spills (Freudenrich, 2010)

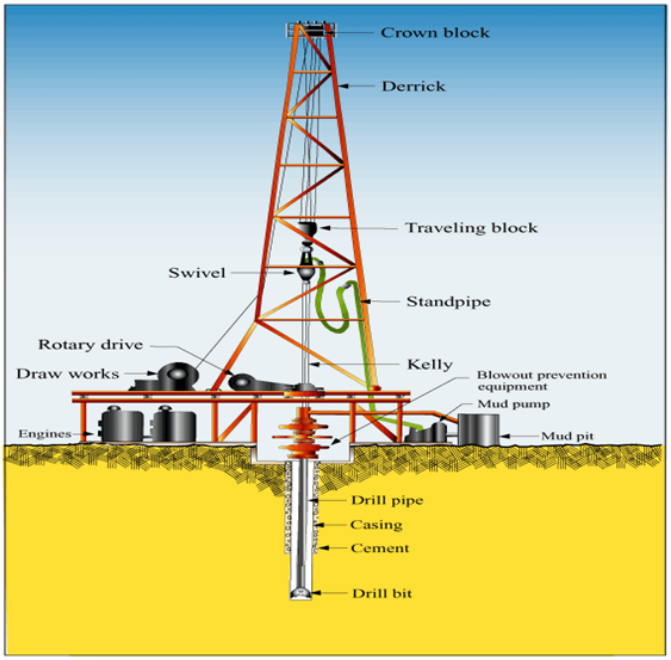


Figure 1: Oil Right Anatomy. (Source: California Department of Conservation, 2013).

Once this rig is constructed, drilling begins. Operators drill to a depth known to be above the depth that oil is expected. Once this depth is reached, cement casings are installed in the well hole to provide structural support for the system. From here on, drilling is done incrementally. Operators drill, then reinforce, then drill, and so on until they reach the oil reserves (Borchart, 1989). Once the well casing is in place, oil flow can be established through the rig. This is achieved by using a device called a perforating gun to create holes, which allow oil to flow into the well casing (Borchart, 1989). Tubing is lowered into the

well to bring oil and gas to the earth's surface. To initiate the flow of oil or gas through the well, a perforating gun is lowered into the depths of the well and used to puncture holes in the well walls. This gun often uses high-pressure gas or fires some sort of projectile to perform this function (Borchart, 1989). With the oil flowing, the oilrig is removed and the extraction process beings.

With the removal of the oilrig, a pump is installed on the well. This pump has a lever that is driven by an electric motor. The pump brings oil up the well by creating suction. In cases where the oil is too thick to pump up the well by these means, a process called enhanced oil recovery is applied. Enhanced oil recovery may be able to assist in the capture of 20-40% of the reservoir's original capacity (U.S. Department of Energy, 2015). In this process, a second hole is drilled into the same oil reserve. Steam is injected into this hole, which loosens the thick oil making it less viscous and freer flowing up the well (Freudenrich, 2010). Gas injections are sometimes used to assist in pushing the oil to the Earth's surface.

B. Chemicals Used

There are a multitude of chemicals used in the process of traditional oil and gas production. Over the lifetime of an average oil or gas production well, hundreds of different chemicals will have been injected. There are four primary chemical classes used in the oil and gas production industry, seen below in Table 1.

Drilling Completion Fluid Additives, commonly referred to as drilling muds, serve the purpose in assisting the drill bit in performing its duty. These chemicals lubricate and cool the drill bit. By doing so, drilling can be faster, safer, and reach greater depths. (Borchart, 1989)

Cementing additives are used in the cement slurry used to make the well walls. These chemicals serve the primary purpose of controlling the amount of time the cement takes to set and the strength of the cement once it is set. The cement casing must be capable of sustaining immense pressure along with a great amount of wear and tear over the lifetime of the well (Borchart, 1989). These cement additives are intended to make the well more durable, enabling the cement to survive against corrosion and other natural occurring phenomenon that can damage the well structure over time.

Completion Fluids are used in the final stages of preparing the well for production and continue to be used throughout the well's lifespan. Their first function is assisting the perforating tool in penetrating the well wall in a controlled and effective way. Once this is complete, different chemicals are used during the extraction of oil and gas. These chemicals serve a wide variety of purposes, including reducing loss of fluids, altering viscosity of the product, and maintaining the well in working condition. (Borchart, 1989)

Table 1: Chemicals used at oilfield well sites (Source: Ailey, Clouse, Hill, 1997)

Drilling Completion Fluid Additives	Cementing Additives	Stimulation Fluid Additives	Production Chemicals
Deflocculants	Accelerators	Bactericides	Bactericides
Defoamers/Foamers	Dispersants	Breakers	Demulsifiers

Fluid-loss reducers	Extenders	Clay stabilizers	Gels
Lubricants	Fluid-loss reducers	Corrosion inhibitors	Inhibitors
pH controllers	Gas migration controllers	Crosslinkers	Oxygen Scavengers
Pipe-freeing agents	Retarders	Diverting agents	Surfactants
Polymeric viscosifiers	Spacers and chemical washes	Fluid-loss reducers	
Shale inhibitors		Mutual solvents	
Specialty Salts		pH controllers	
Surfactants		Polymeric viscosifiers	

C. Potential Pollution Pathways

There are a variety of negative environmental effects that come as a byproduct of the normal process of drilling, extracting, transporting refining, and using these resources (Soraghan, 2014). However, for the sake of this study, it is relevant for us to focus only on the pollution that can occur on oil fields as a result of oil and gas production. These oil and gas reserves are under severely pressurized conditions, so once drilling reaches the reserve these substances can escape their previous confinement with great force.

In the event of an abnormal event at an oil or natural gas extraction site, catastrophic effects to the environment may be incurred. Despite improved technology in drilling and extraction techniques, spills do still occur. Regions exposed to major oil spills have historically taken a great period of time to recover (Office of Indian Energy and Economic Development, 2015). In the case of oil spills, there are a few natural processes that work to rid the area of the spilled material. Firstly, some evaporation of hydrocarbons with low boiling points occurs over the course of a few months. Similarly, dissolution of hydrocarbons also targets the molecules with low boiling points. Dissolution is an extremely slow process, though. Biochemical degradation of the spill is dependent upon the presence of proper nutrients to support the necessary plant or bacterial organisms. If these nutrients are present, this process can occur very quickly (Blumer, Ehrhardt, and Jones, 1973). The Office of Response and Restoration is responsible for responding to hazardous materials spills. Under the National Contingency Plan, the National Oceanic and Atmospheric Administration is charged with providing scientific support for spills. Implications of oil spills linger for many years and have irreversible effects on the environment. (U.S. Environmental Protection Agency, 2014b)

III. Non-Traditional Oil and Gas Production: Well Stimulation Treatments

A. Production Process

Hydraulic fracturing, often called "fracking", is a well stimulation process used to extract oil and natural gas from reservoir rocks of low permeability, usually fine-grained sandstones and shales (FracFocus, 2015a). In hydraulic fracturing, large amounts of water and chemical additives are injected into a well at high pressures to fracture the rock formation and allow for extraction of the trapped hydrocarbons. These rock formations lay thousands of feet below the water table (Halliburton, 2015). The amount of water used can vary from 50,000 - 350,000 gallons for tight formations and up to 5 million gallons for shale formations (EPA, 2012b). Once the rock is fractured, the pressure between the petroleum-bearing rock pores and the wellbore must be equalized, so proppants such as sand or ceramic beads are pumped in to prop fractures open and allow for oil or gas to flow up the well (Daneshy, 2010).

After hydraulic fracturing has occurred but before production begins (i.e. before oil or gas begins flowing through the well), fracturing fluid may return through the wellbore to the surface as flowback water which is then stored and reused in other drilling operations. However, up to 90% of fracking fluid may remain underground (Lutz et al., 2013). After production has begun, "produced water", which has had contact with oil and gas, returns to the surface (Geological Society of America, 2015; EPA, 2012b).

California's largest shale plays are the Monterey and Monterey-Temblor formations. These make up an active drilling area of 1,752 square miles across the San Joaquin and Los Angeles basins. Based on available well data, an estimated 100 to 150 wells per month are hydraulically fractured in California, mostly for heavy crude oil (Jordan et al., 2014). Some wells are stimulated using acidization in which acids, generally hydrochloric (HCl) or hydrofluoric (HF), are injected into wells to dissolve rocks and permit access to oil and gas reserves (Jordan et al, 2014). Currently, acidizing occurs about 10% as often as fracking in California, and like fracking, is concentrated almost entirely in the San Joaquin Basin. Most experts do not foresee acidizing becoming a significant WST in California on par with fracking, mainly due to the lack of carbonate reservoirs in which acidizing is most effective (Jordan et al., 2014). For this reason, the literature review will focus mostly on the environmental hazards of hydraulic fracturing which accounts for about 20% of oil production in California (California Council on Science and Technology, 2015).

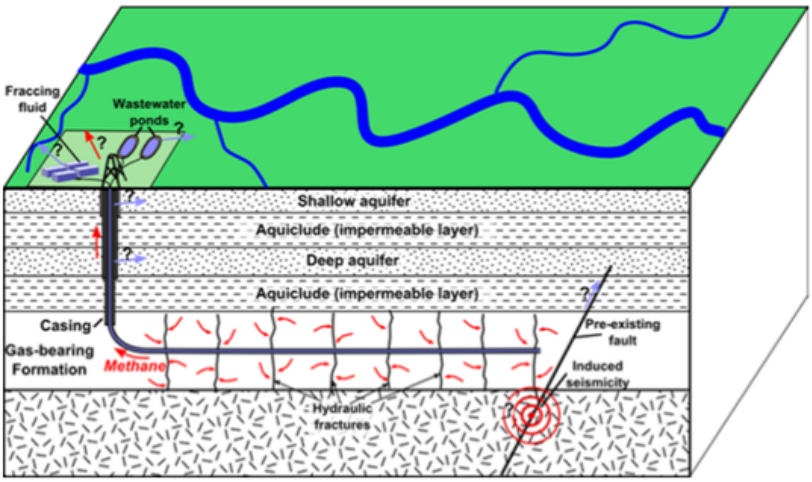


Figure 2: Potential pathways for fluid migration in horizontal hydraulic fracturing well (Source: Geological Society of America, 2015).

B. Chemicals Used

Although water comprises over 99% of fracking fluid by weight, a variety of chemicals are also used. The composition of fracking fluid is adapted to the requirements of each well. Common components include acids to dissolve material and reduce clogging, friction reducers, and surfactants to improve flow through pipes (Colborn et al, 2011).

In 2011 the Congressional Committee on Energy and Commerce conducted a study on chemicals in hydraulic fracturing products. The committee sent letters to 14 oil and gas companies asking for the chemical content of their fluid between 2005 and 2009. They received a list of 2500 products and 750 chemicals used by 14 companies (Waxman, 2011). Ingredients ranged from salt and citric acid, to instant coffee and walnut hulls, to the very toxic chemicals benzene and lead. The most widely used chemical was methanol (found in 342 products), followed by isopropyl alcohol (274 products), 2-butoxyethanol (126 products) and ethylene glycol (119 products). BTEX chemicals (benzene, toluene, ethylbenzene, and xylene) were found in 60 products (Waxman, 2011). Twenty-nine of the reported products were known or possible carcinogens, regulated contaminants under the Safe Drinking Water Act, or hazardous air pollutants under the Clean Air Act. Additionally, many unconventional oil and gas operators use proprietary chemicals in their fracking fluids. These "trade secret" chemicals are protected from disclosure (Waxman, 2011).

When flowback water returns to the surface, it is made up mostly of the original fluid and chemical mix with a salinity content that increases as a function of time since initial injection. Produced water, on the other hand, contains hydrocarbons as well as naturally occurring chemicals from within the rock formations. These chemicals typically include hyper saline reservoir water, oil and other hydrocarbons, and toxic elements like radium, barium and strontium. All of these chemical characteristics vary with the geology of the exploited formation (Vengosh et al., 2014).

Due to the overlap of many chemicals used in both processes, it is difficult to differentiate between spills and contamination from traditional oil and gas operations and those from WSTs. However, efforts have been made to more effectively and appropriately attribute spills to WSTs, such as using boron and lithium as tracers from shale formations (Warner et al., 2014). These techniques, coupled with greater transparency for proprietary chemical disclosures, are promising advances in tracing spills and contaminant migration to unconventional oil and gas sources.

C. Pollution Pathways

In hydraulic fracturing, waste materials are generated during both the fracturing and production phases. The main areas of concern lie in pollution from aboveground spills during the handling, transport, and storage of waste and in the potential for unrecovered subsurface fracturing fluid to migrate to aquifers. Similar concerns surround the potential for groundwater contamination from natural gas leaks around fractured wells (Vengosh et al., 2014). Pollution pathways are divided into direct and indirect processes.

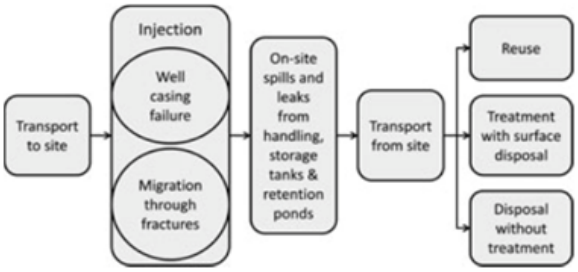


Figure 3: Potential pollution pathways for hydraulic fracturing. (Source: Rozell & Reavan, 2012)

1. Direct Pollution

Direct pollution is the (mostly subsurface) contamination of soil or groundwater resulting from high-pressure fracturing and the withdrawal of fluids and hydrocarbons. There is concern that the high-pressure fracturing process can create pathways for fracking fluid and hydrocarbons, especially methane, to migrate into aquifers used for drinking water and irrigation.

Well-casing failures represent another subsurface pollution pathway. The wellbore for hydraulic fracturing consists of multiple concentric steel tubes surrounded by cement for multiple layers of protection against leakage (FracFocus, 2015b). The outer cement layer is often the weakest link in a fracking wellbore, with as much as 10 - 50% of shale wells in parts of Pennsylvania suffering cement damage (Vengosh et al., 2014). Even without casing leaks, seal failure near the mouth of the wellbore are common in the petroleum industry and can allow stray gases to flow up through the gaps between concentric pipes (Darrah et al., 2014). According to one estimate, the rate of seal failure is 1-3% in the Marcellus Shale (Vidic et al., 2013). Consistent with the studies above, statistical analysis of hydraulic fracturing contamination events suggests that well failure, not high-pressure fracturing, causes most groundwater pollution (Darrah et al., 2014).

Another study, which analyzed pollution risk using models based on best and worst case probability bounds, suggested that fluid migration through fractures is a high potential

risk, but waste disposal contamination risk is several orders of magnitude larger (Rozell et al., 2012). In nearly all studies of this kind, uncertainty over pollution pathways made it difficult to determine the degree of threat posed by fluid migration. Nearly all studies emphasize the much greater risk that mishandling, illicit dumping, and unregulated disposal of produced water waste poses to natural resources in the U.S.

2. Indirect Pollution

Indirect pollution is soil or water contamination resulting from processes related to hydraulic fracturing that occur beyond the fracturing and withdrawal process. This includes the transport, storage, and disposal of flowback and produced water.

Although hydraulic fracturing generates less wastewater than conventional methods per unit of resource produced, especially in California, proper disposal of produced water from unconventional oil and gas operations is a serious environmental concern (Lutz et al., 2013). According to an EPA study, the most common disposal process for hydraulic fracturing waste involves separating fracturing fluids from the recovered oil and gas, pumping it into trucks, treating it to proper disposal standards at a plant, and injecting it into wells (California Research Bureau, 2014). Every step of this process presents a possible pollution pathway for produced water. Wastewater treatment facilities are sometimes used for disposal, but are often unable to completely remove the radioactive elements and total dissolved solids (TDS) that produced water carries (Lutz et al., 2013). Because of this, between 95-98% of wastewater from fracking in the US is injected into Safe Drinking water Act (SDWA) Class II underground injection control (UIC) wells (see section Oil and Gas Regulations) (Lutz et al., 2013).

Offsite commercial disposal is used mostly by small operators for whom building, running, and closing an onsite disposal facility is not economically feasible (Argonne, 2009). In California, the water that is not injected underground is mostly disposed of through settling ponds or is treated for beneficial reuse, such as agriculture (Argonne, 2009). In Kern County, increased scrutiny has fallen on the use of unlined ponds for produced water disposal. Several studies, including one in 2014 by Clean Water Action, demonstrated that waste in unlined pits near McKittrick, CA migrated into wells used for irrigation and drinking water (Clean Water Action, 2014).

IV. Public Health and Environmental Effects of Well Stimulation Treatments

A. Water Pollution:

This review looked for instances of the release of chemicals from fracturing operations into water resources via the pathways previously discussed. Excluded were studies on the disposal of treated hydraulic fracturing wastewater directly into surface waters, as the majority of fracturing fluid in California is disposed of via underground injection or in wastewater pits (DOGGR, 2014). The discussion below includes two studies on contamination of water resources via underground pathways, one on surface spills, and one on instances of improper underground injection disposal of hydraulic fracturing waste.

1. Indirect:

A study by Gross et al., in the *Journal of the Air and Waste Management Association* analyzed whether surface spills at hydraulic fracturing operations led to groundwater contamination, specifically of benzene, toluene, ethylbenzene, and xylene (BTEX) chemicals. The Colorado Oil and Gas Conservation Commission (COGCC) database provided data on surface spills at sites in Weld County, Colorado between July 2010 and July 2011 (Gross et al, 2013). Researchers analyzed 77 spills. Groundwater samples collected at the spill sites showed that benzene levels were 2.2 times higher, toluene levels 3.3 times higher, ethylbenzene levels 1.8 times higher, and xylene levels 3.5 times higher than groundwater samples collected outside the spill area. BTEX levels tended to decrease rapidly with time and distance from the spill site (Gross et al, 2013). However, the study serves as a demonstration of the potential of surface spills to directly affect groundwater quality.

The second study provides a recent example of mismanagement of underground fracking wastewater disposal occurred within Californian Class II injection wells. In September 2014, the State Water Board conceded to the EPA that 9 underground injection control wells injected wastewater from natural gas operations into drinking water aquifers protected under the Safe Drinking Water Act. The board tested 8 public wells within a 1 mile radius of the UIC wells in question and found that four exceeded the Maximum Contaminant Level (MCL) for nitrate, arsenic, and thallium (Bishop, 2014; Schon, 2014).

2. Direct:

A study by Fontenot et al., in *Environmental Science and Technology* looked at water quality in 100 private wells surrounding the Barnett Shale formation in North Texas. Historic levels of arsenic, nitrates and volatile organic compounds (VOCs) from the United States Geological Survey were compared to current groundwater quality in 91 wells within a 5 kilometer radius of active natural gas extraction operations, 4 wells with no active operations within a 14 kilometer radius, and 5 inactive, control wells (Fontenot et al, 2013). The results showed that mean total dissolved solids (TDS) in active extraction areas exceeded the maximum contaminant level (MCL) set by the EPA, but historical data indicated similar levels for the region. Similarly, researchers observed methanol and ethanol in samples from both the active and inactive study areas. The chemicals were not correlated with distance to the nearest gas well (Fontenot et al, 2013). The constituents found to be higher in active areas than inactive areas were arsenic, selenium, and strontium. The researchers suggest a variety of contributing factors to this contamination, including mechanical disturbances from drilling activity, reduction of the water table from groundwater withdrawals, and faulty drilling equipment and well casings (Fontenot et al, 2013).

A study by Osborn et al., in the *Proceedings of the National Academy of Science* looked at methane contamination in drinking-water wells in the Marcellus and Utica shale formations in northeastern Pennsylvania and upstate New York, comparing wells within areas of active natural gas exploration and wells in inactive areas. Of 60 wells studied, 51 showed methane contamination. Concentrations of methane were 17-times higher nearby natural gas drilling operations (Osborn et al, 2011). Even more, the authors used stable isotope analysis to differentiate between shallow, naturally occurring methane and deep, thermogenic methane

associated with fracking. Thermogenic methane was found to be the source of contamination at active sites, while biogenic methane was common at inactive sites (Osborn et al, 2011). The study also looked at general groundwater contamination associated with fracturing fluids. Using a contemporary sample of 68 wells and the historical data of 124 wells in the Catskill and Lockhaven aquifers, the researchers used three indicators of contamination: major inorganic chemicals, stable isotope signatures of water, and isotopes of dissolved constituents. The study found no connection between active drilling areas and general contamination in nearby wells (Osborn et al, 2011).

It is important to keep in mind that much of the literature on public health effects of WST fluid or spill contamination is limited by knowledge of the specific chemical composition of fracturing fluid. Incomplete MSDS information, a lack of Chemical Abstract Service (CAS) numbers to uniquely identify chemicals and chemical mixes, and trade secret claims by operators limited the all of the above studies and others of their kind. In addition, without baseline information on water quality or isotope tracking, it is difficult to impossible to causally link hydraulic fracturing operations to groundwater contamination. The study by Gross et al provided no measure of historical background levels of BTEX, therefore causality is not certain. In fact, a review by Samuel Schon faults the study by Osborn et al., for not providing geochemical measurements of dissolved methane (Schon, 2014).

Next, it is worthy to note that many of the studies on hydraulic fracturing chemicals and accidental release come from outside California. The study from the *Journal of Human and Ecological Risk Assessment* obtained product and chemical information from Colorado, Wyoming, New Mexico, Texas, Washington, Montana, Pennsylvania, and New York. The three other cited studies come from the Barnett, Marcellus, and Utica shale formations. In all, much of the published literature on hydraulic fracturing and its effects on groundwater are from study areas outside of California, likely due to the fact that the state does not have as extensive of a hydraulic fracturing industry as other parts of the US (US Department of Energy, 2011). Thus, one should keep in mind the difference between California fracking and general American fracking amount when weighing the probability of groundwater quality damage from fracking.

In all, the above studies give context for the public health concerns of hydraulic fracturing fluid and the ways in which it may enter groundwater. More research is needed to steadfastly claim a causal connection between fracking and groundwater contamination; however, data point to probable risk.

B. Air Pollution:

A recent independent study by P. Macey et al, "Air Concentrations of Volatile Compounds near Oil and Gas Production" examined the air concentrations of volatile compounds in hydraulic fracturing sites through a community-based exploratory study in five American states: Ohio, Pennsylvania, Arkansas, Colorado, and Wyoming. A total of 75 volatile organics were measured through passive air samples near industrial operations. Levels of eight of these volatile chemicals were found to exceed federal guidelines (Macey, 2014). Benzene, formaldehyde, and hydrogen sulfide were the most common compounds to exceed acute and other health-based risk levels (Macey, 2014). For instance, the exposure to benzene experienced in five minutes at one Wyoming site was equal to the exposure experienced living in LA for two years. Benzene is known to cause irritation of the skin, eyes, and upper respiratory tract (U.S. EPA 2011). Long-term exposure may cause blood

disorders, reproductive and developmental disorders, and cancer (Outdoor Air, 2011). Hydrogen sulfide levels in the Wyoming site were also 90 to 60,000 times greater than the recommended levels at one given time during the study period (Francis, 2014). Hydrogen sulfide can cause respiratory tract and eye irritation, headaches, poor memory, and loss of appetite among other symptoms (Francis, 2014).

C. Environmental Justice

According to the EPA, environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. EPA, 2014a).

A study by Srebotnjak et al. examined which communities were the most disproportionately at risk due to oil and gas drilling in California. According to their research, approximately 5.4 million Californians (14 % of the state's population) live within one mile of an existing oil and gas well (Srebotnjak, 2014). In addition, 1.8 million of these individuals live in already environmentally polluted areas (Rotkin-Ellman, 2014). Approximately 92% of the individuals within those 1.8 million are people of color. The demographics of the population living near wells in California consist primarily of Hispanics/ Latinos (Srebotnjak, 2014).

A separate study analyzed one particular oil and gas community in Kern County, California. Kern County has more than 63,000 of the state's 84,434 active and new oil and gas wells (Rotkin-Ellman, 2014). The researchers found that one in three residents live within one mile of an oil or gas well (35% of the county's population) (Rotkin-Ellman, 2014). These individuals are at a greater risk of potential health impacts. According to the Desert Renewable Energy Conservation Plan, Kern County's total population size is about 839,153 with 61.4% belonging to a minority group (Desert Renewable Energy Conservation Plan, 2014). The percent of low-income individuals in Kern County is 22.5%. California as a whole has a minority population of 59.9%, with 15.3% falling within the low-income population. (Desert Renewable Energy Conservation Plan, 2014)

V. Oil and Gas and Hazardous Material Regulation

A. Oil and Gas Regulation

Oil and gas production is subject to regulation at the state and federal level, although with many exemptions as described further below. Those regulations include the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Clean Water Act (CWA), the Safe Water Drinking Act (SDWA), and the Resource Conservation and Recovery Act (RCRA) (U.S. EPA 2014b; U.S. EPA, 2006). A specific point of concern is the regulation of hydraulic fracturing, which is also occasionally exempted from regulations placed on conventional production. There are many agencies that intersect with oil and gas production regulation, including the US Environmental Protection Agency (EPA), the Department of Oil, Gas, and Geothermal Resources (DOGGR), the Department of Energy, and the Department of Conservation. At the federal level, the US EPA has constructed some legislation that applies to oil and gas

production. At the California state level, regulation was nearly nonexistent until the passage of Senate Bill 4 (signed into law on Sept 20, 2013).

The US EPA monitors conventional oil and gas production. The oil and gas industry is subject to regulation under the CWA and the SDWA. Under Section 311 of the CWA, regulations mandate prevention and preparedness for oil discharges into navigable waters of the US. A 1994 amendment also requires that storage facilities prepare Facility Response Plans for such an event (U.S. EPA, 2014b). In addition, oil companies may apply for National Pollutant Discharge Elimination System (NPDES) permits for the discharge of wastewater, under section 402 of the CWA (U.S. EPA, 2012). Furthermore, conventional oil and gas production is subject to air pollution standards under the CAA that reduce emissions of smog-forming volatile organic compounds. (U.S. EPA, 2015).

Hydraulic fracturing and other WSTs have been exempted from major components of environmental legislation. This includes exemption from the Safe Water Drinking Act and the Clean Water Act (Brady, 2012). This exemption was placed into effect after 2005 amendments to the Energy and Policy Act freed water contamination from WSTs from regulation (Rabe, 2013). The exemption states that underground injection control requirements do not have to be adhered to unless diesel fuels are part of the mixture being injected to frack the well (Clean Water Action, 2014). However, the EPA mandates that storm water regulation and spill prevention, control, and countermeasure plans be created to prevent the release of toxic chemical discharge into water supplies.

In California, the Division of Oil, Gas and Geothermal Resources (DOGGR), which is a subdivision of the Department of Conservation, monitors oil and gas production in California. DOGGR oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells (California Department of Conservation, 2014). DOGGR is also responsible for the administration of the California Environmental Quality Act (CEQA) over oil and gas development in the state. CEQA is designed to identify potential environmental impacts and to avoid or mitigate environmental damage (California Natural Resources Agency, 2014). Similar to CEQA notification is the Emergency Planning and Community Right-to-Know Act. This requires that companies and manufacturers release a detailed Toxic Release Inventory for chemicals utilized and released into the environment. However, the oil and gas industry is completely exempted from this TRI reporting.

In recent years, DOGGR acknowledged the gaps in regulations placed on oil and gas production and the information provided to the division about hydraulic fracturing (California Department of Conservation, Division of Oil Gas and Geothermal Resources (DOGGR), 2014). In 2011, Fran Pavley, a California state senator, requested information on hydraulic fracturing in California from DOGGR. The agency had "no information" on water use, "no data on the safety, efficacy and necessity" of WSTs and "no permitting process" relating to hydraulic fracturing (Sharp, 2012). In response, Pavley drafted Senate Bill 4 in 2013, passed in September 2013, which directly deals with WST reporting. SB4 will be discussed in detail in the next subsection.

Table 2: Regulations on Oil and Gas in California and the United States. (Source: U.S. EPA, 2002, 2012, 2014b; Brady, 2012; Clean Water Action, 2014; California Natural Resources Agency, 2014)

Regulation	Content	Traditional Production	Non-Traditional Production

CERCLA	Cleans up controlled releases of specified hazardous substances.	Regulated when oil discharge reaches waters of the United States. Must be reported if discharge creates a "sheen" or "film." However, some toxic chemicals included on the hazardous substances list are exempted if they are included in oil and gas production.	Same as traditional production.
Clean Water Drinking Act	Regulates discharges of pollutants into waters of the United States.	Excludes sediment as a pollutant when it is generated from oil and gas production.	Same as traditional production.
Safe Water Drinking Act	Protects America's drinking water from pollutants, whether it is from groundwater or above ground resources.	Not exempted from regulation.	Exempted from SWDA. However, if diesel is used to frack a well, a SWDA permit must be issued.
RCRA	Governs disposal of solid and hazardous wastes.	Exempts oil and gas produced water, and drilling fluids from requirements for monitoring and disposal.	Hydraulic fracturing fluids and produced waters are exempted.
Emergency Planning and Community Right-to-Know Act	Requires companies and manufacturers meeting specified criteria to report detailed Toxic Chemical Reports.	Exempted, even if criteria is met.	Exempted, even if criteria is met.
Senate Bill 4	Specific to WSTs. Requires filing of satisfactory certifications under penalty of law. This includes monitoring of groundwater before and after drilling, neighbor notification, and public disclosure of chemicals.	Not included.	Subject to regulation.
CEQA	Requires that environmental impact reports be generated.	Subject to regulation	Subject to regulation

1. Senate Bill 4

Senate Bill 4 was enacted by the California legislature due to five concerns enumerated within the legislation. First, hydraulic fracturing and well stimulation treatments are increasing in California. Second, the state considers current scientific information on the risks of well stimulation treatments incomplete. Third, the legislature believes that government and industry transparency are vital. Fourth, public disclosure is important so as to allow the public to determine if they are being exposed to WST chemicals. Fifth, the legislature would like to understand the components of produced water used in WST so that it may be reused or treated (California Environmental Law and Policy Center, 2015)

First, SB4 requires an independent scientific study on well stimulation treatments to be conducted by the Secretary of California's Natural Resources Agency. The study will provide information on existing and potential oil and gas reserves and analyze risks of WSTs (California Environmental Law and Policy Center, 2015). Study completion was set for January 1st, 2015. On January 14th, 2015, the department of Conservation released Volume I of the study, titled "An Independent Scientific Assessment of Well Stimulation Technologies in California: Well Stimulation Technologies and their Past, Present, and Potential Future Use in California." (California Council on Science and Technology, 2015). It describes what WSTs are, the operations involved, and where they are practiced. The California Council on Science and Technology and the Lawrence Berkeley National Laboratory prepared the study. Volumes II and III of the study are set to be released in July 2015. Volume II is of most interest to our project; it will detail the effects of WSTs on water bodies, among other natural resources. Volume III will focus on how WSTs will affect the environment in specific geographic regions (California Council on Science and Technology, 2015)

Next, SB4 requires the development of WST regulations by DOGGR. These include threshold values for acid volume used, disclosure requirements of chemical composition of well stimulation fluids, and source and volume information of all water used, be it base or waste fluid (California Environmental Law and Policy Center, 2015).

Third, SB4 requires public disclosure of WST fluid composition. The composition must be provided online within 60 days of the termination of treatment on a well. This information is to be posted on the DOGGR website beginning in January 1, 2016. Currently, the information is required to be posted via FracFocus.org (California Environmental Law and Policy Center, 2015)

Fourth, SB4 ends the ability of operators and suppliers to claim trade secret protections on many of their products. It requires that the supplier disclose all chemical additives or constituents used in well stimulation treatment to DOGGR, even if the information is claimed as trade secret. If DOGGR finds that a trade secret claim is invalid, it may release the information to the public. Under the New Public Resources Code section 3160(J)(2) the following may no longer be protected as a trade secret:

1. The identities of the chemical constituents of additives
2. The concentration of additives in the well stimulation treatment fluid
3. Air or other pollution monitoring data
4. Health and safety data associated with WST fluids; and
5. The chemical composition of flowback fluid

Fifth, SB4 creates a permitting process for WST operations. A well operator must provide in the well permit application the time and location of the WST, a complete list of chemicals to be used, water management and groundwater monitoring plans, and the source and disposal method of fluids used in the operation. The permit is valid for one year from

DOGGR's approval date. Permits are made available online by DOGGR five days after approval date (California Environmental Law and Policy Center, 2015).

Sixth, SB4 requires that landowners within 500 feet of a horizontal project of a WST or within a 1500 foot radius of the wellhead be notified of treatment. Operations may not commence until 30 days after notification of nearby landowners.

Last, SB4 directs the SWRCB to develop regional or well specific groundwater monitoring criteria by July 15, 2015. DOGGR along with industry and agriculture stakeholders are responsible for providing input into the monitoring plan (California Environmental Law and Policy Center, 2015)

Environmental groups withdrew support of SB4 when a provision was added that would allow the continuance of WSTs while DOGGR finalizes its comprehensive fracturing regulations. In addition, Section 3161, which requires DOGGR to complete an Environmental Impact Report (EIR) on WST across the state by July 1, 2015 allowed some local governments, namely Kern County, to attempt to complete their own independent EIRs before the statewide report could be finalized (California Environmental Law and Policy Center, 2015).

Kern County has not yet released an approved EIR. In August 2013, however, Kern County released a notice of preparation of a draft EIR. This EIR will be programmatic, that is environmental conditions of the entirety of Kern County will be considered, not conditions specific to each well. Should a Kern County oil and gas EIR be approved, DOGGR must consider only Kern's EIR instead of the statewide EIR when approving WST permit applications (Kern County Planning and Community Development Department, 2013).

B. Hazardous Material Release Regulations

The federal law that regulates hazardous materials spills is the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). It requires hazardous materials spills which exceed minimal reportable amounts to be reported to the National Response Center by any responsible parties (U.S. EPA, 2006).

In California, hazardous material spills are regulated by two pieces of law: the California Water Code section 13271 and the California Code of Regulations Title 19, Division 2, Chapter 4, Hazardous Material Release Reporting (California Water Code, 2015; California Code of Regulations, 2008)

The California Water Code section 13271 requires that any release of hazardous substances or sewage to the waters of the state must be verbally reported immediately to the California Emergency Management Agency, or once knowledge of the discharge is available or notification is possible without impeding cleanup and emergency measures (California Water Code, 2015). The California Emergency Management Agency is responsible for notifying the local health officer and director of environmental health of the spill. If the spill is of high enough concern to the health board, the public will be notified. Failure to comply with the notification requirements will result in misdemeanor charge or a fine of up to $20,000 to involved parties. Substances that are listed as hazardous wastes in Section 25410 of the Health and Safety code are assigned reportable quantities by the department of Toxic Substances Control (California Water Code, 2015). Sewage is assigned reportable quantities by the California State Water Board.

The California Code of Regulations chapter on hazardous materials expands on the reporting requirements to include the minimum information required in the release report (California Code of Regulations, 2008). This includes the

1. Exact location of the release or threatened release;
2. The name of the person reporting the release or threatened release;
3. The hazardous materials involved in the release or threatened release;
4. An estimate of the quantity of hazardous materials involved; and
5. If known, the potential hazards presented by the hazardous material involved in the release or threatened release;

Reporting is to be made to the Office of Emergency Services and a telephone number is provided. Interestingly, the California Code adds to the Water Code by clarifying that the immediate reporting of a hazardous material spill to land is only required in there is "reasonable belief" that the spill may pose a threat to public health, property, or the environment. Written reporting is only sometimes required, pursuant to 42 U.S.C. section 11004(c). If required, the written notice is sent to the Chemical Emergency Planning and Response Commission no later than 30 days after the release. The written notice form can be found on the next page figure 4 (California Code of Regulations, 2008).

The reportable quantities of chemicals can be found on two lists (California Office of Emergency Services, 2014a). The first is the Extremely Hazardous Substances list. The second is the more detailed Consolidated List of Chemicals. However, besides these two lists, according to California Hazardous Materials Spill / Release Notification Guidance, if the responsible parties are doubtful of whether or not the release should be reported, the release should be reported (California Office of Emergency Services, 2014a).

VI. References

Ailey, B., Clouse, D., Hill, D., Catreet, M., Kubala, G., 1997. "Specialty Chemicals in the Oil Field" *Oilfield Review*. https://www.slb.com/~/media/Files/resources/oilfield_review/ors97/spr97/specialty_chemicals.pdf

Argonne National Laboratory, 2009. *Produced Water Volumes and Management Practices in the US*. <http://www.circleofblue.org/waternews/wpcontent/uploads/2010/09/ANL_EVS__R09_produced_water_volume_report_2437.pdf>

Bishop, J., 2014. "Re: Underground Injection Control Drinking Water Source Evaluation." California State Water Resources Control Board. http://www.biologicaldiversity.org/campaigns/california_fracking/pdfs/20140915_Bishop_letter_to_Blumenfeld_Responding_to_July_17_2014_UIC_Letter.pdf

Blumer, M., Ehrhardt, M., Jones, J., 1973. "The Environmental Fate of Stranded Crude Oil." *Deep Sea Research and Oceanographic Abstracts,* 20 (3) 239-259.

Borchart, J., 1989. "Chemicals Used in Oil Field Operations" *Shell Development Company* http://pubs.acs.org/doi/pdfplus/10.1021/bk-1989-0396.ch001

Brady, W., Crannell, J., 2012 "Hydraulic Fracturing Regulation in the United States: The Laissez-Faire Approach of the Federal Government and Varying State Regulations." *Vermont Journal of Environmental Law*. 14(1): 1-19.

Burford, T., 2010. "Onshore Oil Disasters." *National Wildlife Federation.* <http://www.nwf.org/pdf/Global-Warming/Onshore Oil Disasters 8-26-10.pdfNegro, S., 2012.

California Code of Regulations, 2008. California Code of Regulations, Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4, Hazardous Material Release Reporting, Inventory, and Response Plans. http://develop.oes.ca.gov/WebPage/oeswebsite.nsf/ClientOESFileLibrary/Recovery%20-%20Public%20Assistance%20Section%20/$file/Chapter%204.%20Hazard.pdf

California Council on Science and Technology, 2015. "CCST Well Stimulation Project (SB4)" <http://www.ccst.us/projects/hydraulic_fracturing_public/SB4.php>

California Department of Conservation, 2013. "Well Permitting" <http://www.conservation.ca.gov/dog/Pages/WellPermitting.aspx#drillnewwells>

California Department of Conservation, Division of Oil Gas and Geothermal Resources (DOGGR), 2014. "Hydraulic Fracturing in California" <http://www.conservation.ca.gov/dog/general_information/Pages/HydraulicFracturing.aspx

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), 2013. "Water Use Reporting for Oil and Gas Production." <http://www.conservation.ca.gov/dog/SB 1281/Pages/Index.aspx>

California Environmental Law and Policy Center, 2015. "Well Stimulation in California" http://www.ccst.us/projects/hydraulic_fracturing_public/SB4.php

California Natural Resources Agency, 2014. "Frequently Asked Questions about CEQA" <http://resources.ca.gov/ceqa/more/faq.html>

California Office of Emergency Services 1, 2014a. "California Hazardous Materials Spill / Release Notification Guidance" <http://www.calema.ca.gov/hazardousmaterials/pages/spill-release-reporting.aspx>

California Research Bureau, 2014. "Sources, Uses, and Disposal of Water in Hydraulic Fracturing." <http://www.library.ca.gov/crb/14/S-14-014.pdf>

California Water Code, 2015. California Water Code Division 7, Chapter 4, Article 4, Section 13271. < http://codes.lp.findlaw.com/cacode/WAT/1/d7/4/4/s13271>

Clean Water Action, 2014. "Fracking: Laws and Loopholes" <http://cleanwater.org/page/fracking-laws-and-loopholes>

Clean Water Action, 2014. "In the Pits - Oil and Gas Wastewater in California" <http://www.cleanwateraction.org/publication/pits>

Colborn, T., Kwiatkowski, K., Bachran, M., 2011. "Natural Gas Operations from a Public Health Perspective." *Human and Ecological Risk Assessment: An International Journal* 17:5 1039–1056.

Daneshy, A., 2010. "Hydraulic Fracturing to Improve Production," *Society of Petroleum Engineers* 6(3) http://www.spe.org/twa/print/archives/2010/2010v6n3/09_Tech101.pdf.

Darrah, T., Vengosh, A., Robert J., Warner, N., & Poreda, R., 2014. "Noble Gases Identify the Mechanisms of Fugitive Gas Contamination in Drinking-Water Wells Overlying the Marcellus and Barnett Shales." *Proceedings of the National Academy of Sciences* 111:39: 14076–81.

Desert Renewable Energy Conservation Plan, 2014. "Socioeconomics and Environmental Justice." <http://www.drecp.org/draftdrecp/files/d_Volume_III/III.23_Socioeconomics_and_Environmental_Justice.pdf>

Farella, Braun, Martel., 2013. "Summary of Major California Release Reporting Requirements." Powerpoint.

Fontenot, B., Hunt, L., Hildenbrand, Z., Carlton, D., Oka, H., Walton, J., Hopkins, D., Osorio, A., Bjorndal, B., Hu, Q., Schug, K., 2013. "An Evaluation of Water Quality in Private Drinking Water Wells Near Natural Gas Extraction Sites in the Barnett Shale Formation." *Environmental Science & Technology* 47(17): 10032–40.

FracFocus, 2015a. "Chemical Use in Hydraulic Fracturing", <http://fracfocus.org/water-protection/drilling-usage>

FracFocus, 2015b. "Hydraulic Fracturing: Casing", <http://fracfocus.org/hydraulic-fracturing-how-it-works/casing>

Francis, R., 2014. "Air Quality and Unconventional Oil and Gas Sites." *BioMed Central: The Open Access Publisher.* <http://www.biomedcentral.com/presscenter/pressreleases/30102014>

Freudenrich, C., 2010. "How Oil Drilling Works". *Elliots Land Company.* http://www.elsandcompany.com/howdrillingworks.htm

GSA – Geological Society of America, 2015. "GSA Critical Issue: Hydraulic Fracturing" http://www.geosociety.org/criticalissues/hydraulicFracturing/documents/GSA-HydroFracking.pdf

Gross, S., Avens, H., Banducci, A., Sahmel, J., Panko, J., Tvermoes, B., 2013. "Analysis of BTEX Groundwater Concentrations from Surface Spills Associated with Hydraulic Fracturing Operations." *Journal of the Air & Waste Management Association.* 63(4): 424–432.

Halliburton, 2015. "Fracturing 101," <http://www.halliburton.com/public/projects/pubsdata/hydraulic_fracturing/fracturing_101.html>

Kern County Planning and Community Development Department, 2013. "Notice Of Preparation of a Draft Environmental Impact Report For an Amendment To Title 19 – Kern County Zoning Ordinance, Focused On Chapter 19.98 (Oil And Gas Production) For Oil And Gas Local Permitting." <http://pcd.kerndsa.com/planning/oil-gas-zoning-amendment>

Long, J., Feinstein, L., Birkholzer, J., Jordan, P., Houseworth, J., Dobson, P., Gautier, D., 2015. "Independent Scientific Assessment of Well Stimulation in California" *The California Council on Science and Technology* <http://www.ccst.us/publications/2015/2015SB4-v1.pdf>

Lutz, B., Aurana L., Martin D., 2013. "Generation, Transport, and Disposal of Wastewater Associated with Marcellus Shale Gas Development." *Water Resources Research* 49(2): 647–56.

Macey, G., Breech, R., Chernaik, M., Cox, C., Larson, D. Thomas, D., O'Carpenter, D., 2014. "Air Concentrations of Volatile Compounds Near Oil And Gas Production:A Community-Based Exploratory Study." *Environmental Health.* 13(7).

National Oceanic and Atmospheric Administration, 2013. "News & Events - 2013." <http://www.esrl.noaa.gov/csd/news/2013/129_0114.html>

National Petroleum Council, 2011. "Sustainable Drilling of Onshore Oil and Gas Wells." *North American Resource Development Study, Paper #2-23*, 5-19. <http://www.npc.org/prudent_development-topic_papers/2-23_sustainable_drilling_of_onshore_oil_and_gas_wells_paper.pdf>

Office of Indian Energy and Economic Development, 2015. "Oil and Gas Drilling/Development Impacts." <http://teeic.indianaffairs.gov/er/oilgas/impact/drilldev/index.html>

Osborn, S., Vengosh, A., Warner, N., Jackson, R., 2011. "Methane Contamination of Drinking Water Accompanying Gas-Well Drilling and Hydraulic Fracturing" *Proceedings of the National Academy of Sciences of the United States of America* 108(20): 8172–6.

Rabe, B., Borick, C., 2013. "Conventional Politics for Unconventional Drilling? Lessons from Pennsylvania's Early Move into Fracking Policy Development." *Review of Policy Research, 30*(3): 321-340.

Rotkin-Ellman, M., 2014. "Fracking Threatens Health of Kern County Communities Already Overburdened with Pollution." *Natural Resources Defense Council* http://www.nrdc.org/health/files/california-fracking-risks-kern-FS.pdf

Rozell, D., Reaven, S., 2012. "Water Pollution Risk Associated with Natural Gas Extraction from the Marcellus Shale." *Risk Analysis* 32:8. <http://dx.doi.org/10.1111/j.1539-6924.2011.01757.x>

Schon, S., 2014. "Hydraulic Fracturing Not Responsible for Methane Migration." *Proceedings of the National Academy of Sciences of the United States of America.* 108(37).

Sharp, R., Allayaud, B., 2012. "California Regulators: See No Fracking, Speak No Fracking." *Environmental Working Group*, 1-26. <http://static.ewg.org/reports/2012/fracking/ca_fracking/ca_regulators_see_no_fracking.pdf>

Soraghan, M., 2014. "Oil and Gas: Spills up 17 Percent in U.S. in 2013." <http://www.eenews.net/stories/1059999364>

Srebotnjak, T., Rotkin-Ellman, M., 2014. "Drilling in California: Who's at Risk?" *Natural Resources Defense Council.* < http://www.nrdc.org/health/files/california-fracking-risks-report.pdf>

U.S. Department of Energy, 2015. "Enhanced Oil Recovery". http://energy.gov/fe/science-innovation/oil-gas-research/enhanced-oil-recovery

U.S. Environmental Protection Agency (EPA), 2002. "Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations." <http://www.epa.gov/osw/nonhaz/industrial/special/oil/oil-gas.pdf>

U.S. Environmental Protection Agency (EPA), 2006. "Consolidated List of Chemicals Subject to the Emergency Planning and Community Right to Know Act (EPCRA) and Section 112(r) of the Clean Air Act". < http://www.epa.gov/osweroe1/docs/chem/title3_Oct_2006.pdf>

U.S. EPA, 2009. "Understanding the Safe Drinking Water Act." <http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_sdwa_web.pdf>

U.S. EPA., 2011. "Outdoor Air- Industry, Business, and Home: Oil and Natural Gas Production- Additional Information." <http://www.epa.gov/oaqps001/community/details/oil-gas_addl_info.html>

U.S EPA, 2012. "Study of the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources." Office of Research and Development. http://www2.epa.gov/sites/production/files/documents/hf-report20121214.pdf

U.S. EPA, 2014a. "What is Environmental Justice?"<http://www.epa.gov/environmentaljustice/>

U.S. EPA, 2014b. "Oil Pollution Prevention Regulation Overview." <http://www.epa.gov/oem/content/lawsregs/opprover.htm>

U.S. EPA, 2015. "Oil and Natural Gas Air Pollution Standards." <http://www.epa.gov/airquality/oilandgas/>

United States Department of Energy (DOE), 2011. "Review of Emerging Resources: US Shale Gas and Shale Oil Plays." <http://www.eia.gov/analysis/studies/usshalegas/

Vengosh, A., Jackson R., Warner N., Darrah T., Kondash A., 2014. "A Critical Review of the Risks to Water Resources from Unconventional Shale Gas Development and Hydraulic Fracturing in the United States." *Environmental Science & Technology* 48(15): 8340.

Vidic, R., Brantley, S., Vandenbossche, J., Yoxtheimer, D., Abad, J., 2013. "Impact of Shale Gas on Regional Water Quality" *Science.* 340(6134)

Warner, N., Darrah, T., Jackson R., Millot R., Kloppmann W., & Vengosh A., 2014. "New Tracers Identify Hydraulic Fracturing Fluids and Accidental Releases from Oil and Gas Operations." *Environmental Science & Technology* 48(21): 14790-14798.

Waxman H., Markey, E., DeGette D., 2011. "Chemicals Used in Hydraulic Fracturing" *United States House of Representatives COEAC* <http://conservationco.org/admin/wp-content/uploads/2013/02/Final-Rebuttal-Exhibits.pdf-Adobe-Acrobat-Pro.pdf>

0048-1

The comment includes a general introduction. No response is necessary.

0048-2

The comment generally describes the DEIR and the Project. No response is necessary.

0048-3

Please see GR-1 for a description of the ministerial review process. The Site Conformity Review process requires that applicants submit comprehensive Site Plans, as well as evidence of compliance with designated third party agency requirements as specified in many of the mitigation measures.

0048-4

The Revised Amended Ordinance would establish a ministerial permit system. Please see GR-1 regarding the ministerial permitting process. The Revised Amended Ordinance has been further revised to include a cap of 3,649 well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with additional CEQA review as described in the Revised Amended Ordinance. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0048-5

The commenter's opinion is noted. The comment is an introduction to later comments.

0048-5 cont'd

0048-5 cont'd

0048-6

The commenter's opinion is noted. For decades, the established framework for zoning ordinances throughout the state of California, and in Kern County, has followed the practice of establishing categories of activities that are prohibited, permissible subject to compliance with specified standards and mitigation measures, and conditionally permissible subject to further discretionary review and approval (including CEQA review). Please see GR 1 and 2.

0048-6 cont'd

0048-7

Comment noted. Please see GR regarding enforcement of mitigation measures. The absence of codification in a third party regulation does not dilute the enforceability of the mitigation measures by the County under its zoning authority and its role as lead agency under CEQA (including MMRP implementation). Please see GR 16 and GR 19.

0048-7 cont'd

0048-8

Volume I of the CCST study was available and used in the preparation of the Draft EIR. Volumes II and II were released after issuance of the Draft EIR but have been considered as part of the Final EIR preparation, as described in GR-12 and GR-13 as well as in responses to comments involving specific components of CCST study Volumes II and III.

0048-9

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

0048-9 cont'd

0048-9 cont'd

0048-10

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

Regarding concerns that well stimulation occurs at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-11

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

Regarding concerns that well stimulation occurs at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-12

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

Regarding concerns that well stimulation occurs at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-13

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

Regarding concerns that well stimulation occurs at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-14

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

Regarding concerns that well stimulation occurs at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-15

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

Regarding concerns that well stimulation occurs at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-16

Please see GR-12, GR-13, GR-18, GR-Geo-1, GR Air-9, GR-Water-1 and GR-Water-6.

Regarding concerns that well stimulation occurs at depths shallower than 1,000 feet, existing geologic structures inhibit the movement of fluids outside the oil field. DOGGR's SB 4 implementing regulations address this issue; please see GR 6. To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-17

Please see GR-2 and GR-3 regarding the scope of the Project and potential future CEQA review. As noted above, the Revised Amended Ordinance has been further revised to include a cap of 3,649 well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with additional CEQA review as described in the Revised Amended Ordinance. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0048-18

The commenter's opinion is noted. Please see GR-2.

0048-19

The commenter's case citations are noted and included for the record. Please see GR-2.

0048-19 cont'd

0048-20

Please see GR-1, GR-2 and GR-3.

0048-21

Please see GR-1, GR-2 and GR-3.

0048-22

Please see GR-1, GR-2 and GR-3.

0048-23

The comment is a quote from the Draft EIR. The Project is the Revised Amended Ordinance together with the implementation of oil and gas exploration and production activities that will be authorized under the Site Plan Conformity Review process. As such, the extensive list of

activities quoted by the commenter as included in the EIR is appropriate, as CEQA review must apply to the "whole of the project." Please see GR-2.

0048-24

The commenter's case citation and opinion are noted. Please see GR-2. The project description is accurate and stable in describing the activities subject to, and regulated by, the Revised Amended Ordinance. The project description satisfies the basic purpose of an EIR, to disclose potentially significant environmental impacts to the public and decision makers and receive public input in mitigation measures and alternatives.

0048-24 cont'd

0048-25

The commenter's case citation is noted and included in the record. *Santiago County Water District v. County of Orange* (1981) 118 Cal. App. 3d 818, found an EIR defective for too narrowly focusing on impacts of a proposed mining operation, but failing to provide information on delivery of water to the mine. Since the commenter's objection is that the EIR is too broad, the case is not relevant to this comment. More relevant is *City of Carmel-by-the-Sea v. Board of Supervisors of Monterey County* (1986) 183 Cal.App.3d 229, which held that CEQA review for a zoning amendment should have fully evaluated the major development project that was foreseeable at the time of the zoning amendment, rather than deferring to a leter EIR on the development project. *See also Laurel Heights Improvement Ass’n v. Regents of University of California* (1988) 47 Cal. 3d 376 (environmental analysis should be prepared as early as feasible; EIR must analyze environmental effects of future expansion or other actions that are reasonably foreseeable consequences of the initial project).

Please see also responses 43-171 – 43-191 regarding the extensive analysis of water supply and demand in the EIR. [Note for EnE, this is a reference to the Shute Mihaly letter, #43 on the TOC we have].

0048-25 cont'd

0048-25 cont'd

0048-26

The commenter's case citations are noted and included in the record. Please see GR-2 which discusses these cases.

0048-27

Please see above responses and GR-2.

0048-28

The commenter's opinion is noted. Please see GR-1 regarding the ministerial permitting process and GR-2 regarding the approach to County-wide analysis of the Project. The County's current zoning ordinance allows oil and gas activities to occur in many zoning districts within the County with neither ministerial nor discretionary review, based on prior determinations regarding the general land use compatibility of continued oil and gas extraction activities and the sufficiency of regulation by other agencies to protect the environment. The County directed that the current ordinance be updated to expand the County's oversight and enforcement role. Pursuant to the Revised Amended Ordinance, many new procedural and substantive requirements will be applicable to Project activities, including those identified as mitigation measures in the EIR. The Board of Supervisors directed that this ordinance update process be procedurally structured to avoid imposing excessive administrative burdens, while assuring effective implementation and enforceability. That is the "streamlining" objective to be met. The commenter appears to misconstrue "streamlining" as "shortcutting" or "failing to protect people or the environment", neither of which will occur under the Revised Amended Ordinance and MMRP.

The Revised Amended Ordinance has been further revised to include a cap of 3,649 well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. Any well permit applications over this cap may be processed only during the following year, or with additional CEQA review as described in the Revised Amended Ordinance. This provision will ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA (Pub. Res. Code 21166).

0048-28 cont'd

0048-29

The commenter's opinion is noted. Please see GR-2 and GR-3 and above responses. Zoning ordinances, like other regulations, do not have an expiration date. However, as noted above, the Revised Amended Ordinance has been further revised to ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA, including as a result of technology breakthroughs permitting greatly increased production. See Pub. Res. Code 21166). The likelihood of reasonably foreseeable major increases in oil and gas activity was evaluated and found to be speculative and unlikely, while substantial evidence supports the well forecasts upon which the EIR impact analyses are based. Please see GR 6, GR 8 and GR 18.

0048-30

The commenter's case citation and opinion are noted. Please see GR-2 for discussion of the project-level approach in the EIR. While this comment is identified as a request for a program-level EIR, judicial interpretation have confirmed that, whether an EIR is called "program" or "project", it must include the level of information and analysis available to examine the whole of the project. The commenter appears to be requesting a fundamental change to the structure of the Revised Amended Ordinance to require case-by-case discretionary approvals subject to CEQA review, and also to litigation rights. While this policy position is advocated by the commenter, local government agencies have the constitutional and statutory authority to manage land uses categorically through zoning. The structure of the Revised Amended Ordinance is consistent with longstanding zoning practice and CEQA caselaw allowing certain activities to be approved with ministerial permits; see GR-1.

0048-31

Please see GR-1, which discusses the ministerial permitting process and includes discussion of the case cited by the commenter.

0048-32

Please see GR-1, which discusses the ministerial permitting process and includes discussion of the case cited by the commenter.

0048-33

Please see GR-1, which discusses the ministerial permitting process and includes discussion of the case cited by the commenter.

0048-34

Please see GR-1, which discusses the ministerial permitting process and includes discussion of the case cited by the commenter.

0048-35

The discretionary approval under consideration in this case is adoption of the Revised Amended Ordinance, which is a legislative act by the Kern County Board of Supervisors for which CEQA compliance is required. This EIR provides CEQA compliance for that action.

0048-35 cont'd

0048-35 cont'd

0048-36

Please see generally GR-1 for discussion of ministerial approvals, which require the project to meet applicable standards. In addition, MM 4.8-6

has been revised to eliminate the reference to "best management practices" and include more prescriptive references to standards. Please see section 7.1.4, Revised Summary of Impacts, Mitigation Measures and Significance Conclusions.

0048-36 cont'd

0048-37

Mitigation Measure 4.3-5 does not allow the County to waive setback distances to sensitive receptors. MM 4.3-5(c) has been modified in the Final EIR as follows:

c. If the above setbacks cannot be met, and for existing wells, the Applicant shall provide a site-specific or other risk assessment to the SJVAPCD, which may include implementation of one or more of the following risk minimization measures, or such measures that are demonstrated by the Applicant to the SJVAPCD, to achieve a level of risk less than the threshold risk level, and shall provide confirmation from the SJVAPCD that the activity that is the subject of the application will not exceed the risk threshold:"

This will ensure that sensitive receptors are not exposed to emissions below the risk threshold. Please also see GR-1 and GR Air-10.

0048-38

The comment states that under the Revised Amended Ordinance, the County would retain significant discretion to deny permit applications if it finds that mitigation measures are not met. Accordingly, commenter argues that the permits cannot be considered "ministerial" and should be subject full review under CEQA. Please see GR-1 concerning the ministerial permit process and GR-16 concerning the revised mitigation measures.

The fact that the County will have the authority to deny permits if the proposed projects do not satisfy mitigation requirements does not create a discretionary permitting process. The mitigation measures cited by commenter contain specific standards that the County will use to determine if the mitigation requirements are satisfied and the permit should be issued. (*See Sierra Club v. Napa County Board of Supervisors* (2012) 205 Cal. App. 4th 162 [certain lot line adjustments in ordinance were properly identified as ministerial where the lot line application was required to comply with specified standards]; *San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1 [upholding an EIR for a Zoning Ordinance amendment to allow by-right wineries, where the EIR identified impact avoidance measures built into the Zoning Ordinance]; *Health First v. March Joint Powers Authority* (2009) 174 Cal. App. 4th 1135 [where a design plan for a development project complied with conditions set forth by specific plan that had been approved pursuant to CEQA, approval of the design plan via a 125-question checklist was ministerial and the project was exempt from CEQA review.] Because the proposed Amended Ordinance incorporates impact avoidance measures and provides a method for determining whether such measures have been met without the exercise of the County's discretion, the ordinance properly sets forth a ministerial permitting process.

0048-39

Please see Global Response Alt 1, Alternatives Eliminated from Consideration, and Alt-2, Alternatives Evaluated in Detail in EIR.

0048-40

This introductory comment is noted. Please see Responses 0082-54 to 0082-68, below.

0048-41

This introductory comment is noted. Please see Responses 0082-54 to 0082-68, below.

0048-42

This introductory comment is noted. Please see Responses 0082-54 to 0082-68, below.

0048-43

This introductory comment is noted. Please see Responses 0082-54 to 0082-68, below.

0048-44

Please see Global Response Alt-1.

0048-44 cont'd

0048-45

Please see Global Response Alt-1.

0048-46

As explained on Draft EIR Table 3-5, page 3-32, this EIR assumes that 2,697 new production wells, and 952 other well types that are ancillary to production wells (e.g., water disposal wells, observation wells, steam flood injectors, etc.), would be drilled annually. In practice, however, annual well drilling levels would likely be lower. The methodology used to formulate this annual well count projection, and the substantial evidence on which the projection is based, is described in detail in Global Response 13: Well Projections. In sum, the well projections used in the Draft EIR were based on the best information available to the County at the time preparation of the EIR commenced, including the business forecasts of the companies who would carry out the oil and gas development. The forecasts were validated by the County and its consultant, and adjusted upward so that the EIR would analyze a reasonably high maximum impact case. As stated at page 3-30 of the Draft EIR, it is likely that the actual development will be less than the forecast. Although the More Wells Within the Project Footprint Alternative assumes that annual production well construction would be capped at 3,500, substantial evidence demonstrates that the Project's uncapped 2,697 annual production well projection presents a good faith, reasoned and conservative forecast of new production well development on a yearly basis. It follows that the EIR also reasonably assumes that construction 3,500 production wells annually, as proposed by this alternative, may exacerbate the Project's significant environmental effects.

In any case, the Draft EIR provided that, at "the point that either the annual Project activity level or total projected activity level is exceeded, the County will need to consider whether the exceedance triggers further CEQA review in accordance with the criteria provided in CEQA (Pub. Res. Code) Section 21166 and CEQA Guidelines Section 15162 (e.g., due to new or substantially more severe significant environmental impacts than those considered in this EIR). If the criteria for subsequent or supplemental CEQA review are met, further review would be required for continued reliance on the Conformity Review Process." Moreover, since the Draft EIR was published, it was determined that the Project's proposed Amended Zoning Ordinance would be modified to cap the annual total number of wells (i.e., the total number of production wells, together with all other related well types) approved pursuant to the Conformity Review at 3,649, which is the total annual well count assumed by this EIR. Thereafter, no new well can be approved until the following year, unless any such additional well first obtains a discretionary conditional use permit subject to further CEQA review. Thus, while the Project would not absolutely cap the annual number of wells that may be approved by the County in any one year, it will ensure that every well annually approved pursuant to the ministerial Conformity Review process either falls within the scope of this EIR or is subject to additional CEQA review.

0048-47

Please see Global Response Alt-1.

0048-48

Please see Response 0072-246 and Global Response Alt-1.

0048-48 cont'd

0048-49

Please see Global Response Alt-1.

0048-50

Please see Global Response Alt-2.

0048-51

Please see Global Response Alt-2.

0048-52

Please see Global Response Alt-2.

0048-52 cont'd

0048-53

Please see Global Response Alt-2.

0048-54

Please see Global Response Alt-2.

0048-55

Please see Global Response Alt-2. The Draft EIR did not reject Alternative 5, the Low-Emission Enhanced Oil Recovery Technology Alternative. Alternative 5 was fully evaluated on Draft EIR pages 6-24 through 6-26, and was identified as the environmentally superior alternative on Draft EIR page 6-31.

0048-56

Please see Global Response Alt-2.

0048-57

This comment does raise a significant environmental concern. Comment noted.

0048-58

Please see Global Responses Alt-1 and Alt-2.

0048-59

This is a section title and a response is not required.

0048-60

This comment is noted for the record. The facts stated in this comment concern the baseline environmental conditions, and do not relate to the impacts of the proposed Project.

0048-61

Please see GR Air-1. Although it is true that emissions of certain pollutants will increase due to project implementation, all emissions from the Project will be mitigated to less than significant with mitigation. Emission increases from all Project sources are described in the DEIR at 4.3-72–4.3-103.

0048-62

The commenter states that the absence of the "Vector report" invalidates the air quality analysis. The report to which the commenter refers was a draft report created as part of the air quality analysis, but was never completed. All of the supporting information used in both the incomplete Vector report draft and in drafting the DEIR was available to the public upon request to the County. Some parties obtained the supporting information via a California Public Records Act request. The DEIR was not required to include this material. To keep the EIR to a manageable length, source documents used in preparing an EIR need not be included in the EIR. *See* CEQA Guidelines § 15148. Scientific, engineering, and technical reports and similar documents relied on in preparing an EIR need not be incorporated into the body of the EIR or in an EIR appendix. *Id.*; *see also Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR); *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou* (2012) 210 Cal. App. 4th 184, 219 (an EIR may summarize information in a technical report without appending the report or incorporating the report by reference); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173 (the EIR's hydrological analysis was not incomplete when a study relied on in determining the drainage report was not included in the EIR).

0048-62 cont'd

0048-63

Please see GR Air-1, GR Air-2 and GR-16. It is important to note that determining whether a Project's air quality impacts are "significant" for purposes of CEQA is not equivalent to determining whether the relevant air district is in attainment or nonattainment for particular pollutants. The attainment status of the San Joaquin Valley Air Pollution Control District is part of the baseline environmental conditions, and does not relate to the impacts of the proposed Project. As stated by commenter, SJVAPCD Rule 2201, Regulation 3.2.1 requires that any offset or emission reduction credit be "real, enforceable, quantifiable, surplus, and permanent." The County assumes that SJVAPCD will enforce its own rules and regulations, and thus will assure that any offsets or credits used to satisfy Rule 2201 meet these requirements. There is no requirement to prove that future offsets will exist in order to utilize such a method for mitigation.

0048-64

Please see GR Air-1, GR Air-2 and GR-16.

0048-65

Please see GR Air-1, GR Air-3 and GR-16. CEQA does not require that mitigation measures improve upon existing environmental conditions. *Paulek v. Dep’t of Water Resources* (2014) 231 Cal. App. 4th 35, 44 ("Environmental problems that would continue to exist even in the absence of any project are part of the baseline conditions rather than [project]-generated environmental impacts.")

0048-66

This is a section title and a response is not required.

0048-67

The commenter's opinion regarding the air quality impacts associated with the Project is noted for the record. Please see GR Air-4 for a discussion of the air quality analysis methodology.

0048-68

Please see GR Air-1. The emissions increases noted by commenter are expected to occur from Project implementation. However, any impacts from such emissions will be mitigated to less than significant by the mitigation measures in the DEIR. CEQA does not require that a project have no adverse impacts. Rather, CEQA requires that potentially significant adverse impacts be mitigated to the extent feasible. CEQA § 21002(b); CEQA Guidelines § 15126.4(a)(1). Some significant impacts may remain significant and unavoidable, as long as feasible mitigation is imposed. CEQA Guidelines § 15126.2(b).

0048-69

Please see GR Air-1. Please also see response to comment 78, above.

0048-70

Please see GR Air-1. Please also see comment 3 from the San Joaquin Valley Air Pollution Control District. SJVAPCD notes that only operational emissions which exceed the SJVAPCD's thresholds for equipment subject to Rule 2201 will be required to be offset. To the extent offsets are not required by Rule 2201, the EIR ensures that the potentially significant impacts from emissions increases will be reduced to less than significant.

0048-71

Please see GR Air-1. Please also see comment 3 from the San Joaquin Valley Air Pollution Control District. SJVAPCD notes that only operational emissions which exceed the SJVAPCD's thresholds for equipment subject to Rule 2201 will be required to be offset. To the extent offsets are not required by Rule 2201, the EIR ensures that the potentially significant impacts from emissions increases will be reduced to less than significant.

0048-71 cont'd

0048-72

Please see GR Air-2.

0048-73

The commenter's opinion is noted for the record.

0048-74

Please see GR Air-1, GR Air-3, and GR Air-6. The DEIR fully addresses all criteria and toxic pollutant emissions from Project activities. The HRA in Appendix M focused on diesel particulate matter (DPM) emissions because those represent nearly 99% of the risk driver for cancer risk from Project activities. Drilling is by far the biggest contributor to risk from Project activities and given the relative magnitude of projected DPM emissions, it is by far the most important toxic air contaminant to consider from a public health perspective. The HRA does not consider emissions from WST because there are minimal if any, toxic emissions due to WST. Please see GR Air-8 on this topic. Both the HRA in the DEIR and the revised HRA consider emissions from a co-located drilling sump. Please see GR Air-11 on this topic. The DEIR also considers fugitive emissions, including VOCs, which would be captured by the DEIR's 10% buffer for emissions from non-permitted sources. Finally, the revised HRA completed for the project in Appendix M-1 considers VOC emissions from well completion. Thus, all emissions from Project activities are fully captured in the air quality analysis. Please also see GR-Air-9.

0048-75

The DEIR identifies reduced sulfur compounds in the extracted gas and oil, of which the principal component is hydrogen sulfide, as posing the most potential for odors. Reduced sulfur compounds, especially H_2S, have the lowest odor thresholds relative to their abundance. As noted in the DEIR, volatile hydrocarbons in the extracted gas and oil are also odoriferous but generally have the aromatic smell of petroleum with odor thresholds which are much higher than for the reduced sulfur compounds. As such, petroleum odors are generally localized. As noted in the DEIR, the concentration levels for hydrogen sulfide that affect human health are several orders of magnitude greater than the concentrations at which odor could be a nuisance. Thus, the presence of a reduced sulfur odor under most circumstances does indicate potential harmful exposure.

As a point of clarification, the reference to "natural gas" on the top of DEIR at 4.3-31 refers to "processed natural gas" such as natural gas from which sulfur compounds, water and heavy hydrocarbons have been removed. That reference should not be confused with "produced natural gas," which contains the noted odoriferous impurities

0048-76

This is a section title and a response is not required.

0048-77

The commenter's correct citation to the DEIR is noted for the record.

0048-78

Please see GR Air-1 and GR-16. Commenter's statement that the San Joaquin Valley Air Pollution Control District's permitting scheme is inadequate because the San Joaquin Valley Air Basin is non-attainment for certain pollutants is not correct. Implementation of SJVAPCD's rules, regulations and policies ensure that the Air Basin continues to move toward attainment. SJVAPCD's rules and regulations have resulted in numerous air quality benefits and improvements. For example, the Air Basin is in attainment for major criterial pollutants such as NOx and SOx.[1]

[1] https://www.valleyair.org/aqinfo/attainment.htm.

0048-79

The commenter states that MM 4.3-2 (requiring operators to develop a fugitive dust plan) does not address emissions of small particles, such as PM2.5. The San Joaquin Valley Air Pollution Control District has a dust control plan template that details all of the emissions sources and control measures that must be included in the plan.[1] These sources include bulk material handling, storage and transport as well as other construction activities such as work in disturbed soil, travel on dirt roads, trackout, and wind erosion. The dust control plan template requires the identification of what activities will occur at the site and which measures must be used to reduce emissions. A fugitive dust control plan is effective for reducing the portion of fugitive dust in the fine (*i.e.*, PM2.5) and respirable particulate (*i.e.*, PM10) size ranges. Based on Section 13.2.4.3 of EPA's Compilation of Air Pollutant Emission Factors (AP42), a portion of the fugitive dust emissions consist of particles of 2.5 microns or less as well as PM10.[2] This is further corroborated by many other studies on fugitive dust, such as the Western Regional Air Partnership's (WRAP) *Fugitive Dust Handbook*, which states: "The PM2.5/PM10 ratio for fugitive dust from construction and demolition activities is 0.1 based on the analysis conducted by MRI on behalf of WRAP."[3] The *Fugitive Dust Handbook* also provides analyses which show the cost effectiveness of fugitive dust controls for PM10 as well as PM2.5. As such, mitigation measures designed to suppress the generation of fugitive dust are effective at controlling particulate matter with particle sizes of less than 10 and 2.5 microns.

Please also see GR Air-1 and GR-16

[1] http://www.valleyair.org/busind/comply/PM10/forms/DCP-Form.doc.

[2] http://www3.epa.gov/ttnchie1/ap42/.

[3] http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf.

0048-79 cont'd

0048-80

Please see GR Air-1 and GR-16.

0048-81

Please see GR Air-1 and GR-16.

0048-82

Please see GR Air-1 and GR-16. The mitigation measures are not required to keep SJVAPCD in attainment but to prevent a substantial contribution to an existing air quality violation.

0048-83

Please see GR Air-3, GR Air-5, GR Air-6, and GR Air-7.

0048-84

The commenter did not identify its source for "CARB Recommended Minimum Setback Distances." A 2005 CARB document titled "Air Quality And Land Use Handbook: A Community Health Perspective" includes suggested setback distances of 500 feet or 1000 feet for new sensitive receptors to be located near existing industrial and transportation facilities such as freeways, distribution centers, railyards and refineries.[1] In the handbook, CARB states: "These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues." The CARB recommendations were made for the siting of sensitive receptors near large, relatively continuous sources of diesel particulate emissions. As such, they are not relevant to the question of appropriate setback distances for diesel emissions from well construction, which will typically only last for 66 days or less.

Emissions from processing equipment are not considered in the HRA because oil and gas processing facilities must complete site-specific HRAs in order to obtain an Authority to Construct (ATC) from the District. Thus, risk levels and appropriate setbacks will be determined for oil and gas processing equipment on a case-by-case basis. The revised HRA in Appendix M-1 does consider emissions from completions, including VOCs.

Please also see GR Air-3, GR Air-6, and GR Air-10.

[1] http://www.arb.ca.gov/ch/handbook.pdf.

0048-85

Please see GR Air-9 and GR-Air-10.

0048-86

This is a section title and a response is not required.

0048-87

The commenter's citation to the DEIR is noted for the record.

0048-88

The commenter's citation to the DEIR is noted for the record.

0048-89

The commenter's citation to the DEIR is noted for the record.

0048-90

The commenter's citation to the DEIR is noted for the record.

0048-91

Please see GR Air-1 and GR-16.

0048-92

The commenter's citation to the DEIR is noted for the record.

0048-93

The commenter's citation to the DEIR is noted for the record.

0048-94

The commenter's citation to the DEIR is noted for the record.

0048-95

The commenter's citation to the DEIR is noted for the record.

0048-96

The commenter's citation to the DEIR is noted for the record.

0048-97

The commenter's citation to the DEIR is noted for the record.

0048-98

The commenter's citation to the DEIR is noted for the record.

0048-99

The commenter's citation to the DEIR is noted for the record.

0048-100

Please see GR Air-1 and GR Air-4.

0048-101

The commenter's citation to the DEIR is noted for the record.

0048-102

Please see response 110.

0048-103

The commenter's citation to the DEIR is noted for the record.

0048-104

The commenter's citation to the DEIR is noted for the record.

0048-105

The commenter's citation to the DEIR is noted for the record.

0048-106

The commenter's citation to the DEIR is noted for the record.

0048-107

The commenter's citation to the DEIR is noted for the record.

0048-108

The commenter's citation to the DEIR is noted for the record.

0048-109

Please see GR Air-1, GR Air-2 and GR-16. The commenter's opinion regarding the sufficiency of the mitigation is noted for the record.

0048-110

This is a section title and a response is not required.

0048-111

The commenter's citation to the DEIR is noted for the record.

0048-112

The commenter's citation to the DEIR is noted for the record.

0048-113

Commenter states that there should be a percent limit on the amount of time that flaring can occur. Flares and flaring emissions are subject to San Joaquin Valley Air Pollution Control District permitting requirements and rules. Any source that proposes to include a flare will be required to meet the applicable requirements when obtaining an authority to construct permit or a permit to operate. SJVAPCD requires the incorporation of feasible control technology and imposes operating limitations. SJVAPCD also requires the offsetting of emissions increases. Flares must also comply with SJVAPCD Rule 4311, which limits the emissions of NOx, VOC, and SOx. Each new flare proposed within the jurisdiction of the SJVAPCD will be reviewed by the agency for necessary operating-hours limitations and other appropriate permit restrictions.

Please also see GR Air-1 and GR-16.

0048-114

Commenter suggests that the Project should not be approved until the Applicant can show mitigation measures that will cause a reduction in emissions of ozone, ozone precursors or PM 2.5. CEQA does not require that a Project or CEQA mitigation measures improve air quality or address environmental conditions that are part of the baseline conditions in the Project area. *Paulek v. Dep’t of Water Resources* (2014) 231 Cal. App. 4th 35, 44 ("Environmental problems that would continue to exist even in the absence of any project are part of the baseline conditions rather than [project]-generated environmental impacts.") The San Joaquin Valley Air Basin's attainment status for certain criteria pollutants is part of this baseline and thus the Project is not required to prove that it can reduce baseline emissions via its mitigation measures.

0048-115

This comment is noted for the record.

0048-116

This is a section title and a response is not required.

0048-117

This is a section title and a response is not required.

0048-118

The commenter claims that the analysis of potential water supply demand increases is inadequate for failure to consider future expanded development in the Monterey Shale formation. Please see GR-18 for an explanation as to why expanded development in the Monterey Shale formation is unlikely due to geological and technological constraints. As noted above, the Revised Amended Ordinance has been further revised to ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA, including as a result of technology breakthroughs permitting greatly increased production in the Monterey Shale. See Pub. Res. Code 21166).

0048-119

The commenter claims that the analysis of potential water supply demand increases is inadequate for failure to consider future expanded development in the Monterey Shale formation. Please see GR-18 for an explanation as to why expanded development in the Monterey Shale formation is unlikely due to geological and technological constraints. As noted above, the Revised Amended Ordinance has been further revised to ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA, including as a result of technology breakthroughs permitting greatly increased production in the Monterey Shale. See Pub. Res. Code 21166).

0048-119 cont'd

0048-120

The commenter claims that the analysis of potential water supply demand increases is inadequate for failure to consider future expanded development in the Monterey Shale formation. Please see GR-18 for an explanation as to why expanded development in the Monterey Shale formation is unlikely due to geological and technological constraints. As noted above, the Revised Amended Ordinance has been further revised to ensure that impacts and mitigation measures will be re-evaluated if and when required by CEQA, including as a result of technology breakthroughs permitting greatly increased production in the Monterey Shale. See Pub. Res. Code 21166).

0048-121

This is a section title and a response is not required.

0048-122

The commenter states that the EIR's assumptions about the potential frequency and volume of spills from the Project are underestimated. The commenter references a 2015 report analyzing the number of spills in Kern County and other areas throughout the state. Caryotakis, A., Davies, I., Hafiz, S., Niketen, J., Noakes, D., Wang, R., and Wu, A. (2015), *An Analysis of Hazardous Materials Spills with a Focus on Oil and Gas Production: A 2015 Undergraduate Practicum Project for the UCLA Institute of the Environment and Sustainability* (report prepared for the Natural Resources Defense Council). As the comment notes, that study found that the number of spills in Kern County has generally decreased over recent years. *Id.*, p. 30. The study also found that Kern County had the lowest number of spills per year compared to other counties studied. *Id.*, p. 27. In addition, the study found that most hazardous substance spills in California were of non-petroleum substances, such as sewage, that are unrelated to oil and gas production. *Id.*, p. 34. The study therefore does not contain evidence suggesting that the assumptions

in the EIR about the potential frequency or volume of spills related to the Project was underestimated

The study (p. 37) further shows that most spills are properly reported and contained per existing regulations. For example, the study notes:

On average, only about10% of total spills that occurred in California were not contained; of the spills that affected waterbodies, only about 16% were not contained over the period studied.

In California overall, over 73% of spills were either cleaned up or did not require clean-up.

Thus, the study does not contain evidence suggesting that it is unreasonable for the EIR to assume that operators will comply with spill prevention, control and reporting regulations. It is permissible for the EIR to rely on such programs as mitigation. *See Oakland Heritage Alliance v. Oakland* (2011) 195 Cal. App. 4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance").

The commenter is correct that the EIR data on spill frequency came from the Office of Emergency Services – which was also relied on by DOGGR for the SB 4 EIR – and that this dataset does not include small spills beneath reportable quantities. Non-reportable spill events involve low volumes which are quickly curtailed and cleaned up, and are unlikely to result in environmental impacts. As stated in the EIR, DOGGR reported that 613 spills were reported in the Project Area from 2009 through 2014, and the volume of the spills ranged from extremely small (0.025 of a gallon) to 63,000 gallons. Almost all of the spills (85%) were related to crude oil and produced water (DOGGR 2015a). The EIR acknowledged that while "these data indicate that the incidence of drilling mud and fluid related spills in the Project Area is low and that potential drilling-related spill volumes would be relatively small," there "could be a significant impact if a spill occurred." EIR, p. 4.9-131. The EIR's conclusion is unchanged by the additional possibility of low-volume, non-reportable spills. The commenter did not reference any source of quantitative data on non-reportable spills. An EIR must utilize best available data but is not required to achieve "perfection." See GR 21.

0048-123

The commenter states that the EIR's assumptions about the potential frequency and volume of spills from the Project are underestimated. The commenter references a 2015 report analyzing the number of spills in Kern County and other areas throughout the state. Caryotakis, A., Davies, I., Hafiz, S., Niketen, J., Noakes, D., Wang, R., and Wu, A. (2015), *An Analysis of Hazardous Materials Spills with a Focus on Oil and Gas Production: A 2015 Undergraduate Practicum Project for the UCLA Institute of the Environment and Sustainability* (report prepared for the Natural Resources Defense Council). As the comment notes, that study found that the number of spills in Kern County has generally decreased over recent years. *Id.*, p. 30. The study also found that Kern County had the lowest number of spills per year compared to other counties studied. *Id.*, p. 27. In addition, the study found that most hazardous substance spills in California were of non-petroleum substances, such as sewage, that are unrelated to oil and gas production. *Id.*, p. 34. The study therefore does not contain evidence suggesting that the assumptions in the EIR about the potential frequency or volume of spills related to the Project was underestimated

The study (p. 37) further shows that most spills are properly reported and contained per existing regulations. For example, the study notes:

On average, only about10% of total spills that occurred in California were not contained; of the spills that affected waterbodies, only about 16% were not contained over the period studied.

In California overall, over 73% of spills were either cleaned up or did not require clean-up.

Thus, the study does not contain evidence suggesting that it is unreasonable for the EIR to assume that operators will comply with spill prevention, control and reporting regulations. It is permissible for the EIR to rely on such programs as mitigation. *See Oakland Heritage Alliance v. Oakland* (2011) 195 Cal. App. 4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance").

The commenter is correct that the EIR data on spill frequency came from the Office of Emergency Services – which was also relied on by DOGGR for the SB 4 EIR – and that this dataset does not include small spills beneath reportable quantities. Non-reportable spill events involve low volumes which are quickly curtailed and cleaned up, and are unlikely to result in environmental impacts. As stated in the EIR, DOGGR reported that 613 spills were reported in the Project Area from 2009 through 2014, and the volume of the spills ranged from extremely small (0.025 of a gallon) to 63,000 gallons. Almost all of the spills (85%) were related to crude oil and produced water (DOGGR 2015a). The EIR acknowledged that while "these data indicate that the incidence of drilling mud and fluid related spills in the Project Area is low and that potential drilling-related spill volumes would be relatively small," there "could be a significant impact if a spill occurred." EIR, p. 4.9-131. The EIR's conclusion is unchanged by the additional possibility of low-volume, non-reportable spills. The commenter did not reference any source of quantitative data on non-reportable spills. An EIR must utilize best available data but is not required to achieve "perfection." See GR 21.

0048-124

The comment cites a 2003 study in Oklahoma, demonstrating the continued presence of soil and groundwater contamination at petroleum production sites after 60 years of natural attenuation. This necessarily implies that the spills occurred more than 60 years ago, when industry practices in Oklahoma were far less protective of the environment than industry practices in California today.

0048-125

Remediation of spills is required by applicable laws enforced by a variety of regulatory agencies. In addition, MM 4.8-4 requires operators to immediately contain leaks and spills from oil and gas operations, clean up contaminated media and repair the leak prior to recommencing

operations. MM 4.8-5 requires reporting of contamination above regulatory limits to the Kern County Public Health Services Department which will direct any required response.

0048-126

This is a section title and a response is not required.

0048-127

Comments note quotes a section of the EIR that discusses drilling operations. The EIR describes the typical chemicals used in drilling fluids, p. 4.4-49 – 50. However, as described in the EIR, pp. 4.9-131 - 132, the conclusion that potential groundwater impacts from contact with drilling fluids does not depend only on the types of chemicals used in drilling fluids. Drilling muds and fluids are managed either using a closed loop system of pumps, storage tanks and fluid and mud lines trucked to and temporarily staged on the construction site, or in permitted drilling mud sump. MM 4.8-6 requires use of closed loop mud systems where practical, particularly with oil based muds; while MM 4.9-3 requires all drilling operations to either use a closed loop system or obtain specified permit coverage. Moreover, the best available data that indicate that "the incidence of drilling mud and fluid related spills in the Project Area is low and that potential drilling-related spill volumes would be relatively small, but could be a significant impact if spills occurred." The EIR acknowledges that blowouts during construction could result in release of fluids, but also cites evidence that blowout rates have declined over time. The best available data indicates that a well construction failure is expected to occur about once every two years assuming future construction of about 2,600 new wells per annum. The EIR also includes MM 4.9-1, requiring applicants to comply with applicable laws, regulations, and standards, including well drilling management, construction, monitoring, blowout prevention, fluid and mud containment, and emergency response measures. Compliance with these laws, regulations, and standards would reduce potential groundwater quality impacts from contact with drilling muds or fluids during drilling and construction to less than significant levels. See GR 21 regarding use of best available information in CEQA documents and GR 22 regarding reliance on regulatory requirements as CEQA mitigation.

0048-127 cont'd

0048-128

This is a section title and a response is not required.

0048-129

The comment is correct that proper well design and construction are crucial for ensuring long-term mechanical integrity. The EIR, pp. 4.9-71 – 4.9-72, discusses the proper well casing and cementing process. The commenter's opinion that California's current well construction rules are outdated and inadequate is noted. As discussed in the EIR, recent studies have indicated that well failure or blowout rates in the Project Area have been significantly reduced over time by improved well construction technologies. Blowout rates due to well operations in California Oil and Gas District 4 from 1991 to 2005 ranged from one per 10,000 to one per 60,000 well-years, depending on the oilfield activity taking place at the time of the blowout. In District 4, the well blowout rate was one in 20,000 well-years for all wells in operation, with a rate of one per 15,000 well-years in thermal-recovery fields and one per 60,000 well years in non-thermal-recovery fields during this period. As stated in the EIR, evidence suggests that rates have decreased "due to improvements in production practices, such as improved cementing of steam-injection wells and management of geomechanical processes in reservoirs. These downward trends do not correlate with changes in production activity in the district. This demonstrates that risk in the hydrocarbon industry has and can be significantly reduced with focused effort (Jordan and Benson 2009)." EIR, pp. 4.9-71 – 4.9-72.

Well integrity requirements were also updated as part of the SB 4 implementing regulations; see 14 Cal. Code Regs. §§1782, 1784.1 (requiring mechanical integrity testing and maintenance, and providing that well stimulation must not damage the well casing, tubing, cement, or other well equipment). See also GR 10 regarding DOGGR regulations. MM 4.8-13 requires compliance with all DOGGR requirements for assuring safe drilling and drill casing practices, well design, construction and well management requirements, blowout requirements and all other provisions of applicable DOGGR regulations, as well as compliance with specified industry standards. No additional mitigation is required.

0048-129 cont'd

0048-129 cont'd

0048-130

Please see GR Water-8 and RTCs 2-80 and 2-84.

0048-130 cont'd

0048-131

This is a section title and a response is not required.

0048-132

Please see GR-Water-1 regarding unlined sumps and ponds. MM 4.9-4 prohibits discharges into any surface disposal facility unless the facility has received either Waste Discharge Requirements or a waiver of such requirements from the Central Valley Regional Water Quality Control Board.

0048-132 cont'd

0048-133

Please see GR-Water-1 regarding unlined sumps and ponds. MM 4.9-4 prohibits discharges into any surface disposal facility unless the facility has received either Waste Discharge Requirements or a waiver of such requirements from the Central Valley Regional Water Quality Control Board.

0048-133 cont'd

0048-134

This is a section title and a response is not required.

0048-136

The EIR contains extensive discussion on the Underground Injection Control (UIC) program, including both injection for enhanced oil recovery and for produced water disposal. EIR, pages 4.9-72-75, 96-99, 104-108, 137-139, 141-143. Please see GR-Water-2 updating the discussion of the UIC program. MM 4.9-3 prohibits injection activity regulated by the UIC program unless the aquifer has been exempted by the USEPA or injection has otherwise been authorized by the USEPA or DOGGR.

0048-136

0048-137

This is a section title and a response is not required.

0048-138

Please see GR-12 regarding the CCST report generally and GR-13 regarding the CCST report's conclusions on hydraulic fracturing specifically.

0048-139

This is a section title and a response is not required.

0048-140

The EIR relied on information in the CCST study cited by the commenter, as well as information provided by FracFocus. Please see GR-21 regarding the use of the best available information. The commenter's opinion regarding the EIR's organization structure is noted. However, the organization of impact topics in the EIR follows the model in CEQA Guidelines Appendix G, which of necessity requires multiple sections addressing Project-related chemical use; e.g., air quality (including air toxics health risk assessment), hazards, hydrology and water quality, etc.

0048-140 cont'd

The EIR relied on information in the CCST study cited by the commenter, as well as information provided by FracFocus. Please see GR-21 regarding the use of the best available information. The commenter's opinion regarding the EIR's organization structure is noted. However, the organization of impact topics in the EIR follows the model in CEQA Guidelines Appendix G, which of necessity requires multiple sections addressing Project-related chemical use; e.g., air quality (including air toxics health risk assessment), hazards, hydrology and water quality, etc.

0048-140 cont'd

0048-141

Please see GR-21 regarding the use of the best available information. Bioaccumulative properties, along with acute and chronic toxicity and carcinogenicity, are among the characteristics for which a waste may be identified as hazardous. Cal. Health & Safety Code § 25141. For purposes of assessing effects of inhalation pathway's the County properly relied on the SJVAPCD policy and direction concerning preparation of the HRA. See also GR Water-8 discussing the pathway of ingestion of WST chemicals via use of treated produced water for agricultural irrigation. The comment does not identify "regulatory thresholds" that should be applied to chemicals to evaluate potential health hazards.

0048-141 cont'd

0048-142

The air toxics health risk assessment, including in the Air Quality section of the EIR and updated in GR Air-6, discussed the inhalation exposure pathways. EIR, pages 4.3-103 – 4.3-110 and Appendix M. The Hydrology and Water Quality section of the EIR, updated in GR Water-1 and GR Water-2, discussed toxic chemical contamination of surface and groundwater. EIR, pages 49-63, 140-146. Table 4.9-23 presented information on well stimulation chemicals from the CCST report, including available toxicity data from tests on rats, mice and rabbits. As noted by the commenter and reported in the EIR, Table 4.9-23, CCST also identified data gaps regarding chemicals for which toxicity information is currently unavailable.

To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-142 cont'd

0048-143

The air toxics health risk assessment, including in the Air Quality section of the EIR and updated in GR Air-6, discussed the inhalation exposure pathways. EIR, pages 4.3-103 – 4.3-110 and Appendix M. The Hydrology and Water Quality section of the EIR, updated in GR Water-1 and GR Water-2, discussed toxic chemical contamination of surface and groundwater. EIR, pages 49-63, 140-146. Table 4.9-23 presented information on well stimulation chemicals from the CCST report, including available toxicity data from tests on rats, mice and rabbits. As noted by the commenter and reported in the EIR, Table 4.9-23, CCST also identified data gaps regarding chemicals for which toxicity information is currently unavailable.

To further address uncertainties regarding well stimulation fluid content and transport, as discussed in the CCST report and raised by this and other commenters, this EIR has added MM 4.8-16, requiring toxicity testing, as included in Section 7.1.4.

0048-144

The commenter's opinion regarding the quality of the DEIR's analysis is noted for the record. Please see GR-2 regarding the approach to County-wide analysis of the Project and GR-21 regarding the use of best available information.

0048-144 cont'd

0048-145

The commenter's opinion regarding the quality of the DEIR's analysis is noted for the record. Please see GR-2.

0048-145 cont'd

0048-145 cont'd

0048-146

The commenter's opinion regarding a moratorium is noted for the record.

0048-147

Attachment 1 is a report entitled *An Analysis of Hazardous Materials Spills with a Focus on Oil and Gas Production: A 2015 Undergraduate Practicum Project for the UCLA Institute of the Environment and Sustainability* prepared for the commenter. Please see RTC 48-132 and 48-133 above.

49 Sierra Club

Babak Naficy
LAW OFFICE OF BABAK NAFICY
1504 Marsh Street
San Luis Obispo, CA 93401
(805)593-0926
babaknaficy@sbcglobal.net

September 11, 2015

Via U.S. Mail and Email

Christopher B. Mynk, AICP
Supervising Planner
MynkC@co.kern.ca.us
Kern County Planning Department
Public Services Building
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

Re: **Comments on the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance 2015(C)**

Dear Mr. Mynk:

I submit these comments on behalf of the hundreds of members of the Kern-Kaweah Chapter of the Sierra Club on the Draft Environmental Impact Report for proposed Revisions to the Kern County Zoning Ordinance 2015(C). These comments, which are being submitted in addition to the comments submitted on behalf of the Sierra Club by Earthjustice, largely focus on issues of specific local concern. Kern-Kaweah chapter members are particularly concerned about the DEIR's inadequate review of the environmental impacts of the proposed oil and gas extraction and other well-stimulation activities in the county. 0049-1

The EIR's Project Description violates CEQA.

Oil and gas development in Kern County is massive. The DEIR states that there are at least 43,000 oil/gas well currently operating in Kern County, and it projects (without substantiation or substantial evidence) that there will be 82,000 more such wells in 2035. The EIR's description of these future projects and the resulting significant impacts is legally inadequate. 0049-2

An accurate project description is indispensable for an intelligent and adequate evaluation of the potential environmental effects a proposed project. San Joaquin Raptor/Wildlife Rescue Center V. County of Stanislaus (1994) 27 Cal.App.4th 713, 730. To be adequate, the project description must provide enough information to enable the decision-makers and the public to understand the full scope of 0049-3

the project and its potential environmental impacts. Dry Creek Citizens Coalition v. County of Tulare (1999) 70 Cal.App.4th 20, 28.

0049-3 Continued

0049-4

An EIR's project description must at minimum include the following four mandatory items:

> (1) a detailed map with the precise location and boundaries of the proposed project, (2) a statement of project objectives, (3) a general description of the project's technical, economic, and environmental characteristics, and (4) a statement briefly describing the intended uses of the EIR and listing the agencies involved with and the approvals required for implementation. (Guidelines, § 15124.)

Cal. Oak Found. v. Regents of Univ. of Cal. (2010) 188 Cal. App. 4th 227, 269-70.

0049-5

The appropriate level of specificity of an EIR is determined, not by the EIR's label, but "by the nature of the project and the "rule of reason" [Citation.]" [] quoting *Al Larson, supra*, 18 Cal.App.4th at pp. 741–742.)

Citizens for a Sustainable Treasure Island v. City & Cty. of S.F. (2014) 227 Cal. App. 4th 1036, 1048

> "It is the substance, rather than the form, of [the environmental] document which determines its nature and validity. [Citations.]" (*Natural Resources Defense Council, Inc. v. California Coastal Zone Conservation Com.* (1976) 57 Cal.App.3d 76, 91 [129 Cal. Rptr. 57].) As a general statement of CEQA practice, "[t]he degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR. [¶] … An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan … ." (Guidelines, § 15146.) (9) Recently, it was reaffirmed, "'the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.'

Id., at 376.

0049-6

The EIR must address the environmental impacts of this Project to a "degree of specificity" consistent with the underlying activity being approved through the EIR. Id.

0049-7

Here, the County artificially strives to parade this document as a project level EIR in order to obviate the need for any future environmental review for all future oil and gas projects in Kern County, regardless of size or location. Yet, this Draft EIR lacks the level of specificity required to accomplish this stated goal. The County ignores "the rule of reason" by insisting that despite the overly general level of detail and analysis in this EIR, it sufficiently addresses the potential environmental impacts of every future oil and gas project.

0049-8

Where, as here, the EIR concerns the adoption or amendment of a zoning ordinance, the EIR must necessarily focus on the "secondary effects" of the adoption of the ordinance, not the specific

0049-9

construction projects that may follow the ordinance's adoption. See CEQA Guideline 15164(b), which provides that

0049-9 Continued

> An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption, or amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that might follow.

Where the circumstances do not permit a detailed analysis of specific projects that may follow the approval of the more general project - such as where the project involves the adoption or amendment of a zoning ordinance or a plan - the lead agency may prepare an EIR that focuses on secondary or cumulative impacts of the project as appropriate. Such an EIR may be deemed adequate only where the agency commits to the future analysis of the specific projects that may follow the approval of the ordinance or a plan.

0049-9 Continued

This was the case in Rio Vista Farm Bureau Ctr. v. Cty. of Solano (1992) 5 Cal. App. 4th 351, 372-73, where the EIR only generally analyzed the environmental impacts of the Solano County's adoption of a hazardous waste management Plan. Petitioner argued the EIR was inadequate because it failed to analyze the potential impacts of the hazardous waste facilities that the County agreed would likely follow its adoption of the Plan. The appellate court upheld the validity of the EIR but only because the County had committed to analyzing the environmental impacts of each future hazardous waste facility. The court stated:

0049-10

0049-11

> The Plan is not, as we read it, the first part of a fragmented project; rather, it provides the general guidelines required by law for any separate, but as yet undetermined, future hazardous waste management project. The scope of the Plan, as appropriately described in the FEIR, is limited to recitation of policies, requirements, and siting criteria, and designation of general areas in which future facilities may permissibly be located. No specific facility has been proposed, and the County has not committed to a definite course of action. Moreover, any future projects have been expressly made contingent upon CEQA compliance. The Plan is easily divisible from any potential future projects, which the County has committed to subjecting to the EIR process if and when a specific hazardous waste facility is proposed.

0049-12

Id., at 373.

Here, the DEIR purports to analyze both the "big picture" cumulative impacts of the general guidelines that would govern future oil and gas exploration in the County, as well as the impacts associated with as-yet undetermined oil and gas projects in as yet undetermined locations. Most significantly, rather than committing to reviewing any future oil and gas project that may be proposed in the future, the County has committed to *not* conduct any such review. The County's approach is both unreasonable and in violation of CEQA.

0049-13

0049-14

0049-15

0049-15
Continued

The EIR's unlawfully broad project description, encompassing both the cumulative impacts of oil and gas rules and the project-specific impacts of each future project, will result in additional CEQA violations, as explained below.

0049-16

0049-17

0049-18

0049-19

The project description is inadequate and violates CEQA also because the EIR fails to include or require the applicants to provide concrete details such as depth, fracking, type and quantity of chemicals used, process water generated, etc. The proposed ordinance would continue to allow oil companies to leave everyone in the dark, continuing a century-long tradition of not disclosing project details that are crucial for understanding environmental impacts. The Ordinance should require disclosure of well depth, whether fracking or not, quantities of chemicals used, etc. See Comments of Ron Sahu (filed concurrently) for recommendations. To pass muster under CEQA, the County must require all potential applicants to ensure all oil and gas development permits and well records contain complete and accurate information as to the nature of the permitted project, and make this information publicly available via a dedicated agency-run website.

0049-20

0049-21

An accurate and adequate Project Description must include the following information for each distinct oil and gas project:

- Physical location of future oil/gas activity including location of wellheads, welltoes, and paths;
- Full baseline of geological, seismicity (-3 to +3RM), natural resources, groundwater, and mineral information for the potential field that would be delineated via successful completion of a proposed well within the Project Area;
- Full description of any/all well development, completion, and/or stimulation methods to be used for construction and reconstruction activities within the Project Area;
- Full description of disposition of any/all "produced water" arising from initial drilling and for later field development and production within the Project Area;
- Full description for any enhanced oil/gas recovery processes within the Project Area, including the nature and quantity of waters/gas/steam required;
- Full historic review for any unrecorded, suspected, and or abandoned well within each section of proposed wells and all intervening sections, assuming a continuous well field designation.
- All fields must be delineated by vertical and horizontal parameters as many fields may have stacked reservoirs or pools that have not been included in the current delineation of the surface field boundaries.
- Similarly, all pools, reservoirs, and leases that have been explored but not yet commercially produced and as such would fall within the jurisdiction of the Amendment must be identified, delineated, and dimensioned in the EIR.

The County's approach precludes meaningful alternatives analysis as required by CEQA.

0049-22

The discussion of alternatives and mitigation measures is "the core of an EIR." Citizens of Goleta Valley v. Brd of Supervisors (1990) 52 Cal.3d 553, 564. Yet, by essentially "pre-approving" all future

oil and gas projects subject to compliance with the proposed rules and regulations, the County has essentially denied itself the option of evaluating each individual project on its own merits and based on the project's specific environmental impacts.

0049-22 Continued

This approach violates CEQA's prohibition against approving projects that are capable of causing significant impacts unless there are no feasible alternatives or mitigation measures to address the project's significant impacts. Pub. Res. Code § 21002. The County's proposed approach as explained in the DEIR violates CEQA because it would result in the *de facto* approval of all oil and gas projects, even those with significant impacts, even where environmentally superior alternatives may exist to avoid those impacts. For example, a project that is proposed in an area that contains high quality designated habitat of protected species (such as the San Joaquin kit fox) could potentially avoid a significant biological impact by relocating to an alternative location that does not contain sensitive habitat. According to the EIR, (table 4.4-79) significant impact on high quality habitat for the kit fox would occur in Tier 1 locations and in the Western Subarea. Under the County's proposed approach, a project with significant impacts would be approved in the Western Subarea without any consideration of environmentally superior alternatives in other subareas that do not contain high quality kit fox habitat.

0049-23

The County's approach also ignores CEQA's mandate that the lead agency consider a "no project" alternative. The purpose of the discussion of a "no project" alternative is to compare the environmental impacts of a proposed project with the effects of not approving it. CEQA Guideline §15126(e)(1). The no-project alternative must be evaluated even if it is infeasible. Planning and Conservation League v. Dept. Water Resources (2000) 83 Cal.App.4th 892, 917 ("PCL"). By treating all potential future oil and gas projects as one single massive project and subject only to ministerial approval, the County has abrogated its responsibility under CEQA to analyze a true "no-project" alternative to each proposed oil and gas project.

0049-24

The DEIR's analysis of no-project alternative is flawed also because it assumes that, in most zoning districts, "no review or permit would be
required under the 'No Project' Alternative for the drilling of any well intended for the exploration for, or development or production of, oil, gas, and other hydrocarbon substances …" DEIR at 6-18. This analysis and conclusion is false and misleading in that it ignores the fact that currently, the Division of Oil, Gas, and Geothermal Resources ("DOGGR") is responsible for undertaking environmental review of oil and gas projects. Accordingly, without the proposed amendments to the County ordinance, DOGGR would continue to undertake environmental review of proposed oil and gas projects. See, PCL, supra (EIR's no-project alternative violated CEQA because the no-project alternative falsely assumed that "paper-water" would continue to be available).

0049-25

The EIR's rejection of Alternative 2 (CUP) is unreasonable and in violation of CEQA

The EIR's Alternative 2 would subject all future oil and gas projects to a conditional use permit (CUP) process. According to this alternative, an oil and gas project would require a CUP if it is proposed

0049-26

0049-26
Continued

within one of the following zones: Exclusive Agriculture (A); Limited Agriculture (A-1); Medium Industrial (M-2); Heavy Industrial (M-3); Natural Resource (NR); Light Industrial (M-1); Recreation-Forestry (RF); Estate District (E); Low, Medium, and High-Density Residential(R-1, R-2, R-3); Commercial Office (CO); Neighborhood Commercial (C-1); General Commercial (C-2); Highway Commercial (CH); Platted Lands (PL); Floodplain Primary (FPP); and Special Planning (SP).

0049-27

The EIR disingenuously concludes that this alternative would be environmentally inferior to the proposed project because under this alternative every oil and gas project would not be required to implement every mitigation measure required by the proposed rules. The EIR's reasoning and analysis is flawed and not supported by substantial evidence.

0049-28

The EIR contends:

> Alternative 2 would consider the potential environmental effects each oil or gas well permitted in the County on a case-by-case basis without benefit of a comprehensive industry-wide mitigation strategy specifically designed to address regional conservation priorities. In practice, the Project's ministerial approval procedure would be more protective of the environment overall than would Alternative 2.

The EIR creates a false dichotomy between case-by-case analysis of each project on the one hand and a comprehensive industry-wide mitigation strategy on the other. In truth, the County could well develop a comprehensive oil and gas mitigation strategy that would be implemented on a case-by-case basis. In other words, the County need not abandon the idea of a comprehensive approach to mitigation of oil and gas projects even if it decides to evaluate oil and gas projects on a case-by-case basis as required by CEQA.

0049-29

Moreover, the argument that Alternative 2 would be less environmentally protective than the proposed project must be rejected because it is not based on the law. The EIR bases this conclusion on the claim that "under the proposed project each development standard and condition will apply to every well project irrespective of whether the proposed well development and operations would actually cause the environmental impacts such development standards and conditions are designed to reduce or avoid." To the extent that "development standards and conditions" are mitigation measures, they should not imposed on any project that would not cause a corresponding impact.

The EIR's analysis of Alternative 2 is flawed also because it fails to recognize that in many instances, case-by-case review could result in more stringent mitigation than is required by the broad regulation. Even more importantly, case-by-case review could result in the denial of those oil and gas proposals that would result in unacceptably significant environmental impacts. Under the proposed project, the County has no discretion to deny a project regardless of the extent or severity of the project impacts.

Case-by-case review could result in fewer environmental impacts also because following such review, the County could conclude that environmentally superior alternatives exist that could reduce the project's potential impacts. For example, a project that is proposed in protected species habitat could potentially avoid those impacts by relocating to an alternative location that does not contain sensitive habitat. Under the proposed project, no possibility of site-specific alternatives analysis exists.

0049-29 Continued

The County must adopt a statement of overriding considerations for each oil and gas project that has a significant environmental impact

0049-30

CEQA mandates that whenever an agency approves a project with significant environmental impacts, it must adopt a statement that because of the project's overriding benefits, it is approving the project despite its environmental harm. CEQA Guideline § 15043. This requirement reflects a strong public policy that agencies must weigh a proposed project's benefits against its environmental harm and approve such a project only if the project's environmental risks are "acceptable" because its benefits outweigh the harm. Pub. Res. Code §21081(b), CEQA Guideline §15093(b).

By defining all future project approvals as a "ministerial act," the County's approval of the proposed project amounts to "pre-approving" all future oil and gas projects, regardless of the balance between any given project's benefits and harms. Some projects would result in significant harm by, for example, destroying valuable habitat for protected species or plants, such as the Bakersfield cactus. The benefit of such a project (i.e. limited production of oil and gas) would not necessarily outweigh its harm. The proposed approach precludes the County from complying with CEQA by weighing the pros and cons of each discrete oil and gas project and approving only those projects whose benefits outweigh the environmental harm.

0049-31

The County's objective of increasing and facilitating oil and gas projects violates CEQA Guidelines

0049-32

Several project objectives call for increased, easier and quicker oil and gas extraction in Kern County, in violation of CEQA Guidelines Appendix F goals of "decreasing reliance on natural gas and oil" and "increasing reliance on renewable energy sources," and contradicting current science (some references below) which calls for leaving large portions of fossil fuels in the ground. These objectives effectively call for increasing greenhouse gas (GHG) emissions.

0049-33

These objectives are inconsistent with the State of California's stated goal of drastically reducing GHG emissions and will likely undermine the State's goal of reducing GHG emissions to 50% of 1990 levels by 2050.

0049-34

0049-35

The EIR should adopt the goal of decreasing reliance on fossil fuels and consider an alternative that advances that objective

Given that climate science concludes that large portions of fossil fuel reserves should be left unused, the EIR should include an alternative incorporating CEQA Guidelines Appendix F goals of "decreasing reliance on natural gas and oil" and "increasing reliance on renewable energy sources." While the Project Objectives nonetheless call for increasing oil and gas production, CEQA Guidelines 15126.6 (b) states, "Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, *even if these alternatives would impede to some degree the attainment of the project objectives*, or would be more costly" (emphasis added). We note that the DEIR considers the cumulative impact of the project on GHG emissions to be significant and unavoidable. A Decreasing Reliance on Fossil Fuels Alternative could help in "substantially lessening" this significant effect of the project. In addressing this Alternative, the County should assess other incentives to lessen production.

0049-36

Under the proposed scheme, mitigation measures would not be adequately monitored or enforced

The DEIR does not contain any adequate measures to ensure the required mitigation measures are monitored and enforced to prevent the type of flagrant abuse and neglect that is depicted in the picture below. As many of the impacts of any failure to strictly adhere to the terms and conditions of the permits will be felt locally, it is essential for the County to establish a vigorous monitoring and enforcement program. The DEIR must require verification of actual field equipment used and activity levels as compared to those in the submitted documents pre-project. Even with a more robust mitigation and monitoring program, however, the DEIR's proposed mitigation would still be inadequate for reasons explained above. Instead, in many instances the DEIR allows the oil companies to "self-certify" that they have done what they promised. The County should be responsible for ensuring strict adherence to the permit requirements and should not rely on DOGGR and RWQCB.



0049-36
Continued

Adequate analysis of the DEIR is impossible because a number of studies are not included and the basis for assumptions and conclusions are not provided.

0049-37

Critically, an air quality study is not provided. There is no study to support the climate change analysis and estimate of greenhouse gas emissions. There is no biological resources study. It is therefore impossible to verify accuracy of assumptions and conclusions without substantial background information and justification.

0049-38
0049-40

Likewise, the basis for many of the DEIR's assumptions and conclusions are not identified or do not amount to substantial evidence.

0049-41

The following examples relate to DEIR pages 4.3-73, 74, 79; 4.7-33 below.

1. The DEIR states, "The information used for evaluating well construction activities was obtained from detailed records compiled during the construction of ten new oil and gas production wells in 2010 and 2011." In Table 4.3-11, these ten wells are the basis for data sources and assumptions for New Well Activities, Onroad and Offroad Sources, Ancillary Equipment, and Duration. The conclusion drawn from this date is speculative and unreliable because there is no reason to think that the chosen ten wells from 2010 and 2011 accurately describe construction activities of the tens of thousands of new wells in the next twenty years. Which ten wells were used? Are they typical? To rely on this data, the DEIR must explain why the data from these wells are representative of all future wells in the County.

2. Another of many examples, according to Table 4.3-15, 2012 NOx emissions per well in the Western Subarea averaged 2.47 tons/well. What is the basis for the values and the emission factors in Table 4.3-15? NOx drilling emissions calculated in a recent DOGGR Mitigated Negative Declaration air study for the ELH 2-1 and 35-1 wells in the Western Subarea are listed at 5.2306 tons/well, more than twice as much as the DEIR would attribute to the project. Which of the two computations is in error? It is not clear how these fees would be calculated or what projects they would fund. The DEIR must be revised to clarify these issues. Before the County can rely on the NOx data, the basis for these computations must be adequately explained and the discrepancy with DOGGR data must be explained.
3. Similarly, according to Table 4.3-15, 2012 NOx emissions per well in the Central Subarea averaged 9.96 tons/well, while NOx drilling emissions calculated in a recent DOGGR Mitigated Negative Declaration air study for CRC's Port Arthur project in the Central Subarea are listed at 2.5882 tons/well, less than one-third of the NOx that the DEIR would attribute to the project. Which of the two computations is in error? We note that similar discrepancies hold for CRC's Goldings, Terrebonne, and Rhythm projects in the Central Subarea.

   How would the VERA project fee be determined per MM 4.3-8 for these projects? How effectively can any fees generated through the VERA process be used to reduce air pollution over the life of the "project"? Which projects would

0049-41 Continued

0049-42

0049-43

The DEIR impermissibly relies on potentially unreliable and unverified data supplied by the project applicant.

0049-44

The DEIR unreasonably relies on unverified information submitted by the oil industry. For example, on page 4.3-79, the DEIR states, "The petroleum industry provided projected well counts during the Project period 2015 through 2035." Information submitted by oil and gas operators could be biased since it comes from an industry that has a material and financial interest in the analysis of the DEIR, the type of mitigation and rules imposed by the County, and the County's proposed "streamlined" process. In order for decision-makers and the public to judge the accuracy of these submissions and the conclusions drawn from them, in each instance of oil industry submissions, the County must (1) provide for public inspection of all documents and information submitted by the oil industry and (2) conduct its own investigation and peer review before drawing conclusions based on such information.

0049-45

While the applicant is obviously free to supply the County with studies in support of the project, the County is required to independently evaluate all information provided by the applicant. Foundation for San Francisco's Architectural Heritage v. City and County of San Francisco (1980) 106 Cal.App.3d 893, 908 ("CEQA does not prohibit the applicant from providing the data, information and reports required for the preparation of the EIR," but mandates that "the agency independently perform its reviewing,

0049-46

0049-47

analytical and judgment functions and to participate actively and significantly in the preparation and drafting process.") Accord, Eureka Citizens for Responsible Government v. City of Eureka (2007) 147 Cal.App.4th 357, 369 (citations omitted) (California courts have emphasized that agencies may enlist and even rely on the applicant's consultants for drafting the EIR or submitting data and analysis, so long as "the agency sufficiently exercised independent judgment over the environmental analysis and exposition that constitute the EIR.")

0049-48

The DEIR fails to recognize the difference between the number of new permits and the number of new wells. Many projects have more than one well. For example, four new CRC projects have twelve wells total, three wells per permit. The Rio Viejo project has six wells with a single permit. Table 4.3-18 lists 2104 wells abandoned in 2012 while the December 29, 2012 DOGGR Weekly Summary lists 2396 wells abandoned in District 4 to that date in 2012. Potential inconsistencies between statewide DOGGR data and DEIR data must be addressed.

The DEIR fails to adequately analyze the project's aesthetic impacts

0049-49

The DEIR is inadequate as an informational document because owing to the size of the geographic area and the type of activities it covers, it is unable to adequately analyze the project's potential aesthetic impacts.

0049-50

The DEIR encompasses a whopping 3,700 square miles, including most of the San Joaquin Valley Floor portion of Kern County up to an elevation of 6,000 feet. DEIR at 4.1-3. The project area is larger than the state of Delaware, which is only 2,489 square miles. The project also encompasses the unincorporated areas of Metropolitan Bakersfield area.

0049-51

It is not surprising that the project area encompasses diverse terrain, some that includes high scenic value, as well as terrain that is urban or already visually degraded because of ongoing oil exploration or industrialization:

> The Project Area contains a range of visual resources and areas with differing visual character. Most of the terrain within the Project Area is flat to gently rolling with some hilly and steeply rolling terrain near the west, south, and east boundaries of the Project Area (Figure 4.1-1). The central part of the Project Area is mostly flat and contains a variety of wetlands with natural vegetation. Several stream corridors, including the Kern River, that descend into the valley from the east also contain natural riparian vegetation. However, most of the Project Area consists of diverse agricultural croplands, orchards, and grazing lands or oil and gas development and oil and gas facilities are often interspersed in the agricultural areas. 4.1-2

The DEIR proceeds to discuss potential development scenarios in each of the different sub-areas. The DEIR's ability to actually analyze project impacts is severely hampered because important details of potential oil and

gas projects in each subarea is unknown. Owing to this absence of detailed information, the DEIR is unable to adequately analyze the Project's environmental impacts as required by CEQA. 0049-51 Continued

The DEIR's analysis of aesthetic impacts on each subarea is inadequate as a matter of law. For example, with respect to the western subarea (DEIR 3.1-33), the DEIR states: 0049-52

> This KOP is representative of similar areas in the Project Area where operation activities for oil and gas development may occur without existing oil and gas development noticeable in the view. Intactness, unity, and vividness are high or moderately high for the existing view for this KOP. Operation activities would introduce new well pads with wells of varying types and sizes, new access roads, power poles, equipment and equipment storage areas, aboveground collection and distribution pipes, and occasional vehicles and dust in views with high visual sensitivity…

Based on the foregoing, the DEIR generically concludes that aesthetic impacts of oil and gas exploration would result in a significant impact. This analysis is inadequate, however, because it is too vague and general and is not based on an actual environmental baseline. It is simply not enough for the DEIR to generically conclude that a theoretical project's impact would be significant. Without the details of any actual project, the EIR cannot provide the decision-makers and the members of the public with sufficient information to judge a project's aesthetic impacts. Napa Citizens for Honest Gov. v. Napa County Brd of Supervisors (2001) 91 Cal.App.45h 342, 356.

The DEIR's summary of aesthetics impacts aptly demonstrates that the DEIR does not and cannot adequately analyze the future aesthetic impacts of the many thousands of new oil and gas wells that would be constructed in Kern County in the next 25years. The EIR's summary of aesthetics impacts states: 0049-53

> Although most future oil and gas activities would occur in Tier 1 and Tier 2, and more than 2,000 wells could also be removed annually from these areas, there is the potential that areas that are currently primarily agricultural or open space and that have a predominantly rural or natural aesthetic character could be converted to a predominantly industrial developed character with the addition of large numbers of highly visible and noticeable construction and exploratory equipment, materials, vehicles, and construction activities including well stimulation, and decommissioning/abandonment.

DEIR 4.1-40. The EIR's conclusion that the mass conversion of rural/agricultural open space to an oil-and-gas producing industrial area could result in a significant impact is self-evident. CEQA requires site-specific, project-specific analysis of aesthetics impact in order to afford the decision-makers the ability to understand the environmental impacts of each particular oil and gas project.

0049-54

The EIR's analysis of Air Impacts is flawed

0049-55

There is no air study. There are only five pages of tables with no associated units or justification, merely stating, "Assumptions and description of how the emissions listed in the tables were derived are presented in the report." See, Sahu Report, filed concurrently with Earth Justice comments on behalf of the Sierra Club.Assumptions and descriptions are not supported by reliable evidence:

0049-56

Page 4.3-73 states: "The number of wells that underwent hydraulic stimulation during 2012 was determined from records obtained from Frac-Focus." Participation in Frac-Focus is voluntary and not subject to quality control, therefore there is no reason to think that the information provided is accurate.

0049-57

The same page also states that "the information used for evaluating well construction activities was obtained from detailed records compiled during the construction of ten new oil and gas production wells in 2010 and 2011." Furthermore, the DEIR states: "Durations of other tasks required for completing a specific phase of a construction activity were obtained from the records of the construction of 10 wells in 2010 and 2011." As stated earlier in these comments, there is no reason to think that the chosen ten wells from 2010 and 2011 are representative of future wells or accurately describe construction activities of the many thousands of new wells in the next twenty years.

0049-58

The DEIR also states: "Since historic information on the equipment used for well abandonment was not available, the vehicle and equipment list used for routine well maintenance was used for calculating emissions from well abandonment." How can this accurately describe emissions from well abandonment for the next twenty years? At a minimum, the DEIR should explain why data from well maintenance equipment can be used a proxy for information about well abandonment equipment and vehicles.

0049-59

At Page 4.3-74, the DEIR states: "The number of days required to complete drilling, completion, rework, and abandonments depends on the well depth, and was estimated by interpolating data reported in DOGGR well records." What is this data? How was this data used? Recent DOGGR well records are nonexistent or incomplete.

0049-60

Page 4.3-79 states: "The well count numbers for drilling, rework, well stimulation, and well abandonment for the baseline year 2012 were determined using preliminary information obtained from the California Division of Oil, Gas and Geothermal Resources (DOGGR) District-4 Field Office." This preliminary information must be available to the public. "The petroleum industry provided projected well counts during the Project period 2015 through 2035." As explained above, CEQA requires the agency not to blindly rely on data provided by applicant, and instead requires the lead agency to use its own experts to independently verify the accuracy of data supplies by the industry.

0049-61

Tables 4.3-15, -16, -17, and -18 (pages 4.3-80, 81) are inconsistent with the DOGGR Weekly Summary, December 29, 2012. Drilling permits may have more than one well. Justifications for significantly lower emission factors in 2035 does not appear to be provided. Table 4.3-23 is ambiguous as to whether the emission factors include indirect emissions from power plants necessary to generate the electricity

0049-61 Continued

required for operations. The EIR must explain what percentage of pumps use IC engines, whether these emissions have been included in the overall assessment of the "project's" impact on air quality?

Tables 4.3-21 and 4.3-23 have different total numbers for active wells in 2035, 70037 vs. 82135. Why the inconsistency? Which one is in error? Where do these numbers come from?

0049-62

Emissions from routine well operations don't seem to include emissions associated with the pump motor, direct or indirect. The DEIR must be revised to correct this.

0049-63

MM 4.3-8 The DEIR's discussion of Voluntary Emission Reduction Agreements VERA) is not clear. According to the DEIR, site plan review by County Staff does not incorporate VERA. Under existing regulation, the Air Board calculates project fees to fund a VERA based on the information in the air study about the project's operational and construction air emissions. How can individual project fees be determined if there is no air study that calculates the project's emissions? Moreover, the DEIR must describe and evaluate the type of mitigation measure would be required for those projects that are not required to offset their emissions under a District rule? See Sahu Report.

0049-64
0049-65

The DEIR's discussion of project impacts on Agriculture and Agricultural mitigation measures is inadequate

The DEIR admits that project impacts on agricultural land would be significant. To address this impact, MM 4.2-1a, provides that "Funding and/or purchasing agricultural conservation easements **or similar instrument acceptable to the County (to be managed and maintained by an appropriate entity)**." (emphasis added)] This mitigation measure does not pass legal muster because:

- The notion of a "similar instrument acceptable to the County" is vague and unclear and subject to potential misinterpretation and mismanagement. What is the criteria for being acceptable to the County?
- Similarly, the notion of an "appropriate entity" is unduly vague. What is the criteria for such an entity? In order to ensure that the mitigation is administered by a competent organization, the condition should require that the "appropriate entity" be accredited by the Land Trust Accreditation Commission. See http://www.landtrustaccreditation.org.

The DEIR does not address impacts of use of produced water on agriculture. DEIR Page 4.9-139. Sierra Club members and other local residents are concerned that food crops grown with oilfield produced water could contain dangerous chemicals. The DEIR must discuss whether this is the case, and if so, it must further discuss the health effects of eating such foods. Likewise, the DEIR must discuss whether the use of produced water in agriculture could have any long-term effect on the long-term viability of agricultural operations, marketability of agricultural products produced using produced water

0049-66

The EIR must be revised to fully analyze the range of impacts that could result from the use of produced water for agricultural purposes.

0049-67

On page 4.2-21, the DEIR states, "Future oil and gas exploration and production activities authorized under the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use because there is no forest land or timberland in the Project Area. No impact is identified for this issue." Trees and other plants in increasing elevation are negatively impacted by mobile and stationary source pollution from motor vehicles and industry. Sequoia National Forest and Sequoia-Kings Canyon National Parks are some of the most polluted parks and forests in the federal system. This pollution is directly attributed to San Joaquin Valley activities. See, for example, http://www.elsevier.com/books/ozone-air-pollution-in-the-sierra-nevada-distribution-and-effects-on-forests-2/bytnerowicz/978-0-08-044193-1 or http://www.fs.fed.us/psw/southernsierrascience/speakers/pdf/cisneros.pdf. The DEIR is deficient in not having examined and mitigated the cumulative air pollution effects of this project on forest resources.

Water supply impacts

0049-68

Local residents have specific concerns about water impacts. The Ordinance must close the Halliburton loophole, which exempts the injection of fracking fluids from the federal Safe Drinking Water Act's underground injection control ("UIC") program. The County should draft regulations equivalent to the federal UIC safeguards to close this loophole.

0049-69

The Ordinance should be revised to require groundwater testing performed prior to any well stimulation operations to establish baseline water quality and subsequent to all drilling and well stimulation. Without such a baseline, it is impossible to determine any given oil and gas project's long term impact.

0049-70

According to Table 4.9-1, about 30,223 AF of produced water was disposed into surface ponds. The DEIR fails, however, to state the location of the ponds or propose any means to provide fo adequate monitoring of these sites. The DEIR must be revised accordingly.

0049-71

Regarding drilling sumps, on page 4.9-69, the DEIR states, "Published reports indicate that, as of March 2015, the CVRWQCB had identified 355 inactive ponds previously used for produced water disposal, 370 ponds that are active and permitted, and 208 active ponds that were not issued WDRs or other disposal permits. According to the Project applicants, the CVRWQCB's initial list was based, in part, on outdated aerial maps, and the agency is currently updating this list of permitted and unpermitted ponds based on new information supplied by the oil and gas industry. The CVRWQCB has indicated that it intends to bring all active produced water ponds into regulatory compliance or require closure of any produced water ponds that cannot meet applicable water quality standards by December 2016 (BakersfieldNow.com 2015)." The DEIR is deficient in that it has not studied the impacts of these disposal ponds using information independent of the oil industry which has a vested interest in downplaying these impacts.

On page 4.9-103, the DEIR states, "The CVRWQCB has indicated that it will issue enforcement orders to oil and gas disposal pond facilities as necessary to bring them into compliance with applicable laws and regulations. If beneficial uses of groundwater have been impaired as a result of historical usage of an unlined pond, investigation and remediation may be required." Mitigation measure MM 4.9-5 states, "Where waters with beneficial uses are present and could be adversely impacted, unlined impoundments may have to be retrofitted with liner systems…" This is vague and unenforceable. The DEIR should determine whether "beneficial uses of groundwater have been impaired" and, if so, should give specific criteria under which "unlined impoundments have to be retrofitted with liner systems." 0049-72

Table 4.9-20 gives produced water quality data from 1989. Fracking has increased in the intervening 26 years, and produced water from fracking could contain dangerous chemicals. This data is too old to be believable without vigorous substantiation, and the DEIR has not produced sufficient validation. The DEIR must be revised to address this glaring data gap. 0049-73

On page 4.9-70, the DEIR states, "Based on the information submitted by oil and gas operators, the CVRWQCB determined that unpermitted discharges of well completion fluids, produced water, or stimulation fluids had occurred to drilling sumps in other Project Area locations." Information submitted by oil and gas operators could be biased since it comes from an industry whose profits are partially dependent on downplaying and understating these impacts. The DEIR is deficient in that it has not independently studied the issues associated with unpermitted discharges into drilling sumps. 0049-74

Regarding a BLM study, on page 4.9-86, the DEIR states, "There are no publicly recorded instances of subsurface release of contaminated fluids into potable groundwater in California; additional studies and data collection are needed to fully evaluate this potential concern." The DEIR is deficient in that it has not done the additional studies and data collection "needed to fully evaluate this potential concern." 0049-75

Table 4.9-27 on page 4.9-126, includes three scenarios for oil and gas water supply and demand,. The fact that the EIR considers three different scenarios demonstrates that the County lacks sufficient information to adequately forecast either the supply or demand. With this much uncertainty and speculation, the County should be preparing a program, not a project, EIR. 0049-76

Indirect Impacts 0049-77

When evaluating whether a project will have significant environmental impacts, the lead agency must consider both the direct effects of the project and the reasonably foreseeable indirect effects. 14 Cal. Code Regs. § 15064. "An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project." 14 Cal. Code Regs. § 15064(d)(2). CEQA is clear that lead agencies must evaluate impacts outside the project area: "[N]o statute (in CEQA or elsewhere) imposes any per se geographical limit on otherwise appropriate CEQA evaluation of a project's environmental impacts." *Muzzy Ranch Co. v. Solano Cnty. Airport Land Use Comm'n*, 41 Cal. 4th 372, 387 (2007). "Indeed, the purpose of CEQA would be undermined if the appropriate governmental agencies went forward without an awareness of 0049-78

the effects a project will have on areas outside of the boundaries of the project area." *Napa Citizens for Honest Gov't v. Napa Cnty. Bd. of Supervisors*, 91 Cal. App. 4th 342, 369 (2001).

0049-78 Continued

The EIR entirely fails to mention, let alone evaluate, indirect effects of the proposed project. When burned as fuel, the oil and gas produced by this project will contribute to air pollution and global warming. While some of that contribution may be mitigated through regulation of end users, surely a significant portion of the emissions will not be mitigated and will contribute to air pollution and climate change. This contribution must be quantified and mitigated.

0049-79

Unmitigated GHG emissions from burning the oil and gas produced in Kern County oilfields. The DEIR is deficient in that it fails to adequately analyze the following:

- It does not compute the amount of annual unmitigated GHG emissions from burning the oil and gas produced in Kern County oilfields.
- It does not assess the impact of unmitigated GHG emissions from burning the oil and gas produced in Kern County oilfields.
- It does not require mitigation for unmitigated GHG emissions from burning the oil and gas produced in Kern County oilfields.

A recent article (see http://link.springer.com/article/10.1007/s10584-013-0986-y) traces large percentages of anthropogenic greenhouse gas emissions to fossil fuel producers. The DEIR should adequately analyze the proposed "project's" GHG impacts and require Kern oil producers to mitigate this significant cumulative impact.

0049-80
0049-81

OTHER CONSIDERATIONS

Local residents have specific concerns about drilling waste. The drilling mud waste, which includes the cuttings from the formations found in the borehole, and crude oil mixed with the clay for additional lubrication in the drilling mud, is usually hauled away by diesel trucks for disposal. For each well, several dozen such waste loads often end up in landfills, perhaps in Avenal to the north. Hauling away the drilling waste must be considered for both the transportation pollution and the landfill impacts.

0049-82

Since the applicants represent most exploration and production companies within the County, the applicants must provide information available to them regarding the Project and existing conditions, and not just "generally available" information; specifically the EIR must contain a complete bibliography of all information from reports, DOGGR applications, articles, conferences' presentations, etc. and an online searchable database must be provided to be linked to the bibliography.

0049-83

Idle wells not properly abandoned. CEQA Guidelines state, "An EIR must include a description of the physical environmental conditions in the vicinity of the project." CEQA Guideline §15125. Among many other shortcomings, we find no accounting for wells that are idle and not properly abandoned. According to Table 4.3-21 on pages 4.3-85,86, there were 11,827 idle wells in the project area in 2012, and the DEIR anticipates 11,773 idle wells in 2035. The DEIR states, "The number of idle wells is the

0049-84

same for every Project year 2015 – 2035, and was calculated as the average of the number of idle wells reported to DOGGR from 1999 through 2014."

0049-84 Continued

- Given the large increase in the number of active wells over this time period, on what basis does the DEIR speculate that the number of idle wells will be constant?
- Given DOGGR's poor record in keeping track of other oilfield facilities (e.g., 208 active disposal ponds without permits), the DEIR is deficient in blindly accepting DOGGR's numbers on idle wells. How many idle wells have gone unreported to DOGGR?
- How will the County determine when an idle well has been deserted?
- How many idle wells in Kern County have been deserted?
- How much does it cost to properly abandon an idle well? Are fees for idle wells large enough to incentivize proper abandonment?
- Is there a time limit for idle wells that would trigger proper abandonment?
- The DEIR is deficient in not having assessed and mitigated the impacts of idle, deserted, and/or not properly abandoned wells on the County environment.
- PRC § 3206.5 allows the County to request proper abandonment of idle or deserted wells. TheCounty must established a program to properly abandon deserted or long-time idle wells before approving new oil and gas wells.

0049-84 Continued

As the DEIR notes on page 4.7-15, the EPA has found that GHGs "endanger the public health and the public welfare of current and future generations" and that "emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that endangers public health and welfare." A recent article (see http://link.springer.com/article/10.1007/s10584-013-0986-y) traces large percentages of anthropogenic greenhouse gas emissions to fossil fuel producers. The DEIR is deficient in that it has not addressed public health issues associated with motor vehicle and other GHG emissions resulting from the fuel produced from the expected oil and gas extracted from the Kern oilfields during the life of this EIR.

0049-85

A recent article by Mera, Massey, Rupp, Mote, Allen, and Frumhoff in the journal *Climactic Change* (referenced at http://link.springer.com/article/10.1007/s10584-015-1474-3) attributes an increase in heat stress to human induced climate change and states, "In California's Central Valley, heat waves have become progressively more severe in recent decades due to higher humidity and warmer nighttime temperatures. . . . Among the most affected was the Latino community in agricultural regions (Knowlton et al. 2009), who face relatively high exposure to extreme heat due to extensive outdoor work. In fact, the Latino population continues to be at disproportionately high climate risk across the United States, supporting the relatively wide sentiment within the Latino community that climate change is a serious problem that should be addressed." The DEIR is deficient in that it has not addressed environmental justice public health issues associated with motor vehicle and other GHG emissions resulting from the fuel produced from the expected oil and gas extracted from the Kern oilfields during the life of this EIR.

0049-86

On page 268, the San Joaquin Basin Case Study included as Chapter 5 of Volume 3 of the CCST SB 4 EIR (see http://ccst.us/projects/hydraulic_fracturing_public/SB4.php) states, "there has also been no targeted monitoring of groundwater quality, nor have there been specific efforts to determine the extent of potentially compromised wellbore integrity." The DEIR contains no discussion whatsoever of wellbore integrity. The EIR must address these issues.

0049-87

On page 340, the San Joaquin Basin Case Study states, "Current well construction requirements in the San Joaquin Basin are not designed to protect groundwater with 3,000 to 10,000 mg/L TDS that is not otherwise exempt from protection." Such groundwater "has not historically been methodically determined and mapped" (page 339). The EIR must methodically map such groundwater, must impose strict well construction requirements to protect such groundwater, and must require strict monitoring and enforcement of such requirements to ensure that such groundwater is protected.

0049-88

On page 340, the San Joaquin Basin Case Study states, "the likelihood of leakage of stimulation fluids or reservoir gases via faults opened during hydraulic fracturing is not known. This likelihood should be investigated further, perhaps in simulation assessments and/or dedicated field studies. In the meantime, it is important to ensure that site characterization efforts conducted will detect existing faults of a size sufficient to connect the reservoir to protected groundwater before a hydraulic fracturing operation is conducted." The DEIR is deficient in that it does not contain such an investigation, nor does it contain requirements for appropriate "site characterization efforts."

0049-89

0049-90

On page 267, the San Joaquin Basin Case Study states, "One of the current methods for produced water disposal from pools with hydraulic fracturing in the San Joaquin Basin is discharge into evaporation-percolation pits. This presents a potential risk for contamination of potable groundwater resources and should be phased out in the future." While the DEIR speculates about three scenarios regarding disposal of produced water, the DEIR requires no mechanism for phasing out the use of evaporation-percolation pits. For that matter, on page 4.9-141, the DEIR admits, "The extent to which surface disposal can be reduced by 90% as projected in Scenario 3 is uncertain." Mitigation Measure 4.9-5 passes the buck to the CVRWQCB. The DEIR fails to address this important issue.

September 11, 2015

Babak Naficy

Babak Naficy,
Attorney at Law

0049-1

Comment noted. The comment is a general introduction. No response is necessary.

0049-2

Please see GR-2 and GR-8.

0049-3

Comment noted. The comment is a general statement of CEQA law. No response is necessary.

0049-3 cont'd

0049-4

Comment noted. The comment is a general statement of CEQA law. No response is necessary.

0049-5

Comment noted. The comment is a general statement of CEQA law. No response is necessary.

0049-6

Comment noted. The comment is a general statement of CEQA law. No response is necessary.

0049-7

Please see GR-2.

0049-8

Please see GR-2.

0049-9

Please see GR-2.

0049-9 cont'd

0049-9 cont'd

0049-10

Comment noted. The comment is a general statement of CEQA law. No response is necessary.

0049-11

Please see GR-2.

0049-12

Please see GR-2.

0049-13

Please see GR-2.

0049-14

Please see GR-2.

0049-15

Please see GR-2.

0049-15 cont'd

Please see GR-2.

0049-16

The comment proposes modifications to the Revised Amended Ordinance states that the Project Description should be modified to reflect the suggested modifications. Adoption of a zoning ordinance or zoning ordinance amendment is a legislative act and as such is subject to the discretion of the legislative body, provided the ordinance is not arbitrary or capricious. *Arnel Development Co. v. City of Costa Mesa* (1980) 28 Cal. 3d 511, 516–518 (rezoning is legislative act regardless of size of parcel rezoned or number of landowners affected). Since a zoning ordinance is a legislative act, there are no specific requirements for its content. An accurate, stable, and finite project description is the sine qua non of an informative and legally sufficient EIR. The project must be described accurately to allow reviewers and decision makers to balance the project's benefits against its environmental costs, to consider mitigation measures, and to assess the advantages of the no-project and other alternatives. *County of Inyo v. City of Los Angeles* (1977) 71 Cal. App. 3d 185, 192–193. The Project Description (DEIR, Ch. 3) describes the Revised Amended Ordinance and the activities authorized thereunder. It would violate CEQA to change the Project Description to include information and requirements not included in the Revised Amended Ordinance.

0049-17

Please see response to 0049-16.

0049-18

Please see response to 0049-16.

0049-19

Please see response to 0049-16.

0049-20

Please see GR-2.

0049-21

Please see GR-2.

0049-22

Please see GR-2.

0049-22 cont'd

0049-23

The Project does not violate CEQA. If the Project is approved, proposed oil and gas facilities that qualify for ministerial review under the Revised Amended Ordinance will not be considered a "project" for purposes of CEQA. Under the CEQA Guidelines, the term "project" refers to an activity subject to CEQA. 14 Cal. Code Regs. § 15002(d). Pursuant to Public Resources Code § 20180(b)(1), CEQA does not apply to ministerial projects proposed to be carried out or approved by a public agency. However, if the Project is approved, proposed oil and gas facilities that do not qualify for ministerial review under the Revised Amended Ordinance, and instead require a conditional use permit, will be subject to discretionary review. Unlike ministerial actions, discretionary actions proposed to be carried out by a public agency are considered "projects" pursuant to CEQA and thus require environmental review. *See* Pub. Res. Code § 21080(a). If the Project is adopted, no proposed oil and gas facilities will be approved, *de facto* or otherwise, unless and until such facilities obtains a valid ministerial or discretionary permit, as required by the Revised Amended Ordinance. This comment also wrongfully presupposes that all discretionary actions that are, in fact, subject to CEQA must undergo an alternatives analysis in order to comply with CEQA. This is not so. Under CEQA, an alternatives analysis is only required for projects that may have a significant impact on the environment and thus require environmental analysis under a full environmental impact report. *See* Pub. Res. Code §§ 21080(d); 21100(b)(4). If, however, the discretionary action would not have a significant effect on the environment, then the lead agency must prepare a negative declaration to that effect. *See* Pub. Res. Code § 21080(c). A negative declaration is not required to include an alternatives analysis. *See* 14 Cal. Code Regs. § 15071. Please see Global Response 1.

0049-24

This comment misstates the requirements of CEQA. Please see Response 0067-25, above. The EIR's evaluation of the required No Project alternative is set forth on Draft EIR pages 6-17 through 6-19. Please also see Response 0067-25, and Global Responses (GR)- 01, 02 and ALT-02.

0049-25

Please see Global Response (GR)-ALT-02.

0049-26

Please see Global Response (GR)-ALT-02.

0049-26 cont'd

0049-27

Please see Global Response (GR)-ALT-02.

0049-28

Please see Global Responses (GR)-01, -02, and -ALT-02.

0049-29

Please see Global Response (GR)-01, -02, and -ALT-02.

0049-29 cont'd

0049-30

A statement of overriding considerations is anticipated to be adopted for the project. A statement of overriding considerations is required with a final EIR where a project will have significant impacts that can’t be "reduced or substantially lessened," but specific economic, legal, social, technological, or other benefits outweigh those impacts. CEQA Guidelines § 15093; Pub. Res. Code § 21080. A statement of overriding considerations is thus not required for every project that has a significant environmental impact, but only when mitigation measures are insufficient to reduce or substantially lessen significant environmental impacts. *Id*. A statement of overriding considerations must be supported by substantial evidence in the record. CEQA Guidelines § 15093(b); *Koster v. County of San Joaquin* (1996) 47 Cal.App.4th 29, 32. The County anticipates that a statement of overriding considerations will be adopted with the final EIR, which will have to be supported by substantial evidence in the record in order to meet the requirements of CEQA. (Draft EIR, p. 1-2.)

The Draft EIR consists of a project-level analysis that analyzes the environmental impacts of a wide range of oil and gas projects, which will all be taken into account by the County in either adopting a statement of overriding considerations, or rejecting the proposed Ordinance. (Draft EIR, p. 2-23.) Please refer to GR-1 for additional discussion of the project-level review. The Draft EIR is anticipated to cover "the vast majority," but not necessarily all such future projects. (*Id*.) Where an application for Oil and Gas Conformity Review indicates that a proposed future project does not fall within the scope review of the Draft EIR, the Draft EIR indicates that additional review under Public Resources Code Section 21166 and CEQA Guidelines Section 15162 may be required. (*Id*.) CEQA Guidelines Section 15162 requires additional CEQA review where: (1) substantial changes to a project require revisions to the EIR due to new or increased significant environmental effects; (2) substantial changes to surrounding circumstances occur and require revisions to the EIR due to new or increased significant environmental effects; or (3) new information shows that a project will have effects not discussed in the prior EIR, more severe effects than were previously examined, or new mitigation measures not analyzed or adopted would substantially reduce one or more significant effects. CEQA Guidelines § 15162(a). If additional CEQA review is required and the criteria necessitating a statement of overriding considerations is met by the future project, the lead agency must adopt a statement of overriding considerations at that future time. CEQA Guidelines § 15093.

Accordingly, any concern that future oil and gas projects that will have additional impacts not analyzed in the current EIR will be able to escape additional CEQA review—and the possibility of having to adopt a statement of overriding considerations if the criteria are met—is unfounded. See *Citizens for a Sustainable Treasure Island v. City & Cty. of S.F.* (2014) 227 Cal. App. 4th 1051 (rejecting argument that program level EIR for 20 year, multi-phase project allowed lead agency to evade future CEQA review where, as here, the EIR indicated future projects would require additional review if standards of Pub. Res. Code § 21166 were met.)

Please also see GR-1.

0049-31

This is a section title and a response is not required.

0049-32

The comment suggests that the Project objectives conflict with CEQA Guidelines Appendix F, which states that "decreasing reliance on fossil fuels such as coal, natural gas and oil" is a way to meet energy conservation goals.

A lead agency is not required to align its Project objectives with the goals stated in Appendix F. Rather, Appendix F is an advisory document that was created by the State Resources Agency in response to AB 1575, which amended Public Resources Code Section 21100(b)(3) to require

EIRs to consider the consumption of energy caused by a project. Thus, the only requirement in Appendix F is the requirement to consider the energy impacts of a project in the EIR. (See *California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173, 206, 209 (*Woodland*) ["Appendix F of the CEQA Guidelines requires that projects assess the energy impacts of a project when a fair argument can be made that the project will have significant environmental impact."].)

Pursuant to Appendix F and Public Resources Code Section 21100(b)(3), the DEIR thoroughly discusses the potential energy impacts of the Project. (See DEIR at pp. 5-8–5.14). The DEIR ultimately determined that oil and gas production operators would use energy efficiently and that in-state oil production would reduce the amount of crude oil the state must import, an energy intensive process.

Nothing further is required by Appendix F.

Please also see GR GHG-1 and GR Air-12.

0049-33

The comment suggests that the Project objectives conflict with CEQA Guidelines Appendix F, which states that "decreasing reliance on fossil fuels such as coal, natural gas and oil" is a way to meet energy conservation goals.

A lead agency is not required to align its Project objectives with the goals stated in Appendix F. Rather, Appendix F is an advisory document that was created by the State Resources Agency in response to AB 1575, which amended Public Resources Code Section 21100(b)(3) to require EIRs to consider the consumption of energy caused by a project. Thus, the only requirement in Appendix F is the requirement to consider the energy impacts of a project in the EIR. (See *California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173, 206, 209 (*Woodland*) ["Appendix F of the CEQA Guidelines requires that projects assess the energy impacts of a project when a fair argument can be made that the project will have significant environmental impact."].)

Pursuant to Appendix F and Public Resources Code Section 21100(b)(3), the DEIR thoroughly discusses the potential energy impacts of the Project. (See DEIR at pp. 5-8–5.14). The DEIR ultimately determined that oil and gas production operators would use energy efficiently and that in-state oil production would reduce the amount of crude oil the state must import, an energy intensive process.

Nothing further is required by Appendix F.

Please also see GR GHG-1 and GR Air-12.

0049-34

The comment states that the Project's objectives conflict with the State of California's goal of drastically reducing GHG emissions and that the Project will likely undermine the State's goal of reducing GHG emissions.

The Project objectives do not call for "increased, easier and quicker oil and gas extraction." To the contrary, the County's objectives include adding procedures and compliance standards for the oil and gas industry "for the purpose of reducing or eliminating potential significant adverse environmental effects," in addition to a goal of increasing monitoring by the County. (DEIR at p. 1-5.) To meet these objectives, the proposed Amended Zoning Ordinance increases the County's oversight over oil and gas extraction and includes over 100 new procedural and substantive requirements that apply to Project activities.

The potential of the Project to result in climate change effects by increasing GHGs was fully analyzed in the DEIR. (See DEIR pp. 4.7-1–4.7-45.) The DEIR specifically addressed whether the Project will interfere with the State's ability to achieve its GHG targets for 2030 and 2050 and concluded that the proposed Project, as mitigated, is consistent with the State's goals. (DEIR at pp. 4.7-43–4.7-44.)

0049-35

The comment suggests that the EIR should adopt the goals stated in Appendix F for decreasing reliance on fossil fuels and increasing reliance on renewable sources. Commenter also requests that the DEIR consider an alternative that advances that objective.

As stated in responses 34 –35, above, Appendix F does not require EIRs to include its goal of decreasing reliance on fossil fuels and increasing reliance on renewable sources as projective objectives, it only requires that EIRs consider the energy effects of the proposed project.

Energy effects of the project were analyzed. (See DEIR at pp. 5-8 to 5-14). The DEIR ultimately determined that oil and gas production operators would use energy efficiently and that in-state oil production would reduce the amount of crude oil the state must import, an energy intensive process.

Further, renewable energy alternatives were considered in the DEIR. (See DEIR at pp. 6-14–6-17.) For more information, please see GR GHG-1, GR Alt-1 and GR Alt-2.

0049-36

Please see GR 1 – Ministerial Permitting Process and GR 19 – Mitigation Monitoring and Reporting Program, for a description concerning how the Revised Zoning Ordinance will be implemented and enforced.

0049-36 cont'd

0049-37

The comment states a legal conclusion and is noted for the record.

0049-38

The commenter states that the absence of an air quality study and a GHG analysis and estimate invalidates the air quality and GHG analysis in the DEIR. All of the supporting information used in drafting the DEIR was available to the public upon request to the County. Some parties obtained the supporting information via a California Public Records Act request. The DEIR was not required to include this material. To keep the EIR to a manageable length, source documents used in preparing an EIR need not be included in the EIR. *See* CEQA Guidelines § 15148. Scientific, engineering, and technical reports and similar documents relied on in preparing an EIR need not be incorporated into the body of the EIR or in an EIR appendix. *Id.*; *see also Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR); *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou* (2012) 210 Cal. App. 4th 184, 219 (an EIR may summarize information in a technical report without appending the report or incorporating the report by reference); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173 (the EIR's hydrological analysis was not incomplete when a study relied on in determining the drainage report was not included in the EIR).

Please see GR Air-1, GR Air-4, and GR GHG-1 for further explanation of the air quality and GHG analysis.

0049-40

The commenter states that the absence of an air quality study and a GHG analysis and estimate invalidates the air quality and GHG analysis in the DEIR. All of the supporting information used in drafting the DEIR was available to the public upon request to the County. Some parties obtained the supporting information via a California Public Records Act request. The DEIR was not required to include this material. To keep the EIR to a manageable length, source documents used in preparing an EIR need not be included in the EIR. *See* CEQA Guidelines § 15148. Scientific, engineering, and technical reports and similar documents relied on in preparing an EIR need not be incorporated into the body of the EIR or in an EIR appendix. *Id.*; *see also Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR); *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou* (2012) 210 Cal. App. 4th 184, 219 (an EIR may summarize information in a technical report without appending the report or incorporating the report by reference); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173 (the EIR's hydrological analysis was not incomplete when a study relied on in determining the drainage report was not included in the EIR).

Please see GR Air-1, GR Air-4, and GR GHG-1 for further explanation of the air quality and GHG analysis.

0049-40

The commenter states that the absence of an air quality study and a GHG analysis and estimate invalidates the air quality and GHG analysis in the DEIR. All of the supporting information used in drafting the DEIR was available to the public upon request to the County. Some parties obtained the supporting information via a California Public Records Act request. The DEIR was not required to include this material. To keep the EIR to a manageable length, source documents used in preparing an EIR need not be included in the EIR. *See* CEQA Guidelines § 15148. Scientific, engineering, and technical reports and similar documents relied on in preparing an EIR need not be incorporated into the body of the

EIR or in an EIR appendix. *Id.*; *see also Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR); *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou* (2012) 210 Cal. App. 4th 184, 219 (an EIR may summarize information in a technical report without appending the report or incorporating the report by reference); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173 (the EIR's hydrological analysis was not incomplete when a study relied on in determining the drainage report was not included in the EIR).

Please see GR Air-1, GR Air-4, and GR GHG-1 for further explanation of the air quality and GHG analysis.

0049-41

Please see GR-Air 4 regarding air quality methodology and emission estimates.

The NOx emissions from well drilling reported in the DOGGR mitigated declaration for ELH 2-1 and 35-1 differ from the factor used in the DEIR for the Western Subarea for a variety of reasons. The most obvious is the difference in well depth. The depth of the ELH 2-1 and 3-5 wells were reported to be 16,000 feet. The average depth of the wells in the Western Subarea is 2,400 feet. Approximately 99% of the wells in the Western Subarea have a depth less than 16,000 feet. It takes a greater amount of time to drill deep wells relative to shallow wells. Consequently, the emissions estimate for the ELH-35 2-1 and 3-5 wells (16,000 foot wells) is greater than the emission factor considered representative of a well in the Western Subarea.

The NOx emissions calculated for the Port Arthur project, which is located in the Central Subarea, are less than those predicted by the Kern County analysis for a variety of reasons. It appears that for the most part, the NOx emissions reported for the Port Arthur project only include the emissions from site preparation and from well drilling. In the Kern County analysis, well construction includes the NOx emissions resulting from the following:

Site preparation Pre-drilling activity Drilling activity Well completion Construction of well interconnect flow lines Construction of electrical system required to operate the well Installation of the well pumping unit required for producing the well

In the Port Arthur project it was assumed that two of the 4 drilling ring engines were idle. However, representatives from drilling companies, such as Nabors drilling explained that on most deep wells (like the Port Arthur project wells) all engines are usually operated at load during the drilling activity. Other assumptions used in the Port Arthur project result in lower emission estimates compared to the Central Subarea drilling factor used in the Kern County analysis. In addition, the fact that the Port Arthur Project NOx calculations were lower than the calculated NOx emissions in the EIR refutes the notion that emissions are understated in the EIR and supports the idea that the air quality analysis is a conservative assessment of Project emissions.

Please see GR-Air-2 regarding the OG-ERA as mitigation.

0049-41 cont'd

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-42

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-43

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-44

The comment states that the County must exercise its independent judgment when relying upon information provided by the Applicant. The County agrees. CEQA authorizes applicants to provide information to a lead agency for purposes of an EIR. 14 Cal. Code Reg. § 15084(d)(3); see *Friends of La Vina v. County of Los Angeles* (1991) 232 Cal. App. 3d 1446, 1453 (preparation by applicant's consultant was acceptable because the Lead Agency exercised independent review and judgment over the document); see also *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal. App. 4th 357 (preparation by applicant's counsel was acceptable because Lead Agency exercised independent review and judgment over the document); *Sunset Drive Corp. v. City of Redlands* (1999) 73 Cal. App. 4th 215, 220, (preparation by applicant's consultant was acceptable because City exercised its independent review and judgment). Here, the County

exercised its independent judgment in reviewing the information provided by the Applicant (*see* DEIR at 1-3 *see also* 2-214 Cal. Code Reg. § 15084(e); *City of Poway v. City of San Diego* (1984) 155 Cal. App. 3d 1037, 1042–1043) and determined that it was the best available information for purposes of preparing the environmental analysis. Please see GR 21 – Best Available Information. The information reviewed by the County to support development of the EIR is included in the technical appendices to the EIR (DEIR, Appendices A-W), all of which was available for public review (DEIR, Vol. I, Notice of Availability for Public Review).

Please see GR-Air-4 regarding air quality methodology and emission estimates and GR-21. The DEIR acknowledges that it must reflect the independent judgment of the County. *See* DEIR at 1-3, 2-2.

0049-45

As is usual and customary in CEQA proceedings with an applicant, the applicant team was required to submit information about their proposed project activities as well as various technical reports. The County in all cases engaged in an independent assessment of of this data, augmented or replaced this data with data that was determined to be superior (see, e.g., Appendix X which rejected the "land disturbance estimates" calculated by teh Applicant's consultant and replaced tehse with higher estimates), etc.

0049-46

0049-47

Please see GR-Air 4 regarding air quality methodology and emission estimates.

The NOx emissions from well drilling reported in the DOGGR mitigated declaration for ELH 2-1 and 35-1 differ from the factor used in the DEIR for the Western Subarea for a variety of reasons. The most obvious is the difference in well depth. The depth of the ELH 2-1 and 3-5 wells were reported to be 16,000 feet. The average depth of the wells in the Western Subarea is 2,400 feet. Approximately 99% of the wells in the Western Subarea have a depth less than 16,000 feet. It takes a greater amount of time to drill deep wells relative to shallow wells. Consequently, the emissions estimate for the ELH-35 2-1 and 3-5 wells (16,000 foot wells) is greater than the emission factor considered representative of a well in the Western Subarea.

The NOx emissions calculated for the Port Arthur project, which is located in the Central Subarea, are less than those predicted by the Kern County analysis for a variety of reasons. It appears that for the most part, the NOx emissions reported for the Port Arthur project only include the emissions from site preparation and from well drilling. In the Kern County analysis, well construction includes the NOx emissions resulting from the following:

Site preparation

Pre-drilling activity

Drilling activity

Well completion

Construction of well interconnect flow lines

Construction of electrical system required to operate the well

Installation of the well pumping unit required for producing the well

In the Port Arthur project it was assumed that two of the 4 drilling ring engines were idle. However, representatives from drilling companies, such as Nabors drilling explained that on most deep wells (like the Port Arthur project wells) all engines are usually operated at load during the drilling activity. Other assumptions used in the Port Arthur project result in lower emission estimates compared to the Central Subarea drilling factor used in the Kern County analysis. In addition, the fact that the Port Arthur Project NOx calculations were lower than the calculated NOx emissions in the EIR refutes the notion that emissions are understated in the EIR and supports the idea that the air quality analysis is a conservative assessment of Project emissions.

Please see GR-Air-2 regarding the OG-ERA as mitigation.

0049-48

The comment states that the EIR fails to recognize the difference between the number of new permits and the number of new wells, The comment cites examples where projects have several wells operating under a single permit. The air quality analysis in the DEIR analyzes the impact of drilling 3,647 wells per year, regardless of how many permits this would constitute. *See* DEIR at 4.3-71 (stating the "authorized number of new wells per year, that is 3,647 wells each year"); 4.3-98 (stating that the maximum number of new wells that may be authorized is 3,647). This is clear by reference to Table 4.3-31 which shows the total number of new authorized wells per year as 3.547. The analysis in the air quality chapter thus considers 3,647 wells per year, and the County does not plan to authorize more than that under the Ordinance. As such, the Revised Amended Ordinance has been further revised to include a cap of 3,647 new well permit ministerial approvals annually, consistent with the projected number of annual wells evaluated in this EIR. While, in some circumstances, an operator may be able to undergo a single conformity review for a multi-well project, each well would require its own permit, and these permits would count toward the annual cap.

The DEIR does state that the County will not authorize more than 3,647 permits (*see e.g.,* DEIR at 4.3-71, 99) which previously could have been interpreted to mean multiple wells under one permit, but the revised ordinance and other portions of the DEIR make clear that the cap is 3,647 wells.

The comment also states that potential inconsistencies between DOGGR data and EIR data must be addressed. With respect to potential inconsistencies with DOGGR data, please refer to GR-14 and GR Air-4.

0049-49

It has been suggested that the DEIR fails to adequately analyze the Project's visual and aesthetic effects. Oil and gas operations are distributed throughout the Project Area, with particular intensity in Tier 1 and a strong presence in Tier 2. Continuing this pattern of historic land development will cause visual changes within the immediate vicinity of the new equipment. However, these changes are generally consistent with existing visual patterns. The analysis in an EIR "need not be exhaustive." CEQA Guidelines § 15151. "A legally adequate EIR . . . ‘must contain sufficient detail to help ensure the integrity of the process of decisionmaking by precluding stubborn problems or serious criticism from being swept under the rug.’" *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App. 3d 692, 733. The EIR must contain facts and analysis to reflect the analytic route the agency traveled from evidence to action. *Id.*

Kern County has established an Environmental Checklist to determine whether a project would have a significant impact on aesthetics. Under the County's checklist, a significant impact occurs if the project would:

Have a substantial adverse effect on a scenic vista; Substantially damage scenic resources, including but not limited to, trees, rock, outcroppings, and historic buildings within a state scenic highway; Substantially degrade the existing visual character or quality of the site and its surroundings; or Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. The DEIR evaluated all four of these impacts. It was determined that there were no designated scenic vistas within the Project area. DEIR at 4.1-28. Further, there are no designated State Scenic highways within the Project Area. *Id.* In determining whether the Project would substantially degrade the existing visual character of the site, 10 key observation points ("KOPs") were selected. *Id.* at 4.1-19. These KOPs were selected to represent a range of typical views within the Project Area where oil and gas development would occur and from sensitive areas. *Id.* The KOPs and the subsequent photosimulations illustrate potential likely oil and gas development that could occur during construction and operation. *Id.* The KOPs were assessed across of variety of factors, *id.* at 4.1-19–21, at various points of oil and gas development, *id.* at 4.1-29–40.

By conducting a project-level review of the Amended Zoning Ordinance and future development pursuant to the ordinance at this time, the EIR informs the policy decisions reflected in the Ordinance, and allows the County to identify performance standards and mitigation measures that most effectively and efficiently address both the large scale and localized effects of oil and gas development. The impact analysis has been performed on a landscape or regional scale, and the EIR also contains extensive analysis and mitigation measures at the micro scale. As such, the EIR meets CEQA's requirements for a project-level review both for the Amended Zoning Ordinance and the development undertaken in the future under the Ordinance. The EIR undertakes a detailed analysis of site-specific impacts and mitigation measures by using the Kern County Data Basin, a publicly accessible science-based mapping and analysis platform that supports learning, research, and sustainable environmental stewardship, and provides map-based data in support of county planning efforts. *See* Global Response 2.

The accurate citation to *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal. App. 4th 342, 356 is noted and included in the final EIR. The commenter's opinion that the DEIR analysis has been hampered by a lack of information is noted for the record.

0049-50

It has been suggested that the DEIR fails to adequately analyze the Project's visual and aesthetic effects. Oil and gas operations are distributed throughout the Project Area, with particular intensity in Tier 1 and a strong presence in Tier 2. Continuing this pattern of historic land development will cause visual changes within the immediate vicinity of the new equipment. However, these changes are generally consistent with existing visual patterns. The analysis in an EIR "need not be exhaustive." CEQA Guidelines § 15151. "A legally adequate EIR . . . ‘must contain sufficient detail to help ensure the integrity of the process of decisionmaking by precluding stubborn problems or serious

criticism from being swept under the rug.’" *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App. 3d 692, 733. The EIR must contain facts and analysis to reflect the analytic route the agency traveled from evidence to action. *Id.*

Kern County has established an Environmental Checklist to determine whether a project would have a significant impact on aesthetics. Under the County's checklist, a significant impact occurs if the project would:

Have a substantial adverse effect on a scenic vista; Substantially damage scenic resources, including but not limited to, trees, rock, outcroppings, and historic buildings within a state scenic highway; Substantially degrade the existing visual character or quality of the site and its surroundings; or Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. The DEIR evaluated all four of these impacts. It was determined that there were no designated scenic vistas within the Project area. DEIR at 4.1-28. Further, there are no designated State Scenic highways within the Project Area. *Id.* In determining whether the Project would substantially degrade the existing visual character of the site, 10 key observation points ("KOPs") were selected. *Id.* at 4.1-19. These KOPs were selected to represent a range of typical views within the Project Area where oil and gas development would occur and from sensitive areas. *Id.* The KOPs and the subsequent photosimulations illustrate potential likely oil and gas development that could occur during construction and operation. *Id.* The KOPs were assessed across of variety of factors, *id.* at 4.1-19–21, at various points of oil and gas development, *id.* at 4.1-29–40.

By conducting a project-level review of the Amended Zoning Ordinance and future development pursuant to the ordinance at this time, the EIR informs the policy decisions reflected in the Ordinance, and allows the County to identify performance standards and mitigation measures that most effectively and efficiently address both the large scale and localized effects of oil and gas development. The impact analysis has been performed on a landscape or regional scale, and the EIR also contains extensive analysis and mitigation measures at the micro scale. As such, the EIR meets CEQA's requirements for a project-level review both for the Amended Zoning Ordinance and the development undertaken in the future under the Ordinance. The EIR undertakes a detailed analysis of site-specific impacts and mitigation measures by using the Kern County Data Basin, a publicly accessible science-based mapping and analysis platform that supports learning, research, and sustainable environmental stewardship, and provides map-based data in support of county planning efforts. *See* Global Response 2.

The accurate citation to *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal. App. 4th 342, 356 is noted and included in the final EIR. The commenter's opinion that the DEIR analysis has been hampered by a lack of information is noted for the record.

0049-51

See comment response 52 above.

0049-51 cont'd

0049-52

See comment response 52 above.

0049-53

See comment response 52 above.

0049-54

The comment states a legal conclusion and is noted for the record.

0049-55

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-56

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-57

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-58

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-59

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-60

Please see GR-Air-4 regarding air quality methodology and emission estimates and GR-6 regarding the 2012 baseline.

0049-61

Emissions from pumps using IC engines are included in the overall assessment of the Project's impact on air quality. Please see GR-Air-4 regarding air quality methodology and emission estimates and GR-Air-12 regarding lifecycle analysis.

0049-61 cont'd

0049-62

Please see GR-Air-4 regarding air quality methodology and emission estimates.

0049-63

Please see GR-Air-2 regarding the emission reduction agreement as mitigation. Under the Project, there will be no individual air study conducted for each oil and gas activity. The Project EIR serves as the air study for future Project activities. The EIR has determined air emissions based on well depth by year and determined an associated mitigation fee. The air study for determination of the appropriate fee has therefore been conducted up front. No further activity-specific study is needed to calculate fees.

0049-64

The comment states a legal conclusion and is noted for the record.

0049-65

The comment states that MM 4.2-1 is inadequate for purposes of mitigating the Project's impacts to agricultural resources. Please see GR Ag-1.

The comment also states that the EIR failed to address use of produced water for agricultural irrigation. Please see GR Water-8.

0049-66

Please see GR Water-8.

0049-67

As noted in the EIR, the "Project Area does not support woodlands or forest lands. According to the California Department of Forestry and Fire Protection's Fire and Resource Assessment Program, there are no Timberland Production Zones in Kern County (CAL FIRE 2010). Therefore,

forest and timberlands are not analyzed in this section." DEIR, p. 4.2-6. Thus, the EIR did not analyze the potential for cumulative air pollution to impact forest resources.

0049-68

The comment states that the County should draft regulations for underground injection control (UIC) activities. As explained in the DEIR (section 2.6.4), state agencies such as DOGGR have occupied the field with regard to the regulation of subsurface oil and gas activities. Please see GR Water-02.

0049-69

The comment states that the County should require groundwater testing prior to well stimulation treatment activities. Such testing is already required by the permanent SB 4 regulations promulgated by DOGGR, which became effective July 1, 2015. Please see GR-10.

0049-70

Please see GR Water-1.

0049-71

Please see GR Water-1.

0049-72

Please see GR Water-1.

0049-73

The comment states that the EIR should not have relied upon information from DOGGR concerning produced water quality. As the state agency with primary oversight over oil and gas operations throughout the state, DOGGR has the most relevant information for purposes of analyzing impacts form oil and gas activities, including the quality of produced water. Further, the technical consultant used his expert judgment when reviewing and relying upon that data. DEIR, Appendix S – Water Quality Assessment. Pursuant to 14 Cal. Code Reg. § 15151, an "EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." The County and the EIR may permissibly rely on generally available information. Please see GR-21.

0049-74

Please see GR Water-1.

0049-75

The comment states that the DEIR should conduct additional studies and data collection to fully evaluate the potential for the subsurface release of contaminated fluids to potable ground water in California caused by well stimulation treatment activities. In the independent judgment of the County, it has relied upon the best available information to prepare the EIR (please see GR-21), and the analysis and conclusion in the EIR are supported by substantial evidence.

0049-76

Please see GR-2 and GR-21.

0049-77

The comment is a section heading and is noted for the record.

0049-78

Please see GR Air-12 regarding lifecycle analysis, and section 3.4.2 of the DEIR on page 3-23.

With regard to impacts outside of the Project Area, the commenter states that the analysis is inadequate because it failed to assess the Project's impacts on areas outside the San Joaquin Valley Air Basin. As described below, the air and climate analyses fully evaluated potential impacts in the Project Area, and analysis outside that area is not necessary.

The Project Area is Completely Within the San Joaquin Valley Air Basin

The development standards and conditions for new oil wells contained in the proposed Amendment to Chapter 19.98 of the Kern County Zoning Ordinance would apply throughout the unincorporated portions of the County. However, the project description states that, "for purposes of this EIR, the ‘Project Area’ is defined as the portion of unincorporated Kern County that is depicted in Figure 3-1 (Project Area)." Figure 3-1 in the EIR defines the Project Area as the western portion of Kern County, which is part of the San Joaquin Valley Air Basin. The San Joaquin Valley portion of the County was chosen as the Project Area because it includes the oil and gas producing zones of the County, primarily consisting of the Valley Floor area. Hence, the Project Area is the geographic area subject to foreseeable environmental impacts from the Project.

CEQA requires a public agency to mitigate or avoid its projects’ significant effects on the environment, with "environment" defined as "the physical conditions which exist within the area which will be affected by a proposed project." CEQA § 21060.5. The "area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project." CEQA Guidelines § 15360 (emphasis added). That area is the Project Area as defined by the EIR. Although there may be minor air quality impacts outside of the Project Area, the EIR has identified the area in which any potentially significant impacts would occur to be the Project Area and thus the EIR analysis has been limited to that region. CEQA does not require an agency "to conduct an exhaustive analysis of all conceivable impacts a project may have in areas outside its geographical boundaries." Save the Plastic Bag Coalition v. Manhattan Beach (2011) 52 Cal.4th 155, 174. The decision to address air quality impacts only in the San Joaquin Valley Air Basin is thus reasonable because: (1) the state is separated into various air basins that address unique air pollution issues, as described in more detail below; and (2) the Project Area is contained within one air basin.

The Geography of the San Joaquin Valley Air Basin Ensures Air Quality Impacts are Localized

The state is divided into 15 air basins for purposes of managing the state's air resources. Air basins are not designated based on political boundaries but on physical boundaries in order to recognize real differences in atmospheric conditions and air quality across the state and thus to effectively manage air pollution in different areas. California's air basins were created by the California Air Resources Board (CARB) (17 C.C.R. §§ 60100–60114) under authority of the California Health & Safety Code (§ 39601) which allows CARB to adopt standards, rules and regulations to execute its powers. As noted above, the Project Area is completely within the San Joaquin Valley Air Basin, and is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD) for air quality purposes.

Air pollution is directly related to a region's topographic features. As described in the EIR, the San Joaquin Valley Air Basin is in the southern half of California's Central Valley. EIR p. 4.3-1. It is 250 miles long and bordered by mountains on three sides. The bowl shaped topography of the Valley inhibits movement of pollutants out of the Valley. In addition, air quality transport mitigation requirements adopted by CARB for the San Joaquin Valley (see 17 C.C.R. § 70600(c)) will further assure that Project activities do not adversely affect air quality outside of the Project Area. Several commenters asserted that the GHG analysis is inadequate because it failed to assess the Project's impacts on climate change in areas outside of the San Joaquin Valley Air Basin portion of the County. As described below, the GHG analysis fully evaluated potential GHG impacts in the Project Area, and addressed the global nature of climate change through the cumulative analysis and the global perspective of the GHG analysis in the EIR. Thus, the GHG analysis appropriately addresses the global impact of climate change and is adequate under CEQA.

Global Change Impacts were Assessed

Climate change, by its nature, is a cumulative impact resulting from innumerable GHG sources around the world. Climate change is a global issue with global solutions and global effects. The DEIR recognizes this and discusses the global nature of GHG emissions and climate change

in the physical and regulatory setting and in its analysis of GHG impacts. *See, e.g.,* p. 4.7-9. The regulatory setting in the GHG chapter describes policies for GHG reduction at international, federal, state, and local levels. *See* pp. 4.7-13 – 4.7-25. The DEIR also recognizes that "the study area for climate change and the impact analysis of GHG emissions is broad because climate change is influenced by global emissions and their associated effects." EIR p. 4.7-30.

The cumulative analysis in the GHG chapter analyzes Project emissions in conjunction with the mitigation measures in the Kern Council of Governments Regional Transportation Plan (RTP), which are intended to reduce cumulative GHG emissions. *See* pp. 4.7-42 – 44. This analysis finds that Project emissions are consistent with the GHG emission reduction goals in both EO S-3-05 and EO B-30-15, but that impacts from cumulative GHGs emissions would remain significant and unavoidable. This analysis clearly addresses GHG impacts outside of the Project area because it analyzes the Project's impacts on climate change, a global issue. In addition, the Office of Planning and Research (OPR) has noted that GHG emissions and climate change are primarily a cumulative, rather than a project-specific issue. *See* OPR's Technical Advisory on CEQA and Climate Change online at: http://opr.ca.gov/docs/june08-ceqa.pdf (stating that climate change is ultimately a cumulative impact). SJVAPCD Guidance also states that project specific GHG emissions should be evaluated in terms of their cumulative impact on global climate change. *See* EIR p. 4.7-32.

Further, courts have stated that no one project can be tied to a global phenomenon such as climate change. *Wild Earth Guardians v. U.S. Forest Serv.* (D.C. Cir. 2015) 2015 U.S. Dist. LEXIS 109690 at *80-81 (stating that EIS which said "… it is impossible to determine what effect any given amount of GHG emissions resulting from an activity might have on the phenomena of global warming, climate change, or the environmental effects stemming from it. It is therefore not currently possible to associate any particular action and its specific project-related emissions with the creation or mitigation of any specific climate-related effects at any given time or place" was adequate under NEPA); *see also Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.* (9th Cir. 2008) 538 F.3d 1172, 1217 (stating that the impact of GHG emissions on climate change is a cumulative impact). The DEIR also recognizes that "analytical tools have not been developed that can determine the effect on worldwide global warming from a particular Project-specific increase in GHG emissions, or the effect of global GHG emissions on the climate at a particular location." P. 4.7-31.

Finally, because climate change is truly a global issue, any GHG emissions will have the same impact, regardless of where the emissions are located or where the effect is studied, because the impact is the result of cumulative emissions of GHG into the atmosphere. Thus, any potential impacts due to project implementation will be the same in the SJVAPCD portion of Kern County as in any other location in the world. Put another way, there are no potential climate impacts that could occur outside of the SJVAPCD portion of the county that are not already mentioned and analyzed in the EIR's analysis of potential GHG impacts in the SJVAPCD portion of the County, or in the cumulative GHG analysis.

For these reasons, the DEIR does consider the global effects of GHG emissions due to Project implementation and thus addresses impacts from GHG emissions from a global perspective. This analysis is adequate under CEQA. *See Save the Plastic Bag Coal. v. City of Manhattan Beach* (2011) 52 Cal.4th 155, 174 (CEQA does not require an agency "to conduct an exhaustive analysis of all conceivable impacts a project may have in areas outside its geographical boundaries").

0049-78 cont'd

0049-79

Please see GR Air-12

0049-80

Please see GR Air-12.

0049-81

Please see GR Air-12.

0049-82

As described in the Project Description, the regular disposal of hazardous and non-hazardous wastes are a component of the oil and gas activities authorized pursuant to the Revised Amended Ordinance. Specifically, oilfield-related wastes that exhibit hazardous waste characteristics or that are listed hazardous wastes (e.g., spent solvents), and that are not otherwise excluded or exempt, are typically sent offsite for disposal at facilities authorized by the DTSC or are sent out of state for disposal." DEIR, p. 3-67. The analysis of Project-related traffic

includes all truck trips related to daily operations. DEIR, p. 4.16-43; DEIR, Appendix W - Traffic Impact Study and Roadway Assessment, pp. 11-13. As described in the Chapter 4.17, Utilities and Service Systems, the Project Area is served by landfills with sufficient capacity, including landfills licensed to receive hazardous waste. DEIR, pp. 4.17.61 – 4.17-62. Thus, the EIR analyzes and mitigates both the traffic- and landfill-related impacts from hauling drilling waste from oil fields to appropriate landfills; nor is there any evidence that hauling drilling wastes result in unique or different impacts not identified in the EIR.

0049-83

The comment requests additional information be provided by the Applicant for purposes of the EIR. Pursuant to 14 Cal. Code Reg. § 15151, an "EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." The County and the EIR may permissibly rely on generally available information. Please see GR-21. There is no legal support that the types and volumes of information identified in the comment must be provided for an EIR to be legally adequate.

0049-84

Please see GR Haz-2.

0049-84 cont'd

0049-84 cont'd

0049-85

Commenter states that the DEIR is deficient because it did not address environmental justice public health issues. CEQA does not require analysis of environmental justice issues. CEQA section 21083.1 expressly states that CEQA is not to be interpreted so as to impose procedural or substantive requirements beyond those expressly stated by the Legislature or in the CEQA Guidelines.

0049-86

Please see GR-12.

0049-87

Please see GR-12.

0049-88

Please see GR-12.

0049-89

Please see GR Water-1.

0049-90

Please see GR Water-1.

50 Kern County Farm Bureau

KERN COUNTY FARM BUREAU

801 South Mount Vernon Avenue
Bakersfield, CA 93307-2888
www.KernCFB.com

Phone: (661) 397-9635
Fax: (661) 397-3403
Email: kcfb@kerncfb.com

Greg Wegis
President

Jeff Rasmussen
1st Vice President

Catalino "Tito" Martinez
2nd Vice President

Beatris Espericueta Sanders
Executive Director

September 10, 2015

Kern County Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

Re: Comments on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Mrs. Oviatt:

On behalf of 1,400 members of the Kern County Farm Bureau, I am writing to thank you and the Board of Supervisors for extending the comment period for the Oil and Gas Draft Environmental Impact Report ("DEIR") to September 11, 2015. We appreciate your recognition of the strain the harvest season we are currently in places on growers and their schedules. We have used the additional time you granted to thoroughly and carefully review the DEIR. We focused our review on surface impacts and effects on farming operations, which are set forth in the DEIR as Tier 2. We respectfully request your thoughtful consideration of the following comments. 0050-1

Ordinance Comments:

- In Section 19.98.010 – a reference is made to Figure 19.98.015 but is not included in the Ordinance. Requesting to be provided the figure 19.98.015 referenced with an opportunity to comment on after receipt. 0050-2
- In Section 19.98.020 – a reference is made to definitions of activities are located in Appendix A but is not included in the Ordinance. Requesting to be provided the Appendix A referenced with an opportunity to comment on after receipt. 0050-3
- In Section 19.98.050(D) – Time limitations – No mention of surface owner notification or considerations. Surface owner should be notified upon the decision to extend the permit and/or terminate within 15 days prior to the action. 0050-4
- In Section 19.98.060(A)(1) – what is the definition of public highway? Depending on the definition of public highway this could impact the location of a drill pad which could determine the ability to the continued use of the surface.
- In Section 19.98.070 – No Permit Required section has concerns from a surface owner perspective. Depending on the following items, the surface owner has no notification of these actions and could impede their ability to continue to use the surface with no ability to have any input.
    - What is the difference between a reworked well and well workover and reactivation of Idle well? These definitions could cause misunderstandings between the applicant and the surface owner with no ability from the County to regulate since no permit is required. The surface owner is not provided any notification or notice prior to the activity to occur.
    - What is geophysical monitoring? Depending on the definition, this activity could interfere with the surface activities and no notification is required. Provide the definition for us to have an opportunity to comment.
    - What is well testing? And since no permit is required is this meaning existing operating well? Depending on the definition, this activity could interfere with the surface activities and no notification is required. Provide the definition for us to have an opportunity to comment.
    - What is vegetation? If this means cleaning the area for weeds and debris surface owner should be notified since some property surface is classified as organic and with the requirements of the Irrigated Lands Program, the surface owner needs to know what is being used. Please provide the definition for us to have an opportunity to comment.

0050-4
Continued

  - Why are fencing, well abandonment and revegetation under no permit required? This means no surface owner notification or input. For well abandonment, the surface owner might be interested in knowing the depth of the abandonment so that future deep ripping practices might occur with no incident. Also, there might be a surface access agreement in place which could cause a misunderstanding between the applicant and the surface owner. If the drill site is leased to a new applicant, these activities without a permit required and no notification to the surface owner could impede the surface activities.
- In Section 19.98.080(F)– Provide surface owner with mitigation list as part of the site plan requirement
- In Section 19.98.080(F) – If in Tier 2 provide surrounding land use on site plan
- In Section 19.98.080(F) – Provide information on sumps location and type (earthen?)
- In Section 19.98.080(F) – If lighting is being required, provide information on the site plan of the location and also the power lines to service the site. Overhead electrical or communication lines shall be aligned to the greatest extent feasible with the existing access roads and the minimum distance between the access road and the well installation. If the use of existing roads is not feasible, lines shall be routed to minimize the surface disturbance and minimize the impacts to surface activity.
- In Section 19.98.080(F) – Underground pipelines serving the Project shall be shown on the site plan with locations marked and recorded with USAA and periodically inspected and maintained.
- In Section 19.98.080(F) – If Spill Prevention Countermeasure and Contingency Plan is required, a copy should be provided to the surface owner during the pathway process
- In Section 19.98.080(F) – If a stormwater prevention plan (SWPPP) is required a copy shall be provided to the surface owner for approval prior to submission to the Regional Water Quality Control Board especially since the surface owner must consider any impacts to their requirements under the Irrigated Lands Program
- In Section 19.98.080(F) – If a Fugitive Dust Control Plan is required a copy shall be provided to the surface owner for approval prior to submission to the San Joaquin Valley Air District since the site will be located within farming activities and should not interfere with those activities (traffic speeds, grading activities, dust control measures, etc.) Today agricultural activities must comply with Rule 8081 and Rule 4550 and this could cause a conflict between the activities of the surface owner and the applicant and possibly put the surface owner in violation of a Rule that is not currently a requirement. .
- In Section 19.98.080(F) – If a Worker Environmental Awareness Program is required a copy shall be provided to the surface owner for their ability to educate their employees as well.
- In Section 19.98.090(B) & (G) – Notification of the issuing of the permit to the surface owner should be a requirement. And notification should be in a required signature delivery.
- In Section 19.98.090(A) - The surface owner should be provided all the required items in Section 19.98.090 and as such the sentence should read," For Tier 2, 3 and 5 areas, a copy of the application shall be provided to the Land/Surface owner per the requirements of 19.98.080 above." Remove (F) from the sentence.
- In Section 19.98.100 – These comments are based on the staff report presented to the Board of Supervisors on July 27th, 2015 and to match up the proposed pathway to the staff report.
  - (A) The surface owner should be provided all the required items in Section 19.98.090 and as such the sentence should read. "For Tier 2, 3 and 5 areas, a copy of the application shall be provided to the Land/Surface owner per the requirements of 19.98.080 above." Remove (F) from the sentence.
  - (B) Mandatory 30 day first review. Notice to be provided to the surface owner that the process is under a mandatory 30 day first review with an invitation for the surface owner to meet with staff to understand the process, including the mitigation measures.
  - (C) Mandatory 30 day second review. Notice to be provided to the surface owner that the process is under a mandatory 30 day second review with an invitation for the surface owner to meet with staff to understand the process, including the mitigation measures.
  - (G) After the permit is issued a 30 day mandatory waiting period for drilling activity. Notice to be provided to the surface owner that the process is under a mandatory 30 day waiting period and that the permit has been issued. The notice is also to advise the surface owner that during the construction of the oil facility a county inspector is required to be on site at all times. The surface owner should be provided the contact information of the county inspector.

- Add (H) Must comply with Section 19.98.140 of this Ordinance (inspection compliance)

0050-4 Continued

- In Section 19.98.120(A) – The surface owner should be provided all the required items in Section 19.98.090 and as such the sentence should read, "For Tier 2, 3 and 5 areas, a copy of the application shall be provided to the Land/Surface Owner per the requirements of Section 19.98.080 above. Remove (F) from the sentence.
- In Section 19.98.120(B) & (G) – Notification of the issuing of the permit to the surface owner should be a requirement. And notification should be in a required signature delivery.
- In Section 19.98.130 – once a violation occurs, the existing permit as well as the next issued permit must be under an inspection compliance as stated in Section 19.98.140 (Inspection Compliance)
- In Section 19.98.140 – Indicate that the cost for the county inspector is the requirement of the applicant.
- In Section 19.98.140 – add that the applicant shall be responsible for complying with the issued Oil and Gas Conformity site plan as well as the mitigation item MM 4.8-6 and all other mitigations during the construction and continued operations.
- In Section 19.98.150(B) – Notification to the surface owner should be a requirement 30 days prior to the activity so that the surface owner may be able to work through the depth of the abandonment with the applicant.

Mitigation Comments:

0050-5

- MM 4.1-2 & 3 – In Tier 2, confirm earthen sumps are still allowed to be used in the drilling process under the Regional Water Quality Control Board standards and if they are, require that this must appear on the site plan for the surface owner to be notified and given the right to approve in the process as well as the surface owner to be notified prior to the fill in of the sump so as to confirm that it was handled properly. Prior to any use of the agreed upon earthen sump, soil testing shall occur and compared to soil testing after the clean up of the earthen sump. With the requirement of Irrigated Lands Program, the soil tests shall be provided to the surface owner.

0050-6

- MM 4.1-4 – In Tier 2 prior to any construction or planting of any shrubs, the surface owner shall be notified and approval obtained

0050-7

- MM 4.1-6 – In Tier 2, if permanent lighting is required provide the information on the location of the light facilities on the site plan as well as the power lines to service so that the surface owner is notified and given the right to approve in the process

0050-8

- MM 4.2-1 – The ratio of 1:1 needs to include the gross loss of farmland including any new roads or disruption of land due to power lines or accessory equipment placement or the establishment of "no man" farming islands. Due to size of land being converted is approximately 2 to 5 acres, the only mitigation item to be considered to meet the conversion of farm land would be the mitigation funds being deposited into a fund established to the abandonment of any idle existing well either in close proximity to the new well, common ownership or a well on a list generated by the County of Kern with the assistance of the Kern County Farm Bureau. This established conservation bank fund shall either be held by the County of Kern or the Kern County Farm Bureau where an oil applicant may deposit the ratio of 1:1 funds. This conservation bank fund may also be used by other industries (developers, solar companies, etc.) to meet their ag conversation requirements. At no time should any funds leave the County of Kern.

0050-9

- MM 4.2-2(b) – If a Spill Prevention Countermeasure and Contingency Plan is prepared, a copy should be provided at least to the surface owner at the time of the application process

0050-10

- MM 4.2-2(c) – The speed limit established should be the same speed limit as the surface owner's Conservation Management Practices application submitted to the San Joaquin Valley Air Pollution Control District which is normally 15 mph and already posted on existing roads

0050-11

- MM 4.2-2(d) – Unpaved roads shall not be treated with any other dust suppression except water without the permission from the surface owner due to the Irrigated Lands Program and the classification of existing soils (organic)

0050-12

- MM 4.2-2(e) – In Tier 2, the Control entrances should not be allowed without the permission of the surface owner. Existing dirt roads shall be left as they exist today and no new entrances shall be allowed without the permission of the surface owner. To place a 50 ft length of a 3 inch thick layer of gravel one inch or larger in diameter will damage farm equipment and not allow the free movement of the farm equipment as exists today. Currently, agricultural operations such as harrowing, terracing and leveling, and soil preparation and agricultural activities (farming) are exempt from the State Water Board's Storm Water Pollution Prevention Plan (SWPPP) and this mitigation requirement removes the exemption from the surface owner's activities of farming.
- MM 4.2-2(f) – See comment above (Impact 4.2-2(e)

0050-13

- MM 4.3-2 – In Tier 2 we are requesting that this mitigation be removed as written and that the applicant shall comply with the surface owners Conservation Management Practices application. On-field agricultural sources and activities are exempt from submitting and/or complying with Rule 8011 Fugitive Dust Control Plan but must comply with Rule 8081 and Rule

0050-14

4550. If not removed this will cause a conflict between the activities of the surface owner and the applicant and possibly put the surface owner in violation of a Rule that is not currently a requirement. 0050-14 Continued

- MM 4.3-8 – In Tier 2, the applicant shall first look for compliance mitigation with the surface owner impacted by the project and if none available then shall work with Kern County Farm Bureau to locate compliance mitigation opportunities. At no time should any dollars leave Kern County. 0050-15
- MM 4.4-1 – In Tier 2, confirm that farming activities (farmed 5 years or more out of the last 10 years) is considered ground disturbance so that no focused surveys shall be required. No biological focused surveys are allowed without the surface owner's approval. 0050-16
- MM 4.4-2 thru 4.4-16 – In Tier 2, confirm that farming activities (farmed 5 years or more out of the last 10 years) is considered ground disturbance so that no requirements exist. Surface Owner shall be the first notified under any of the mitigation items within these sections and no surveys are allowed without the surface owner's approval. 0050-17
- MM 4.4-17 – In Tier 2, confirm that farming activities (farmed 5 years or more out of the last 10 years) is considered ground disturbance so that no pre-disturbance survey shall be required. No surveys are allowed without the surface owner's approval.
- MM 4.5-1 – In Tier 2 confirm that farming activities (farmed 5 years or more out of the last 10 years) is considered ground disturbance so that no conformity review would be required. No intensive pedestrian ground-surface survey shall be required on disturbed farm land especially without the surface owner's approval.
- MM 4.5-4 – In the event archaeological materials are encountered, in Tier 2 the surface owner shall be notified immediately.
- MM 4.5-5 – In the event human remains are uncovered, in Tier 2 the surface owner shall be notified immediately. 0050-18
- MM 4.7-1 thru 4.7-4– In Tier 2, the applicant shall first look for compliance mitigation with the surface owner impacted by the project and if none available then shall work with the Kern County Farm Bureau to locate compliance mitigation opportunities. At no time should any dollars leave Kern County. 0050-19
- MM 4.8-1 – In Tier 2, the Worker Environmental Awareness Program shall be provided to the surface owner at the time of the application pathway process for the surface owner to educate his employees as well. 0050-20
- MM 4.8-3(f) – In Tier 2 if berms and/or dykes are constructed those constructed shall not change and/or interfere with the existing grade established by the surface owner unless approved by the surface owner 0050-21
- MM 4.8-5 – In Tier 2, if the applicant observes visual or olfactory evidence of contamination or if soil contamination is suspected the applicant shall notify the surface owner as well as the appropriate health and safety departments. 0050-22
- MM 4.8-6 thru MM 4.8-9 In Tier 2, this mitigation should be placed in Section 19.98.140 of the Ordinance so that the inspector and surface owner have an understanding of what the applicant needs to comply with. 0050-23
- MM 4.8-14 – In Tier 2, the applicant shall notify the surface owner of any contamination
- MM 4.8-15 – In Tier 2, if the applicant intends to use acutely hazardous chemicals, the surface owner shall be notified and given proper training in case of a spill 0050-24
- MM 4.9-1 – In Tier 2, the applicant shall comply with the stormwater construction general permit however must not interfere with the surface owner activities. 0050-25
- MM 4.9-2 – In Tier 2, the applicant's drainage plan shall be approved by the surface owner so that the plan does not interfere with the surface owner activities and must comply with the surface owner's requirements under Irrigated Lands Program 0050-26
- MM 4.9-3 – In Tier 2, any surface ponds or sumps must be indicated on the site plan for the surface owner to approve. When the surface ponds or sumps are cleared of fluids the surface owner may request that the soils be tested so that the surface owner has the information necessary to comply with the Irrigated Lands Program 0050-27
- MM 4.12-1 - Confirm that the setback distances includes road right of way as well as any existing easements.

Kern County is the second largest agricultural producing county in the nation and we depend very much on the oil industry to fuel our farming operations. We realize the impact this DEIR has on Kern County's permitting process going forward. As a Farm Bureau, we want to thank you again for your proactive relationship with our growers and your willingness to make yourself and your staff available to us. We hope we can continue this dialogue with you and our Board of Supervisors to provide meaningful solutions for Kern County. We look forward to working with you and your staff. 0050-28 0050-29

Sincerely,

Greg Wegis
President

The Unified Voice of Kern County's Farming Community Since 1914

0050-1

The commenter's acknowledgement of the extension of time provided to review the Draft EIR, which enabled commenter to complete a thorough review, is noted. The commenter's focus on surface issues and effects on farming operations is also noted.

0050-2

The commenter's request for a copy of a Figure depicting the unincorporated Kern County area that is referenced in the Amended Ordinance (Figure 19.98.015) is noted. The Figure is included in the Draft EIR. The Amended Ordinance has been revised based on consideration of these and other comments, and this Figure is included in the Revised Amended Ordinance is included in section 7.1.3. No changes were made to this Figure in response to comments.

0050-3

The commenter's request for an Appendix of definitions referenced in the Amended Ordinance is noted. The Amended Ordinance has been revised based on consideration of these and other comments, and it was determined that additional definitions were not needed and thus the reference to this Appendix has been deleted from the Revised Amended Ordinance. Revisions to the Revised Amended Ordinance have been made to clarify certain terms throughout the chapter. Definitions already in the Zoning Ordinance (e.g., regarding "accessory" uses) continue to apply. The Project Description in the Draft EIR includes descriptions of all Project activities, including the activities included in the Revised Amended Ordinance.

0050-4

Many of the remaining comments on the Amended Ordinance request additional surface owner notifications, requests that surface owners receive copies application submittals and other documents, opportunities for more meetings between County staff and surface owners, and clarifications that applicants must pay for all inspector costs. The Revised Amended Ordinance substantially expands the surface owner notification requirements. For example, the Revised Amended Ordinance requires surface owner notifications of many types of applicant activities, and is not limited to notice of applications being filed and being approved. The Revised Amended Ordinance also requires that surface owners in Tier 2, 3 and 5 be sent a full copy (with an expanded set of contents) of the project application documents, as well as other specified documents.

The commenter also requested clarifications of some of the zoning terms used in the ordinance. The Revised Amended Ordinance includes many of the requested clarifications. For example, the commenter sought clarification of the definition of a public highway, relating to the required 100-foot setback distance, is noted. A public highway refers to an existing, publically-owned roadway. The Amended Ordinance has been revised based on consideration of these and other comments, and clarifies highway as either "Major" or "Secondary", are currently defined in Sections 19.04.447 and 19.04.657 of the Zoning Ordinance.

Some of the comments did not result in ordinance amendments, but relate to environmental topics for which mitigation measures were included in the Draft EIR (or were added to the Final EIR). For example, commenter requested a definition of geophysical monitoring. Based on comments on the Draft EIR section 4.12 (Noise and Vibration), additional information about geosurveys was provided, and new setback distances were included in MM 4.12-2 for geotechnical survey techniques that could cause adverse vibration impacts.

Some suggested changes to the ordinance that staff did not agree were warranted. For example, fencing, revegetation, and well abandonment issues are addressed in the EIR, but requiring a new County permit for these activities was not warranted.

0050-4 cont'd

0050-4 cont'd

0050-5

Earthen sumps for produced water disposal is allowed only with approval from the Regional Water Quality Control Board, but unlined pits and sumps can no longer be used for the disposal of produced water from WST operations. See MM 4.9-3 and GR- Water-01. Written evidence of lawful produced water disposal is required as part of the Site Conformity Review process. As included in MM 4.9-3, the RWQCB requirements also address cleanup requirements for ponds and sumps. Additional surface owner notification procedures have been included in the Revised

Amended Ordinance. Pre- and post-testing of earthen pond locations by the County as a mitigation measure is not warranted given these RWQCB legal requirements.

0050-6

MM 4.1-4 was modified to remove the vegetation screening requirement in agricultural lands for aesthetic purposes, as described in response to [PACIFIC AG EXHIBIT AG-13]. This addresses commenter's concern.

0050-7

MM 4.1-6 was modified to apply to lighting for new wells. Surface owner approval requirements for implementation of mitigation measures is not appropriate for reasons described in GR-04 and elsewhere regarding the dominant estate held by mineral owners.

0050-8

Commenter's requests regarding revisions to the compensatory mitigation measure for agricultural lands have been considered, and MM 4.2-1 has been modified to prioritize acquisition of conservation easements on large block lands, and on removal of legacy equipment to reduce fragmentation.

0050-9

Commenter's request regarding obtaining a copy of any Spill Prevention Countermeasure and Contingency Plan is noted. Because this would not reduce or eliminate any significant environmental impact, this mitigation measure change is not warranted.

0050-10

Commenter's request that 15 mph be established as a maximum speed limit is noted. Speed limits of 25 mph are allowed under applicable SJVAPCD regulations under specified circumstances (e.g., dust supression). EIR mitigation measures have been modified to clarify which measures do not apply if vehicle travel is restricted to 15 mph.

0050-11

Commenter's request to require surface owner permission for the use of chemicals for dust suppression has not been accepted for reasons previously described. MM 4.2-2(d) has been modified to note that dust suppression is not required if vehicle speeds are restricted to 15mph.

0050-12

Commenter's request to require surface owner approvals for new entrances has not been accepted for reasons previously described. Commenter's further suggestion that substantial improvements be made to unpaved roads is not required to address a significant adverse environmental impact. This MM measure does not apply to, or affect the current regulatory status of, farming activities.

0050-13

Please refer to the prior response.

0050-14

Commenter requests that the Fugitive Dust Control Plan (MM 4.3-2) be removed and applicants instead be required to comply with the Conservation Management Practices included in surface owner applications. Compliance with SJVAPCD dust control regulations is required to address particulate matter emissions, hence the requested change cannot be accepted. It is recognized that this results in different requirements for oil and agricultural operators.

0050-14 cont'd

0050-15

Commenter's requested modifications to MM 4.3-8 have been considered, and prioritization of air emission reductions in Kern County has been included. Cost-effective air emission reductions will continue to be part of the VERA program, but the comment will be considered in the context of structuring the ERA required for this project.

0050-16

Farmed lands have habitat values for some sensitive species, and hence farmed lands are not considered "disturbed" for purposes of requiring biological resource surveys.

0050-17

Farmed lands have cultural resource artifacts, and hence farmed lands are not considered "disturbed" for purposes of requiring cultural resource surveys. Surface owner permission is inappropriate for this mitigation measure for reasons previously described.

0050-18

MM 4.5-4 and 4.5-5 have been amended to require surface owner notification as requested by commenter.

0050-19

Commenter's request for sequencing GHG emission reductions are noted, and can be considered as part of the implementation of this GHG reduction mitigation requirement.

0050-20

Commenter's request that the Worker Environmental Awareness Program be provided upon request to the surface owner has been included in revised MM 4.8-1.

0050-21

Commenter's request that surface owner permission be required prior to constructing earthern berms or dikes have not been included for reasons previously discussed.

0050-22

Commenter's request for surface owner notification of spills and releases has been included in revised MM 4.8-4(b).

0050-23

Commenter's request for inclusion of MM 4.8-6 through 4.-8-9 in the ordinance is not warranted since compliance with mitigation measures is required under the ordinance. Surface owners will also receive copies of additional documentation, and will receive more notices, under the Revised Amended Ordinance and EIR Mitigation Measures.

0050-24

Commenter's request for surface owner notification of contamination has been added to MM 4.8-4(c).

0050-25

Commenter's suggestion that compliance with applicable stormwater regulations not be allowed to interfere with surface owner activities is noted, but the County cannot create exceptions to applicable state laws

0050-26

Commenter's request that surface owner approval be required for drainage plans has not been included for reasons previously discussed.

0050-27

Commenter's request that surface ponds and sumps be identified in the Site Plan application has been accepted and included in the amended Ordinance.

0050-28

Applicant's request that construction noise setback distances include rights-of-way and easements are noted. The setback distances apply to the sensitive receptor, and not a right-of-way or easement.

0050-29

Commenter's concluding remarks regarding the importance of agriculture to the County, the need for an effective permitting process, and the proactive relationship between County planning staff and the agricultural industry, are all noted.

51 Sequoia Riverland Trust

Sequoia Riverlands Trust
Conserving California's Heartland

August 31, 2015

County of Kern
Planning and Community Development Department
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 M Street, Suite 100
Bakersfield, CA 93301-2323

RE: Proposed Revisions to Kern County Zoning Ordinance (Oil and Gas Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing on behalf of Sequoia Riverlands Trust (SRT) to comment on the Draft Environmental Impact Report (DEIR) for proposed revisions to the Kern County Zoning Ordinance. As an accredited regional land trust that works with farmers, ranchers and others to conserve farmland and rangeland in Kern County, we are grateful for the opportunity to participate in this process. 0051-1

Like agriculture, which brought over $7.5 billion into Kern County in 2014,[1] oil and gas production is an important part of the local economy. We share the County's view that this industry needs a clearly-defined permitting process that can be relied upon by both County and State agencies,[2] and strongly support the development of a "consistent and comprehensive" approach to mitigation.[3] We also favor streamlined permitting for projects that avoid unnecessary impacts, minimize necessary ones, and provide compensatory mitigation in accordance with regional conservation priorities. But a ministerial system under which the County 1) does not set site-specific conditions for oil and gas operations, and 2) does not give surface owners and conservation easement holders sufficient leverage to set such conditions,[4] offers inadequate protection for farms, ranches and wildlife habitat. As the DEIR acknowledges, this could result in the conversion of up to 11.6 square miles of farmland by 2040[5] and impacts to significant percentages of high quality habitat for threatened and endangered species such as 0051-2

[1] Department of Agriculture and Measurement Standards. 2015. 2014 Kern County Agricultural Crop Report. Retrieved from http://www.kernag.com/caap/crop-reports/crop10_19/crop2014.pdf.
[2] DEIR, 1-6.
[3] DEIR, 1-7.
[4] See DEIR, Ch. 1, Attachment A (Draft Zoning Ordinance, Chapter 19.98).
[5] DEIR, 4.2-18.

0051-2
Continued

the giant kangaroo rat, San Joaquin antelope squirrel and San Joaquin kit fox.[6] In order to address these issues, we respectfully request that the County strengthen both permitting and mitigation requirements for oil and gas operations as described below.

0051-3

I. The County Should Retain the Ability to Set Site-Specific Restrictions on Oil and Gas Operations in All Zones.

Under the Draft Zoning Ordinance, permitting for oil and gas operations in most zones, including Exclusive Agriculture (A), Limited Agriculture (A-1), Natural Resource (NR), Recreation Forestry (RF) and Floodplain Primary (FPP), would be ministerial rather than discretionary.[7] In contrast to the County's system for granting surface mining permits, which requires a hearing and allows the Planning Commission to impose site-specific conditions for public health, safety and environmental protection,[8] ministerial permitting involves "little or no personal judgment by the public official as to the . . . manner of carrying out the project" and is typically used for routine, low-level permits such as car registrations, dog licenses and marriage licenses.[9]

The County's rationale for adopting this system is that it seeks to implement a "comprehensive industry-wide mitigation strategy specifically designed to address regional conservation priorities."[10] While we strongly support regional advance mitigation planning, the first two steps in an effective mitigation program are avoidance and minimization. Industry-wide best practices can avoid certain broad classes of impacts, such as blowouts and oil spills, but minimizing impacts to a particular farm, ranch or other landscape is impossible without reference to the physical and biological conditions of the specific area that would be altered by drilling. Just as the Planning Commission sets conditions for individual surface mining projects,[11] the County should retain the authority to set site-specific conditions for oil and gas operations. For this reason, we respectfully recommend that the County adopt a discretionary, rather than ministerial, permitting system for all zones affected by the project.

0051-4

II. For Oil and Gas Operations on Split Estate Lands, the County Should Give Surface Owners and Conservation Easement Holders More Leverage in the Application Process.

The permitting process contemplated in the DEIR would be less time-consuming for oil and gas companies that obtain signatures from surface owners on split estate lands,[12] but would

[6] DEIR, 4.4-196 - 4.4-203.
[7] DEIR, Ch. 1, Attachment A (Draft Zoning Ordinance, 19.98.030(B)-(C) and 19.98.040).
[8] Kern County Ordinance Code §§ 19.100.040(C) and 19.102.130(C).
[9] CEQA Guidelines § 15369.
[10] DEIR, 6-20.
[11] Kern County Ordinance Code §§ 19.100.040(C) and 19.102.130(C).
[12] Compare DEIR, Ch. 1, Attachment A (Draft Zoning Ordinance, 19.98.090(B)-(E)) (turnaround times for oil and gas conformity review where applicant has landowner signature) with DEIR,

0051-4
Continued

ultimately provide landowners no way to compel oil companies to minimize the footprint of their operations. Holders of existing conservation easements—who, like surface owners, have a legitimate interest in maintaining the agricultural productivity, biodiversity and aesthetic value of specific properties—would have even less leverage. In order to reduce conflicts between land uses, we would respectfully recommend that the County provide more leverage for landowners and easement holders to push applicants to minimize the footprint of their operations. Under a discretionary system, landowners and easement holders could be given significant input into site-specific conditions set by the County. If the County does not adopt a discretionary system for all zones, we would recommend that 1) applicants be required to obtain signatures from any holders of conservation easements on the property in addition to any surface owners, and 2) applications where any landowner or easement holder signature is absent be treated as discretionary and subject to site-specific conditions.

0051-5

III. The County Should Require that Oil and Gas Operations Provide 1:1 Mitigation for Impacts to Grazing Land.

The permitting regime contemplated in the DEIR requires 1:1 mitigation for impacts to farmland, but has no equivalent requirement for rangeland. As Kern County's 2014 crop report indicates, grazing land plays an essential role in the local economy, with milk and cattle products together accounting for over $1.3 billion in crop receipts.[13] It also contributes to habitat corridors essential to protecting biodiversity in a changing climate, as well as watersheds that channel melted snowpack from the peaks of the Sierra to the Valley floor, making it a significant priority for any comprehensive, regional approach to mitigation.[14] For these reasons, we respectfully recommend that the County require at least 1:1 mitigation for both rangeland and farmland.

0051-6

IV. The County Should Specify the Appropriate Holders of Mitigation Easements.

Like the County, we believe that the permanent protection of agricultural land and habitat through conservation easements is essential to providing effective mitigation.[15] We would respectfully request, however, that the EIR specify that the appropriate holder of conservation easements is an entity whose mission includes the acquisition and stewardship of conservation

---

Ch. 1, Attachment A (Draft Zoning Ordinance, 19.98.100(B)-(D)) (turnaround times for oil and gas conformity review where applicant lacks landowner signature).

[13] Department of Agriculture and Measurement Standards. 2015. 2014 Kern County Agricultural Crop Report. Retrieved from http://www.kernag.com/caap/crop-reports/crop10_19/crop2014.pdf.

[14] Southern Sierra Partnership. 2010. Framework for Cooperative Conservation and Climate Adaptation for the Southern Sierra Nevada and Tehachapi Mountains. Retrieved from http://www.southernsierrapartnership.org/ssp-framework.html.

[15] DEIR, 1-30 and 1-42 – 1-43.

0051-6
Continued

easements,[16] and whose resources and internal organization enable it to carry out this mission. The County could address these concerns by adding the following language to Mitigation Measures 4.2-1 and 4.4-16, as well as any future mitigation measure involving conservation easements: "Conservation easements acquired pursuant to this measure shall be held by a Land Trust Alliance-accredited land trust."

0051-7

V. Given the Magnitude of Expected Impacts to Agriculture and Habitat, the County Should Strengthen Mitigation Measures to Protect Farmland and Rangeland.

The DEIR estimates that the overall project could lead to conversion of up to 7,450 acres (11.6 square miles) of important farmland by 2040.[17] Due in part to impacts on rangeland, it would also degrade significant portions of the County's remaining high quality habitat for a number of threatened and endangered species, including the following:

- Le Conte's thrasher (up to 28.8%);
- Giant kangaroo rat (up to 27.7%);
- San Joaquin antelope squirrel (up to 25.7%);
- San Joaquin coachwhip (up to 22.4%);
- Short-nosed kangaroo rat (up to 20.3%);
- Blunt-nosed leopard lizard (up to 18.7%);
- San Joaquin kit fox (up to 17.6%);
- Western pond turtle (up to 17.6%);
- Tulare grasshopper mouse (up to 15.9%);
- Burrowing owl (up to 11.1%); and
- San Joaquin pocket mouse (up to 10.8%).[18]

The DEIR provides for 1:1 mitigation for farmland and for most habitat[19] and allows this requirement to be met in part through removal of legacy oil and gas equipment.[20] In order to strengthen these requirements and minimize lasting harm to farmland and rangeland, we respectfully recommend that the County 1) expand Mitigation Measure 4.2-1 to actively support the removal and remediation of long term idle wells, 2) expand Mitigation Measure 4.1-2 to

[16] Cf. Tulare County Association of Governments. 2014. Resolution No. 2014-144 (resolution certifying EIR for 2014 Tulare RTP/SCS and specifying that conservation easements acquired to comply with mitigation requirements should be held by "a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of . . . conservation easements").
[17] DEIR, 4.2-18.
[18] DEIR, 4.4-196 - 4.4-203.
[19] DEIR, 1-30 and 1-42 – 1-43. The exception is areas of 70% or greater existing disturbance where "oil and gas activity is the primary land use," which would be mitigated at 1 to 0.5. DEIR, 1-42; DEIR, Ch. 1, Attachment A (Draft Zoning Ordinance, 19.98.030(A)).
[20] DEIR, 1-30 and 1-43.

0051-7
Continued

require remediation of contaminated soil and drill pad impacts, and 3) provide an additional mitigation measure addressing land use conflicts.

0051-8

A. Mitigation Measure 4.2-1 (County List of Long Term Idle Wells)

The following language should be added to Mitigation Measure 4.2-1:

- Every five years the County shall request from the State Oil and Gas Supervisor a list of long term idle wells pursuant to Public Resources Code Section 3206.5. Upon receiving the list, the County shall identify those wells that have no reasonable expectation of being reactivated as provided by Section 3206.5 and formally request the Supervisor to make a determination whether the wells should be plugged and abandoned. The County will then use this list ("County List") to identify feasible mitigation projects for loss of farmland and grazing land and, where applicable, other natural resource areas.
- Using the County List, mitigation for conversion must first occur on-site or common ownership, by abandoning any idle wells on the County's list, or removing any out of service facilities, and returning the surface to the surface owner after performing soil tests and remediating any contamination. The property shall be restored to allow for agricultural use. This includes plugging wells to a depth that allows for reasonably foreseeable cultural practices such as deep ripping. No conservation easement is required to mitigate loss of farmland caused by a new well(s) that has been offset by abandoning the same number and surface footprint of idle wells.
- If no idle wells or out of service facilities exist on-site, the Applicant must offset the conversion of farmland by remediating idle wells from the County List or removing out of service facilities on other farmland within Kern County. Only if such offsets are not available or feasible may other mitigation measures as listed below, such as purchasing conservation easements, be employed.
- If the County List is exhausted, other means of mitigation may be used subject to the following:
    - Mitigation must be provided for the total area of lost agricultural use, not just the ground disturbance footprint area, at a ratio of 1:1 for actual ground disturbance area for oil and gas activities (inclusive of temporary construction and permanent operational impact areas). For example, if the roads and well pads are intermittent across the parcel such that it is no longer economically feasible to plant a row crop or tree crop and large portions of the parcel are not farmable, this surface area shall be added to the lost farmland total.
    - Prior to ground disturbing activity, the Applicant shall submit to the County written evidence of completion of one or more of the following measures to achieve this 1:1 mitigation ratio.
    - Mitigation must be provided for conversion of all lands designated prime farmland, farmland of statewide importance, unique farmland or grazing land, regardless of

0051-8
Continued

whether the lands have been actively farmed or grazed 5 years or more out of the last 10 years.
    - Mitigation lands shall meet the definition of prime farmland, farmland of statewide importance, unique farmland or grazing land, and be of comparable or higher agricultural quality as the lost lands, as established by the California Department of Conservation. Completion of the selected measure or, with the Kern County Planning and Community Development Director's approval, a combination of measures, are to occur on qualifying land in Kern County.
- Other vehicles for mitigation include:
    - Funding and/or purchasing agricultural conservation easements (to be managed and maintained by a Land Trust Alliance-accredited land trust).
    - Purchasing of credits for conservation of agricultural lands from an established agricultural farmland mitigation bank.
    - Participating in any agricultural land mitigation program adopted by Kern County that provides equal or more effective mitigation than the measures listed above.
- The following will apply:
    - Agricultural conservation easements must be located within Kern County or, if no such easements are available, within 10 miles of County borders.
    - Agricultural conservation easements must be held by a Land Trust Alliance-accredited land trust. The DEIR should list standard terms for such easements.
    - Any County farmland preservation or mitigation program must be established in advance of approving the proposed zoning ordinance. A farmland preservation or mitigation program may also be established by a Land Trust Alliance-accredited land trust.

B. Mitigation Measure 4.1-2 (Remediation of Soil Contamination and Drill Pad Impacts)

0051-9

The following language should be added to this mitigation measure:

- The Applicant shall perform soil testing and remove/remediate any contaminants found, returning soil character to that of a baseline sample taken prior to the commencement of drilling.
- The Applicant shall reduce the size of the drill pads to the extent feasible after drilling is complete. Oil pads shall be no larger than necessary while in operation, and shall be removed entirely once oil and gas operations are complete.

C. Additional Mitigation Measures to Minimize Land Use Conflicts

0051-10

To minimize land use conflicts, the County should add a mitigation measure that includes the following:

0051-10
Continued

- The location of roads and improvements must avoid irrigation systems or the applicant must arrange to have them rerouted at the Applicant's expense.
- The Applicant shall maintain the surface free of debris, weeds, graffiti and equipment in disrepair. These conditions are a nuisance and will be subject to abatement by the County with costs paid by the mineral owner.
- On split estate lands, the Applicant shall comply with any applicable deed restriction in the mineral estate severance deed.
- The location of all wells and improvements shall be clustered to the extent feasible and shall not disturb more surface area than necessary. If a well on the property is designated as active but has not produced for two years, the well may remain but the Applicant shall restore the well pad area and return it to the surface owner.
- Locations for wells, roads, pipelines and other production facilities, and the means of operation shall prevent or reduce impacts of the oil and gas operation on the surface use to the extent feasible. The County will consult with the surface owner and, if applicable, conservation easement holder regarding current surface operations in considering whether this requirement has been met.

We appreciate the opportunity to comment and look forward to your response.

Sincerely,

Soapy Mulholland
Executive Director
Sequoia Riverlands Trust

0051-1

The comment is noted for the record.

0051-2

The comment states its support for certain goals of the Project, but also raises summary concerns regarding the ministerial permit process being established by the Revised Amended Ordinance, the relationship between surface and mineral rights owners, and impacts to farmland and species. The comments are noted for the record. Please see RTCs 50-3 – 50-10.

0051-2 cont'd

0051-3

Please see GR 1 – Ministerial Permit Process, GR 16 – Mitigation Measures, and GR 19 – Mitigation Monitoring and Reporting Program, for a description concerning how the conformity review process established by the Amended Zoning Ordinance takes into account site-specific issues and concerns, and imposes conservative mitigation for all impacts.

0051-4

See GR-04: Surface Owners and Agriculture. **0051-4 cont'd**

0051-5

See GR-AG-02: Rangeland.

0051-6

See GR-AG-01: Agriculture Impacts and Farmland Mitigation Program.**0051-6 cont'd**

0051-7

Please see GR Ag-1 - Agricultural Impacts and Farmland Mitigation Program, GR Ag-2 – Rangeland, and GR Bio-1 - Mitigation Measures, Mitigation Criteria and Ratios.

0051-7 cont'd

0051-8

Please see GR Ag-1 - Agricultural Impacts and Farmland Mitigation Program, GR Ag-2 – Rangeland, and GR Bio-1 - Mitigation Measures, Mitigation Criteria and Ratios, and GR Haz-2 – Idle Wells.

0051-8 cont'd

0051-9

MM 4.2-1, cited in the comment, mitigates impacts to Aesthetics. Other mitigation measures in the EIR address the comment's request, including:

MM 4.8-5, which requires testing for and remediation of contamination during grading or excavation work, if necessary;

4.8-14, which requires reporting and clean-up of contamination, consistent with state and federal requirements; and

MM 4.8-8, which requires Applicants to minimize the environmental footprint for exploration and production activities consistent with established industry standards.

0051-10

The comment is noted and included in the record. The EIR established a comprehensive mitigation program (please see GR 16 – Mitigation Measures) that mitigate Land Use conflicts to less than significant.

0051-10 cont'd

52 Clean Water and Air Matter

Kern County PCDD
RECEIVED
2015 SEP 11 PM 3:54

Renee Donato Nelson
Clean Water and Air Matter
12430 Backdrop Court
Bakersfield, California 93306
661-345-7321

9/11/2015

Kern County Planning Department
Attn: Chris Mynk
2700 M St, Suite 100
Bakersfield, California 93301

RE: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance - 2015 C, focused on Oil and Gas Local Permitting

Dear Mr. Mynk,

0052-1

Thank you for the opportunity to comment on the Draft Environmental Impact Report (DEIR) for revisions to the Kern County Zoning Ordinance regarding Oil and Gas Permitting here on the valley floor portion of Kern County.

To begin, it is unclear why only verbal comments provided after the close of comments on August 24, 2015, (now continued to September 11, 2015) but still within the public hearing process at the October 5, 2015 Planning Commission meeting are being considered. [See Notice of Availability] Without knowing when the Response to Comments will be available for public review, it is sometimes necessary and appropriate for the public to be able to submit further written comments to address issues that arise from the review process. All comments up until the time of the close of the public hearing before the vote by the Kern County Board of Supervisors are timely and considered valid under CEQA.

0052-2

Although the County of Kern, as lead agency, is not labeling this environmental document a programmatic EIR, when the project area consists of over 3,110 square miles and approximately 2,697 new wells drilled annually, each requiring some level of review from multiple agencies, this is in fact what it becomes. Review by the lead agency is only a partial part of the review process and this must be coordinated with multiple other agencies at the State, Federal and regional levels. Due to the fact that the County of Kern has jurisdiction over the zoning and is making changes to their Zoning Ordinance, it does not make any other permit redundant or unnecessary. The responsible agencies comments and input are critical to well thought out, fair and impartial decision making. This process should have included duel lead agencies and the California Division of Oil, Gas and Geothermal Resources [DOGGR], as the actual permitting entity, be included in all decisions regarding this change in the permitting process. By this I do not mean responding to this document, but acting in the capacity of the permitting agency, and thus the co-lead agency.

0052-2
Continued

Additionally, this is more of a policy change and not so much a project in and of itself. The project(s), approximately 2,697 new wells, will account for many different applicants located within the 3 designated subareas. The parameters for the conditions (although not currently detailed in writing for review within the document) are defined yet the project(s) themselves might be vastly different and require further, extensive review.

For example, the proposed language for the Zoning Ordinance states that the *"1. The nonhazardous oilfield fluid waste or production water is produced and disposed of within the same designated oilfield; or 2. The nonhazardous oilfield fluid waste or production water disposed of outside the designated oilfield of origin is produced by and disposed of solely and only by the same individual, corporation, or entity."* How is the public to know if it's hazardous without a list of constituents that may be added to facilitate release of underground oil and gas? This designation and the reporting requirements are the responsibility of DOGGR. How will the county be noticed from DOGGR in the proposed 7 day turnaround time frame? How will other County of Kern departments guarantee a 7 day turnaround? Have they committed to this proposal?

How will the County actually perform the said permit reviews in 7 days? Will staff be added? What happens to other projects in queue for permits? By allowing for the Conditional Use Permit process, you are utilizing a ministerial process, yet you are allowing the Planning Commission to find and use waivers, thus making it a discretionary process and this leads to unequal application of the law and zoning ordinance. Different sections allow for permission of the Director, yet fail to detail what the parameters for the decision making process will be. Please include a detailed description of possible requirements and outcomes that may be under the jurisdiction of the Director alone and those possibly determined by the Planning commission. Include fee schedules that will be applicable. Even though CEQA does not generally analyze economic factors, because this will be a major component of the project, these fees should be included for discussion.

0052-3

The following is from the DEIR, yet actually does not specify what these processes will require in many of the proposed procednures.

"Require all new oil and gas wells for exploration or production obtain approval from the Kern County Planning and Community Development Department prior to drilling commencement.

Implement the Tier System to address the different land uses and Zone Districts where oil and gas activities occur.

Require an Oil and Gas Conformity Review as part of the Drilling by Ministerial Permit Section, which would require consistent and comprehensive mitigation based on surrounding land uses.

Update the Development Standards and Conditions Section to include mitigation measures in this EIR as well as other regulatory requirements.

Require a signature block and set a review schedule for all Oil and Gas Conformity Review Site Plans submitted to the County.

Set a specific application processing procedure and timeline for applications on split estate lands without a signature block signed by the Land/Surface Owner.

Outline a new fee structure to support mitigation compliance and County application review costs."

0052-3
Continued

Since this is, in actuality, a policy revision, all requirements must be spelled out and these details must be provided within the DEIR for public, responsible agency and decision makers to review and comment upon. After the fact creation of the above mentioned policies circumvents the CEQA process and renders it nothing more than an exercise in futility.

0052-4

The revisions to the permitting process are deleting the Engineering, Surveying and Permit Services Department, which is still tasked with code compliance and perhaps most importantly, land development. The Public Works Department is not even listed on the website so I couldn't find the director or the responsibilities tasked to that department. Why this is being changed and what are the advantages? By a telephone conversation with Mr. Mynk this was clarified that the Public Works Department with encompass the Engineering, Surveying and Permit Services Department but the date of the finalization is not clear and should be clarified in response to comments.

By attempting to create a one-size-fits-all environmental document of this scope, the County fails to have the actual authority to enforce, monitor or recognize the impacts that may occur as a result of the "projects". The proposal to use this document as the CEQA document for every possible scenario that might be involved is overreaching and difficult to even analyze, even with the extended comment period. This is a problem. Especially for the cumulative affects that result from the proposed projects. How will the cumulative affects be remediated? How will different agencies, especially when it comes to water and air quality impacts, be responsible for their areas of concern, in light of this document and the proposed 7 day turn-a-round? Who will be enforcing the mitigation measures? The public? All the words in the world or even this large document are not going to clean the air. Agreements are nothing without action. This document does not even list what those actions will actually require. Or how much they will cost!

While much of the land involved is already degraded by current and past use in the same genre, most of the mitigation is based on previous rules and regulations as required by other agencies. The actual mitigation required by the county is only applicable to the policies proposed. Therefore, there is a disconnect. A fatal flaw.

NATURAL RESOURCES

Water:

0052-5

It is difficult, at best, to analyze water, soil or air quality issues which "might" occur. Although there is plenty of data provided within the DEIR, this information, while project specific to over 3,000 + acres, does not adequately address specific issues.

Aquifers within the different sub-areas are made of distinctly different soils and compositions. Permeability varies and thus, different techniques are used for enhanced oil and gas extraction. How can one size fit all? While there is a tiered system for delineation of uses, and thus different levels of review within the county, it becomes an additional maze of regulations not even considering the requirements necessary from DOGGR.

How does this account for oil fields that may be adjacent to other properties that are under different uses and may share an aquifer and thus have fluids that are not compatible mingling with other waters. How will this issue be addressed? Within the actual tiered permitting system, I did not see a request for disposal of wastewater or a constituent list of possible additives to said water and the need for proper disposal of said water and drilling muds. Where is this information stored that the public and the responsible public safety agencies may access the data and use it for both emergency and otherwise everyday informed decisions.

How will the final CPA study, Assessments of Potential Impacts of Hydraulic Fracturing for Oil and Gas on drinking water (P 4.9-29) impact the project area? Especially the Eastern and Central sub-areas? If mitigation is based on disposal of fluids then it is critical to understand how the movement is tracked and if the fluids do in fact migrate as predicted.

Water quality issues are of immense importance, complex and multi-layered. The County lacks jurisdiction and control over much of the permitting actions and approvals that other agencies oversee and may cause cumulatively significant impacts to hydrology or water quality in the region; accordingly, this impact remains **significant and unavoidable**. On page 4.9-22 there is reference to the NORM (Naturally Occurring Radioactive Material) DOGGR study. How will this data be utilized in the permitting process? How can the County use the Overriding Considerations for actions not in their jurisdiction?

0052-5
Continued

Air:

Within the Air Quality section the DEIR notes that there are "Unavoidable impacts to Air Quality "but then labels the impact as odor! It is disingenuous to use the word odor as the "project" impact when in fact air pollution and the accompanying severe health issues that come with the criteria pollutants, as shown within the document in the adjacent column.

For instance, the Project would result in an increase of criteria pollutants (oxides of nitrogen [NOx], volatile organic compounds [VOC], carbon monoxide [CO], particulate matter less than 10 microns and less than 2.5 microns in diameter [PM10 and PM2.5, respectively]) in excess of the recommended criteria pollutant significance threshold adopted by the SJVAPCD Board. Emission sources in Kern County contribute between 11% and 21% of criteria pollutant emissions in the San Joaquin Valley Air Basin. The 2% and 14% of these pollutants in the San Joaquin Valley Air Basin or between 19% and 97% of Kern County's contribution. This analysis indicates that most sulfur dioxide (SO2) emissions in Kern County would originate from oil and gas activities and the majority of NOX emissions. Therefore, the proposed Project would have a **cumulatively considerable** contribution of criteria pollutant (NOX, PM10, PM2.5, CO and SO2) emissions to the Kern County portion of the SJVAB. These pollutants create more than odor!! They damage health, crops and in some sensitive receptors, can cause death.

0052-6

I did not see any mention of a recent study that found far more escaping methane at the well head than previously thought. This would make it imperative to begin a more active program to cap wells that are abandoned in a timely fashion. Methane, although not a measured criteria pollutant in the SJVUAPCD under the Clean Air Act, because it is non-photo chemically reactive, is a criteria pollutant in the Green House Gas (GHG) emissions inventory. The DEIR mentions in Growth Inducing Impacts 1.5.4 – that the "Ordinance would result in 2,697 new production wells being drilled annually, **while 2,231 wells would be plugged and abandoned**. Additionally, it is anticipated that 1,200 wells would receive some type of well stimulation treatment during this same timeframe."

0052-6
Continued

Where does this data come from? The market price for Kern River Crude is continuing to decline and fluctuate as of 8/17/15. How did the EIR come to the conclusions sited above? Are the 2,231 wells that would be plugged also an annual number? This is not clear. How many of these wells could be re-worked to become productive again?

0052-7

On-site mitigation is always in the best interest of the community involved and this includes the hard working people in the oil fields, as they are on the front line of exposure. I would appreciate the DEIR supplying on-site mitigation ideas. Cap and Trade is not necessarily a program that results in direct reduction of pollutants but scrubbers and trees can and do cut pollution at the source.

Sincerely,

Renee Donato Nelson
President
Clean Water and Air Matter (CWAM)

Cc: Mick Gleason, Supervisor, District 1

0052-1

The comment includes a general introduction. No response is necessary. The commenter also asserts that all comments up until the time of close of the public hearing before the vote by the County Board of Supervisors are timely and considered valid under CEQA. As the revised DEIR Notice of Availability for Public Review made clear, the comment period closed on September 11, 2015 and testimony at public hearings after that date may be limited to those issues raised during the public review period either orally or submitted in writing by 5:00 p.m. the date the comment period closed. See also GR-17 (EIR review and comment period).

0052-2

The comment is noted for the record. Please see Global Response 2 Project vs Program EIR. Staff consulted extensively with State Agencies who will be utilizing the EIR as a responsible agency for information and recommendations on mitigation measures. Please see Global Response 5.

0052-2 cont'd

0052-3

Comment is noted for the record. The requirements of the Revised Amended Zoning Ordinace including the mitigation measures will be fully enforced through Title 19 requirements (Global Response 19) which are under the full authority of the Kern County Board of Supervisors. Please also see Responses 44-168 through 44-196. Please see Global Response Water 1 through Water 8.

0052-3 cont'd

0052-4

The comment is noted for the record and raises questions outside the CEQA process. Please see Global Responses 1, 9, 10, and 22. The Revised amended Zoning Ordinance located in Section 7.1.3 includes details on the CUP process and the authority of the Planning Commission in considering any requests to change or eliminate standard and conditions contained in the ordinance. A request by an applicant to process a CUP for such consideration moves the project from a ministerial process to a discretionary process and the Commission, after full compliance with additional CEQA review can deny, approve or conditionally approve the request. Global Response 5 discusses the use of the EIR by Responsible Agencies such as the Division of Oil, Gas and Geothermal under their authority for underground activities.

0052-5

Comment is noted for the record. Please see Global response Air 1 through Air 12. Please also see Response 44-241.

The DEIR addresses both impacts due to criteria pollutant emissions and impacts from odor in its analysis. These are separate, but related, issues which are both discussed in the DEIR. See DEIR pp. 4.3-70 – 103 (for a discussion of criteria pollutant emissions and impacts) and DEIR pp. 4.3-112 – 115 (for a discussion of odor impacts). The DEIR has an extensive discussion of the various criteria air pollutants and related health effects. See DEIR pp. 4.3-10 – 30.

The commenter states that she did not see any mention of a recent study that found far more escaping methane at the well head than previously though. No study is referenced in the comment and thus it is unclear which study the commenter is referring to. We assume that she is referencing the study published on August 18, 2015 in the Environmental Science and Technology Journal (ES&T) by Marchese, et al., entitled *Methane Emissions from United States Natural Gas Gathering and Processing.*[1] The study found that methods applied by the United States Environmental Protection Agency (EPA) to estimate methane emissions from natural gas processing plants appear to overestimate actual emissions, but also that EPA methods may tend to underestimate methane emissions from gathering facilities within natural gas supply chains. Relying on that study, some commenters questioned whether methane emissions associated with the Project were similarly underestimated, and whether MMs 4.7-1 through 4.7-4 are sufficient to reduce impacts from greenhouse gas emissions (GHGs) to “less than significant.” The ES&T article has limited application to this EIR for several reasons, outlined below. Therefore, the findings of the article do not change the conclusions contained in the Draft EIR with regard to potential impacts from GHG emissions, including methane.

The ES&T study used data from facilities, all located outside California, owned by five companies (Access Midstream, Anadarko Petroleum Corporation, Hess Corporation, Southwestern Energy, and Williams Companies), none of which are among the companies that operate in Kern County or elsewhere in California.[2] Thus, the operating practices of these companies may not be representative of oil and gas producers in Kern County.

The operating companies and the facility locations are relevant because, as the ES&T study explains, methane emissions are a function of multiple design factors and operational parameters. According to the study, a wide range of factors can influence the level of methane emissions, including “facility type, facility design (*e.g.*, number of pneumatic devices, prime mover types), facility size / complexity (*e.g.*, number of fugitive leaks), facility operating pressures (*e.g.*, magnitude of fugitive leaks), facility pressure ratio (*e.g.*, number of stages of

compression), total facility throughput (*e.g.*, number of compressors; combustion emissions), and operating state (*e.g.*, normal, maintenance, etc.).” These many factors vary regionally, so that the practices in the regions included in the study may not be representative of those in Kern County.

In addition, unlike the natural gas production evaluated in the ES&T study, much of the natural gas produced in Kern County is a co-product of crude oil production. CCST 2015 at Figure 1.1-1 (“Natural gas is much less abundant than oil in California and most of the state’s natural gas production is a co-product of oil development, referred to as ‘associated’ gas production.”); CCST 2014 at Box 1.1 (“Wells that produce only gas occur primarily in the Sacramento Basin, but most of the gas in the state is associated with oil production in the San Joaquin Basin.”). As a result, the design and operation of the Kern County gas production facilities are likely to differ substantially from facilities in other states. Eight of the states[3] included in the ES&T study accounted for 83.5% of all United States natural gas gathered, and 82.2% of marketed production, in 2012. The relevance of the findings regarding gathering pipelines and facilities for primarily natural gas production in the ES&T study is limited, because Kern County production facilities and operations are not readily comparable to operations in other areas of the U.S.

For example, natural gas pneumatic devices are valve controllers, powered by pressurized natural gas, that automatically operate valves and control pressure, flow, temperature or liquid levels. Continuous bleed pneumatic devices are designed to release gas at a specified rate while activated. Both the USEPA and California Air Resources Board require “low bleed” (less than 6 standard cubic feet per hour (scfh)) pneumatic devices on any new equipment. However, most operations in Kern County do not use continuous bleed natural gas pneumatic devices in the gathering process. These devices may be utilized in gas operations in some remote locations, where gas from the production operation is readily available and electricity may not be available. However, with the low gas/oil ratio of the typical Kern County oil field, high-pressure gas generally is not available at the gathering stations, so compressed air valve control devices are used. Thus, the emissions assumptions for pneumatic devices in the ES&T study would not apply in Kern County.

Finally, oil and gas facilities in Kern County are subject to the strict air quality regulations of the California Air Resources Board and the San Joaquin Valley Air Pollution Control District, in particular with regard to emissions of ozone precursors such as volatile organic compounds (VOCs) and nitrogen oxides (NOx). These regulations are in effect because of the federal and California 8-hour ozone nonattainment status within the San Joaquin Valley portion of Kern County.[4] By contrast, among the thirteen states in the ES&T study, nine are in attainment of the ozone national ambient air quality standards (NAAQS) and the other states have only small areas of ozone NAAQS non-attainment. As a result, VOC emissions from natural gas production facilities in California are more highly controlled than in the states considered in the ES&T study. Facilities in California are also required to offset emissions increases to a higher degree compared to other states. The control of VOC emissions generally has the co-benefit of also controlling methane from oil and gas production facilities, meaning facilities in Kern County will likely emit less methane overall. As discussed in the Draft EIR, the California Air Resources Board also recently proposed a regulation that will further reduce methane emissions from oil and gas facilities. DEIR pp. 4.7-30–31.

For purposes of this EIR, GHG (including methane) emissions levels from operational activities were calculated using data from facilities subject to California’s GHG Mandatory Reporting Regulation (MRR), which was promulgated in 2010 and required reporting of 2011 GHG emissions by April of 2012. MRR requires operators of natural gas systems to report GHG emissions, including from gathering facilities and pipelines. See 17 CCR § 95150 *et seq*., Appendix A–B. The information in this EIR represents the best available information about methane emissions levels from natural gas production and pipelines within Kern County.

[1] http://pubs.acs.org/doi/pdf/10.1021/acs.est.5b02275.

[2] http://oil-and-gas.regionaldirectory.us/california.htm.

[3] Arkansas, Colorado, Louisiana, New Mexico, Oklahoma, Pennsylvania, Texas and Wyoming.

[4] http://www.epa.gov/region9/air/maps/pdfs/AIR1100018_7.pdf (designation current as of March 12, 2015).

0052-5 cont'd

0052-6

Comment is noted for the record. Please see Global response Air 1 through Air 12 and Global Response 8. Please also see Response 241.

0052-6 cont'd

0052-7

Many of the mitigation measures in the DEIR are on-site mitigation. For example, MM 4.3-1 requires an applicant to obtain an Authority to Construct (ATC) from the SJVAPCD which would require control equipment on-site. In addition, the dust control plan in MM 4.3-2, the use of Tier 3 engines in MM 4.3-3, and the retrofit requirements in MM 4.3-4 would all apply to on-site activities.

53 Matt Berry

0053

From: Matt Berry <matt.berry01@yahoo.com>
To: <planning@co.kern.ca.us>
Date: 9/10/15 3:38 PM
Subject: Question about Alternative Choice in application to amend the Kern County Zoning Ordinance

RE: application to amend the Kern County Zoning Ordinance (Title 19), focusing on Chapter 19.98 (Oil & Gas Production

Dear Planning and Community Development Kern County,

I have prepared several reports for the Securities and Exchange Commission Whistleblower Program regarding a company called, Clearsign Combustion. I have been reading through the Draft Environmental Impact Report and have been reading interpretations of such online. There is seems to be a misunderstanding online as to what the "Alternative proposals" mean. 0053-1

On the internet there is a claim made about Clearsign Combustion's (CLIR) technology: 0053-2

"Summary: Proposed mandates would require installation of CLIR's Duplex on every new OTSG and on every existing OTSG within five years in Kern County, California."

From my reading this is not quite right.

Do I understand this correctly?

1. The proposal is to revise the Kern County Zoning Ordinance. 0053-3
2. There are also Alternatives to this proposal, such as the one mentioning Clearsign's technology, but these will only come in to play if the appropriate officials vote for one of them. 0053-4
3. If the original proposal passes as is, then none of the Alternatives mentioned in the report will be enacted. 0053-5

Or, would it be correct to say that proposed mandates would indeed require installation of Clearsign's Duplex technology on every new OTSG? 0053-6

Any information or guidance here would be greatly appreciated. 0053-7

Regards,
Matt Berry

0053-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This introductory comment is noted. Please see response to comments 3 through 6 of this letter.

0053-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This introductory comment is noted. Please see response to comments 3 through 6 of this letter.

0053-3

The comment is correct that the Project proposes to revise the Kern County Zoning Ordinance, as described in DEIR, Chapter 3, Project Description.

0053-4

The comment is correct that the DEIR evaluates certain alternatives to the Project. Alternative 5, if adopted, would require permit applicants to use lower-emission technology. Clearsign's technology is described in the DEIR only as one illustrative example of such lower-emission technology. If Alternative 5 were adopted, however, no specific technology made by any particular manufacturer would be required to be used by well permit applicants.

0053-5

The comment is correct that, if the proposed Project is adopted, then none of the alternatives evaluated in the DEIR would be adopted.

0053-6

It would not be correct to say that proposed mandates would require installation of Clearsign's Duplex technology on every new OTSG. Alternative 5, if adopted, would require permit applicants to use lower-emission technology. Clearsign's technology is described in the DEIR only as one illustrative example of such lower-emission technology. If Alternative 5 were adopted, however, no specific technology made by any particular manufacturer would be required to be used by well permit applicants.

0053-7

Thank you for your comment and participation in the public review of the Project and the environmental document.

54 Robert and Kristina Holtermann

September 10, 2015

Kern County
Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 M Street
Bakersfield, CA 93301

E-Mail: mynkc@co.kern.ca.us

Re: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) Focused on Oil and Gas Local Permitting

Dear Mr. Mynk:

We are farmers in Kern County and have an almond orchard located in the Wasco area. Our orchard is on split estate land and there are currently no oil wells located on our property. There are, however, many wells near our property and we are concerned that future oil drilling may have serious consequences including the removal of producing almond acreage. 0054-1

I am not opposed to oil and gas development in Kern County, but I'm concerned that oil companies will drill new wells on my property and neighboring properties without sufficient protections for my crops, home, and workers. Kern County has an opportunity to ensure that new oil and gas wells will not endanger our health, quality of life, or the economic prosperity of Kern's agricultural industry. I do not believe the County's draft revisions to the zoning ordinance, or the mitigation measures in the Draft Environmental Impact Report (DEIR), go far enough. In addition, the DEIR for this project seriously understates the project's impacts—especially to the agricultural community. 0054-2

Please consider the following comments and revise the DEIR to accurately reflect the project's impacts and identify additional mitigation measures. As the DEIR stands now, I don't believe it complies with the County's responsibility to inform the public about the project's significant impacts and mitigate those impacts to the extent feasible as required under the California Environmental Quality Act. 0054-3

Project Description:

- The DEIR underestimates the number of new wells that could be drilled under the project, especially on agricultural lands. There has been an increase in drilling on agricultural lands over the last 10 years and it is unreasonable to assume that only 6% of future drilling will occur on agricultural lands 0054-4

Land Use Impacts:

- The DEIR concludes that there will be significant land use conflicts between oil and gas operations and surface uses, such as agricultural operations. But nothing in the proposed zoning ordinance will reduce these conflicts and the mitigation measures proposed don't address many of the types of conflicts that can occur. 0054-5

- The County should require surface owner sign-off for drilling on split estate lands to allow these conflicts to be worked out at the site-specific level. Other attorneys agree that the County has the authority to require sign-off without exposing the County to liability from mineral rights owners. 0054-6

- If surface owner sign-off is not required, the County should require a conditional use permit for development on split estate lands to enable the County to consult with surface owners and address site-specific conflicts. The County does not expect a significant number of permits on split estate lands and regardless the County can charge applicants for the costs to process these permits, including hiring additional staff if necessary. 0054-7

Agricultural Impacts:

- The DEIR underestimates the amount of farmland that will be converted to non-agricultural use because it does not consider that land in between or near oil and gas facilities cannot be farmed. 0054-8

- The DEIR must identify mitigation measures requiring oil and gas facilities to be clustered together, instead of being spread out across a farm. 0054-9

- The DEIR must discuss the problem of long-term idle wells and out of service facilities taking farmland out of production for longer than necessary. The DEIR's mitigation measures should require that unnecessary idle wells be abandoned and out of service equipment be removed before allowing other types of mitigation that do not restore farmland. 0054-10

Water Supply Impacts:

- The DEIR assumes there is more water available that is suitable for municipal and agricultural uses than there actually is. Farmers are finding salt levels in groundwater are increasing to the point where they are harming crops. Also, the DEIR doesn't identify which aquifers will be impacted the most by oil and gas development. As a result, I can't determine what the water supply impacts to my farm will be. 0054-11

- The DEIR concludes that the project will cause water shortages in Kern County. But it doesn't discuss what the impacts of those shortages will be. Who will be required to cut back? How will water shortages effect crops? 0054-12

- The DEIR should identify additional mitigation measures to reduce the project's impact on water supplies. For instance, the DEIR should require oil and gas operations to treat and reuse more of the produced water from their wells. 0054-13

Aesthetic Impacts:

- The DEIR concludes that the proposed Project would have significant unavoidable impacts to the County's rural character but it ignores mitigation such 0054-14

as limiting the number of drilling operations at any one time in scenic rural areas and requiring larger setbacks (e.g., 1,000 feet). 0054-14 Continued

Traffic Impacts: 0054-15

- The DEIR underestimates the amount of traffic that the proposed Project will generate and does not analyze hazardous conditions that could be caused by truck traffic. The DEIR must include additional mitigation for traffic safety impacts and emergency access.

Noise Impacts: 0054-16

- The DEIR does not consider increased noise from actual conditions as they currently exist on the ground. It therefore vastly underestimates the Project's noise impacts in rural areas of the County.

- The DEIR's mitigation for noise impacts, including a trivial 190-foot setback requirement, will not go far enough to reduce those impacts to a less than significant level. The DEIR should include more realistic and effective setback requirements. 0054-17

Air Quality Impacts: 0054-18

- The project will lead to even higher ozone levels in Kern County and negatively impact human health and agricultural yields. The DEIR must consider additional air quality mitigation measures.

Alternatives: 0054-19

- The DEIR must consider the Conditional Use Permit (CUP) alternative in detail. Under the CUP alternative, the County can impose industry-wide mitigation while preserving its ability to consider the environmental effects of each permit on a case-by-case basis.

Sincerely,

Robert W. Holtermann

Kristina L.B. Holtermann

0054-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This introductory comment is noted and will be considered by County decision makers.

0054-2

Thank you for your comment and participation in the public review of the Project and the environmental document. Please see Global Response 4, Surface Owners and Agriculture.

0054-3

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. However, commenter's general opinion of the EIR is noted and will be considered by County decision makers.

0054-4

Please see Global Response 4, Surface Owners and Agriculture, and Global Response 8, Future Well Projections.

0054-5

Please see Response to comments 43-149 through 43-162. Please also see Global Response 4, Surface Owners and Agriculture.

0054-6

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see Global Response 4, Surface Owners and Agriculture.

0054-7

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see Global Response 4, Surface Owners and Agriculture.

0054-8

Please see Response to comments 43-78 through 43-162.

0054-9

Please see Response to comments 43-149 through 43-162.

0054-10

Please see Global Response 4, Surface Owners and Agriculture, Global Response 7, Baseline Legacy Conditions, Global Response Haz 2, Idle Wells, and Global Response Ag 1, Agricultural Impacts and Farmland Mitigation Program.

0054-11

Please see Global Response Ag 1, Agricultural Impacts and Farmland Mitigation Program, and Global Response Water 5, Water Supply and Demand Update. Please also see Responses 43-78 to 43-199.

0054-12

Please see Responses 43-78 to 43-199.

0054-13

Please see Responses 43-171 to 43-199. Please also see Global Response Water 8, Produced Water Irrigation.

0054-14

Please see Responses 43-200 to 43-211.

0054-14 cont'd

0054-15

Please see Responses 43-221 to 43-233.

0054-16

Please see Responses 43-212 to 43-220.

0054-17

Please see Responses 43-212 to 43-220.

0054-18

Please see Response 43-244.

0054-19

Please see Global Response Alt-2.

55 Timothy and Karen Holtermann

September 10, 2015

Kern County
Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 M Street
Bakersfield, CA 93301

E-Mail: mynkc@co.kern.ca.us

Re: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) Focused on Oil and Gas Local Permitting

Dear Mr. Mynk:

We are farmers in the Wasco area of Kern County involved in the production of almonds. We operate under the name of Holtermann Farms and The Tim and Karen Holtermann Trust. My farm is on split estate lands with multiple oil wells on four different sites. One well has already been approved to operate as an injection well while other wells are not producing. This has all happened in approximately the last fifteen years. The lack of dust control from the oil well operations has caused additional problems and costs to my operation. The release of uncontrolled oil has damaged my crop requiring it to be destroyed. 0055-1

We are not opposed to oil and gas development in Kern County, but we are concerned that oil companies will drill new wells on my property and neighboring properties without sufficient protections for my crops, home, and workers. Kern County has an opportunity to ensure that new oil and gas wells will not endanger our health, quality of life, or the economic prosperity of Kern's agricultural industry. We do not believe the County's draft revisions to the zoning ordinance, or the mitigation measures in the Draft Environmental Impact Report (DEIR), go far enough. In addition, the DEIR for this project seriously understates the project's impacts—especially to the agricultural community. 0055-2

Please consider the following comments and revise the DEIR to accurately reflect the project's impacts and identify additional mitigation measures. As the DEIR stands now, we don't believe it complies with the County's responsibility to inform the public about the project's significant impacts and mitigate those impacts to the extent feasible as required under the California Environmental Quality Act. 0055-3

Project Description:

- The DEIR underestimates the number of new wells that could be drilled under the project, especially on agricultural lands. There has been an increase in drilling on agricultural lands over the last 10 years and it is unreasonable to assume that only 6% of future drilling will occur on agricultural lands 0055-4

Land Use Impacts:

- The DEIR concludes that there will be significant land use conflicts between oil and gas operations and surface uses, such as agricultural operations. But nothing 0055-5

in the proposed zoning ordinance will reduce these conflicts and the mitigation measures proposed don't address many of the types of conflicts that can occur. 0055-5 Continued

- The County should require surface owner sign-off for drilling on split estate lands to allow these conflicts to be worked out at the site-specific level. Other attorneys agree that the County has the authority to require sign-off without exposing the County to liability from mineral rights owners. 0055-6

- If surface owner sign-off is not required, the County should require a conditional use permit for development on split estate lands to enable the County to consult with surface owners and address site-specific conflicts. The County does not expect a significant number of permits on split estate lands and regardless the County can charge applicants for the costs to process these permits, including hiring additional staff if necessary. 0055-7

Agricultural Impacts:

- The DEIR underestimates the amount of farmland that will be converted to non-agricultural use because it does not consider that land in between or near oil and gas facilities cannot be farmed. 0055-8

- The DEIR must identify mitigation measures requiring oil and gas facilities to be clustered together, instead of being spread out across a farm. 0055-9

- The DEIR must discuss the problem of long-term idle wells and out of service facilities taking farmland out of production for longer than necessary. The DEIR's mitigation measures should require that unnecessary idle wells be abandoned and out of service equipment be removed before allowing other types of mitigation that do not restore farmland. 0055-10

Water Supply Impacts:

- The DEIR assumes there is more water available that is suitable for municipal and agricultural uses than there actually is. Farmers are finding salt levels in groundwater are increasing to the point where they are harming crops. Also, the DEIR doesn't identify which aquifers will be impacted the most by oil and gas development. As a result, I can't determine what the water supply impacts to my farm will be. 0055-11

- The DEIR concludes that the project will cause water shortages in Kern County. But it doesn't discuss what the impacts of those shortages will be. Who will be required to cut back? How will water shortages effect crops? 0055-12

- The DEIR should identify additional mitigation measures to reduce the project's impact on water supplies. For instance, the DEIR should require oil and gas operations to treat and reuse more of the produced water from their wells. 0055-13

Aesthetic Impacts: 0055-14

- The DEIR concludes that the proposed Project would have significant unavoidable impacts to the County's rural character but it ignores mitigation such as limiting the number of drilling operations at any one time in scenic rural areas and requiring larger setbacks (e.g., 1,000 feet).

Traffic Impacts: 0055-15

- The DEIR underestimates the amount of traffic that the proposed Project will generate and does not analyze hazardous conditions that could be caused by truck traffic. The DEIR must include additional mitigation for traffic safety impacts and emergency access.

Noise Impacts: 0055-16

- The DEIR does not consider increased noise from actual conditions as they currently exist on the ground. It therefore vastly underestimates the Project's noise impacts in rural areas of the County.

- The DEIR's mitigation for noise impacts, including a trivial 190-foot setback requirement, will not go far enough to reduce those impacts to a less than significant level. The DEIR should include more realistic and effective setback requirements. 0055-17

Air Quality Impacts: 0055-18

- The project will lead to even higher ozone levels in Kern County and negatively impact human health and agricultural yields. The DEIR must consider additional air quality mitigation measures.

Alternatives: 0055-19

- The DEIR must consider the Conditional Use Permit (CUP) alternative in detail. Under the CUP alternative, the County can impose industry-wide mitigation while preserving its ability to consider the environmental effects of each permit on a case-by-case basis.

Sincerely,

Timothy H. Holtermann

Karen E. Holtermann

0055-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This introductory comment is noted and will be considered by County decision makers.

0055-2

Thank you for your comment and participation in the public review of the Project and the environmental document. Please see Global Response 4, Surface Owners and Agriculture.

0055-3

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. However, commenter's general opinion of the EIR is noted and will be considered by County decision makers.

0055-4

Please see Global Response 4, Surface Owners and Agriculture, and Global Response 8, Future Well Projections.

0055-5

Please see Response to comments 43-149 through 43-162. Please also see Global Response 4, Surface Owners and Agriculture.

0055-5 cont'd

0055-6

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see Global Response 4, Surface Owners and Agriculture.

0055-7

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see Global Response 4, Surface Owners and Agriculture.

0055-8

Please see Response to comments 43-78 through 43-162.

0055-9

Please see Response to comments 43-149 through 43-162.

0055-10

Please see Global Response 4, Surface Owners and Agriculture, Global Response 7, Baseline Legacy Conditions, Global Response Haz 2, Idle Wells, and Global Response Ag 1, Agricultural Impacts and Farmland Mitigation Program.

0055-11

Please see Global Response Ag 1, Agricultural Impacts and Farmland Mitigation Program, and Global Response Water 5, Water Supply and Demand Update. Please also see Responses 43-78 to 43-199.

0055-12

Please see Responses 43-78 to 43-199.

0055-13

Please see Responses 43-171 to 43-199. Please also see Global Response Water 8, Produced Water Irrigation.

0055-14

Please see Responses 43-200 to 43-211.

0055-15

Please see Responses 43-221 to 43-233.

0055-16

Please see Responses 43-212 to 43-220.

0055-17

Please see Responses 43-212 to 43-220.

0055-18

Please see Response 43-244.

0055-19

Please see Global Response Alt-2.

56 Vaquero Energy

VAQUERO
ENERGY

September 10, 2015

Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Vaquero Energy, Inc. and PetroRock LLC would like to thank you, along with WISPA, CIPA, and IOPA, and all the other who have assisted, in drafting the first Kern County EIR for permitting of oil and gas wells. The effort is certainly a step in the right direction and will provide operators with a sense of security when drilling wells for oil and gas. It will provide a well-documented, thorough permitting process to reduce exposure to unnecessary litigation from either environmental groups or the public who do not take the time to understand the science behind oil and gas drilling and development. There are already numerous prevention and mitigation measures taken by operators to be excellent environmental stewards. In addition, there are existing regulations that the industry currently complies with. We all know our livelihood is at stake with how we treat the environment and our community. After all, this is our home, too. 0056-1

With regards to the DEIR, we are impressed with the effort put forth to this point. There are no short cuts to create a document of this magnitude. The numerous pages contain a lot of substance which this short comments letter cannot do justice to mention. In an effort to keep this brief, I will only address the parts we feel could be improved on. The first is more of a general statement with a specific example for clarification. Many of the mitigation measures are too vague in their requirements when a development well is being drilled in an existing field. As an example, a required mitigation measure (MM 4.2-2) is graveling the transition from dirt roads to paved roads. The document contains specifics on amount of gravel required, but it does not specify which roads will require this measure. Will it only be required on new roadway entrances or will existing roadways that will be used to access the new well require upgrades, or does it go so far as to require upgrading all roads on that lease? 0056-2

In general, the permitting process, and costs, for drilling an infill well in a development field which will tie into existing infrastructure should be handled much differently than drilling a well which requires new infrastructure. This holds true for the majority of the fees, but specifically the Air Quality Mitigation fees. Air Quality Mitigation fees will be discussed further below. As we are primarily a developmental producer, most of the wells we drill are in the area of existing pipelines, roads, tanks, compressors, and other production related equipment. Once fees are paid for the permitting of one well, additional wells in that area should have greatly reduced fees as they will share many of the same resources, such as roads, pipelines, tanks, and compressors. 0056-3

15545 Hermosa Road • Bakersfield, California 93307
Phone: 661.363.7240 • Facsimile: 661.366.2959 • www.vaqueroenergy.com

VAQUERO ENERGY

The selection of which activities requires which type of review could also use more attention. For example, well work over does not require a permit, but well maintenance requires a seven day minor activity review. The two tasks require much of the same equipment; therefore, will have very similar environmental impacts, but they have different permitting requirements. In fact, well workover currently requires a DOGGR permit, whereas maintenance does not. Maintenance activities tend to be done on a much shorter timeframe as a downed well is no longer making money. Well workovers typically have more planning involved. 0056-4

Cyclic steam EOR is not covered as an activity in the Review Table. I would make the argument it should fall under no permit required in most cases as it typically grandfathered into the field rules of DOGGR. 0056-5

The definition of a small producer requires refinement. As it appears it will be defined by drilling somewhere in the range of 1-5 wells per year, does that include wells drilled outside of Kern County or just wells drill within the project boundaries? 0056-6

As a small producer, who drills fairly inexpensive wells, the permit fees could amount to 10% of the cost of our wells. This seems exorbitant, especially considering most of our wells tie into existing infrastructure. As I mentioned before, the biggest culprit is the Air Quality Mitigation fees. We already have the strictest standards in the country when it comes to air quality mitigation equipment and processes, testing, and reporting. These all come at a great cost to us. In addition, the San Joaquin Valley Air Pollution Control District is currently drafting new requirements which will dramatically increase our costs of necessary equipment, permits, testing and reporting, in an effort to reduce methane emissions, as they feel this is not already covered by current regulations. We will be double-dipped on emission costs as we pay for both the new regulations and their astronomical fees for the Kern County Permit. Consequently, we are getting hit many ways for the same goal. The air quality mitigation fees should be removed, or at a minimum, a fraction of what they are proposed to be. If they are adopted, they should be terminated upon the enforcement of the statewide methane emission reduction and reporting plan. Another option would be to consider the fees already spent annually towards emissions regulations when determining the additional per well fee, including AB32 credits. 0056-7

The permitting fees are aggressive and it appears there will be fees associated with returning idle wells to production. We propose getting permit credits or refunds when we plug and abandon wells and oilfield roads. There will no longer be associated emissions from that well, there is no longer traffic associated with the well, and the surface can be restored to the same use as its surroundings. 0056-8

15545 Hermosa Road • Bakersfield, California 93307
Phone: 661.363.7240 • Facsimile: 661.366.2959 • www.vaqueroenergy.com

VAQUERO
ENERGY

Again, we do truly appreciate the time and effort which has gone into drafting this monumental report. It paves the way for responsible development of the counties vast energy resources. It documents many of the measures that are already in place by most oil and gas operators, and makes it easy to understand the lengths we all go to in conducting our business.

0056-9

Respectfully submitted,



Wyatt Shipley

VAQUERO
ENERGY
Operations Manager
15545 Hermosa Road
Bakersfield, CA 93309
Office: 661-363-7240
Cell: 661-444-0888
wshipley@Vaqueroenergy.com

0056-1

The comment is noted for the record and will be forwarded to the Planning Commission and Board of Supervisors for their consideration.

0056-2

MM 4.2-2(e) has been modified to remove the need for tracking improvements for vehicles travelling within a 15 mph speed limit. For vehicles exceeding this speed limit, tracking control is required. The SJVAPCD requires that tracking controls be a "sufficient length of paved/graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site."

0056-3

Commenter's requests for fee adjustments for wells on existing fields are noted. The ordinance has been amended to clarify the types of activities that require County approvals and must comply with mitigation measures. Air emissions caused by Project constructions and operations are required to be mitigated under the ERA (MM 4.3-5). Although there are different mitigation requirements for some types of impacts in Tier 1, air mitigation is required to achieve no net increase in designated criteria pollutants for all Project emissions under CEQA. Commenter's other points about recommended lower fees for roads and other impacts for wells in existing fields are noted for the record and will be considered by the Planning Commission and Board of Supervisors.

0056-4

Commenters suggestion that the ordinance be clarified are noted, and the Revised Amended Ordinance was developed in response to this and other ordinance comments. Please see Section 7.1.3, which includes the Revised Amended Ordinance.

0056-5

The applicability of the Ordinance to cyclic steaming and idle wells has been clarified in the Revised Amended Ordinance included in Section 7.1.3.

0056-6

Commenter's question regarding "small producer" status is noted. This question does not involve the scope of the EIR's analysis of impacts or mitigation measures, but is noted for the record and will be considered by the Planning Commission and Board of Supervisors.

0056-7

Commenter's concerns about the cost of permit fees generally, and request for removal of the air quality mitigation fee in particular, is noted for the record and will be considered by the Planning Commission and Board of Supervisors. Mitigation of air quality impacts is required under CEQA for Project air emissions.

0056-8

Commenter's suggestion that a fee credit be created when wells are plugged and abandoned, and oil field wells are abandoned, is noted for the record and will be considered by the Planning Commission and Board of Supervisors. This fee structure comment does not involve the scope of the EIR's analysis or mitigation measures.

0056-9

Commenter's concluding statements are noted for the record and will be considered by the Planning Commission and Board of Supervisors.

57 Bakersfield Association of Realtors

BAKERSFIELD ASSOCIATION OF REALTORS®
GROWING A STRONGER COMMUNITY

September 11, 2015

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
Attn: Christopher B. Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

Re: Oil/ Ag Environmental Impact Review

Dear Mr. Mynk;

The Bakersfield Association of REALTORS® strongly supports both our local agriculture and oil and gas industries. We value the contributions of both industries to our local community and economy. We would like to commend the Planning and Community Development Department for their long term efforts to find solutions and work through these complex local issues. The Bakersfield Association of REALTORS® (the "Association"), has reviewed the proposed amendments to the Kern County Zoning Ordinance (the "Zoning Ordinance"). The proposal would implement a new, streamlined permitting process for all new oil and gas wells and associated facilities. The proposal includes environmental review and introduces new processes to ensure that surface owners in split estate situations are afforded sufficient notice and the opportunity to enter into negotiated access agreements with oil and gas companies intending to drill. Our review is based on the proposed amendments to the Zoning Ordinance dated July 15, 2015 (the "Proposed Amendments"), provided by the Kern County Planning and Community Development Department, a Workshop Staff Report from the Kern County Planning and Community Development Department, dated July 27, 2015 (the "Staff Report")/ and the portions of the Draft Environmental Impact Report, dated July 2015 (the "Draft EIR"), required by the California Environmental Quality Act ("CEQA"), that describes the impact mitigation measures that may be incorporated into the Proposed Amendments after the Final EIR is released. 0057-1

Again, the Association recognizes that our local economy is heavily dependent on both the oil and gas and agriculture industries and that the continued operation and expansion of each industry is desirable for most residents. The Bakersfield Association has identified a few potential issues in the Zoning Ordinance below. Thank you for the opportunity to submit our comments, suggestions and questions. 0057-2

Issue: The Proposed Amendments do not account for good faith negotiations by oil and gas companies.

The permit process involving split estates where the mineral rights owner is unable to obtain the signature of the surface rights owner imposes substantial burdens on oil and gas companies applying for permits. As described in the Staff Report, the goal of this process is to incentivize the mineral owner and/or operator to negotiate access and compensation issues, rather than forcing the surface owner to sue for injunctive relief or for damages caused by the mineral owner's entry. The Staff Report further states that the proposal is intended to put the surface owner on equal footing with the mineral owner and "is not intended to give either parties an advantage over the other." It does this by requiring a longer approval 0057-3

2300 Bahamas Drive
Bakersfield, CA 93309
661.635.2300 f.661.635.2317
Since 1905

BAKERSFIELD ASSOCIATION OF REALTORS®
GROWING A STRONGER COMMUNITY

process to give the parties more time to negotiate and reach agreement and by requiring on-site inspectors to be present during all activities conducted under the permit. At any time during this process, if the mineral owner obtains the surface owner's signature, the review and inspection processes will be further processed as an application with a signature, under Section 19.98.090, allowing for faster review by the County and a self-certification process. 0057-3 Continued

Some surface owners requested that the County become more involved by either refusing to issue a permit when the site plan is not signed by the surface owner or by identifying and imposing mitigation measures to resolve the surface owner's concerns in the permit. The County declined to further insert itself into the private negotiations between the mineral owner and surface owner in a split estate permit application. However, the structure that it proposes holds applicants who have made good faith efforts to negotiate an entry agreement and failed to reach agreement to the same requirements as applicants who have not negotiated in good faith with surface owners. While most surface owners are likely to prefer entering into a fair agreement in which they have input over the location of access and activities, some may hold out for a variety of reasons, some of which may not be able to be resolved in an access agreement. Because the process created by the County is ministerial, there is no way for the County to give any relief in the event a surface owner either refuses to sign a site plan or refuses to sign for the notice letter required in 19.98.080. 0057-4

Recommendation: Provided that the extended permit review time provision and inspection requirements for permit applications without a surface owner's signature are included in the final version of the Proposed Amendments to the Zoning Ordinance, there is a potential for this structure to unnecessarily hamper the permitting process. The ministerial process meets the goal of streamlining the permitting of most oil and gas activities but it does not allow the County to make any exceptions to the application requirements. Perhaps the County could consider creating a relief-mechanism if the mineral owner can demonstrate good faith effort in negotiating an agreement to obtain the surface owner's signature. If this process is to be kept ministerial in nature, it should include objective standards. For example, the process could require that the mineral owner provide proof of submission of an access agreement to the surface owner, which offers comparable compensation as has been offered to similarly situated owners, and at least one revised offer that responds to a surface owner's counteroffer. 0057-5

Issue: The self-certification process is unclear. 0057-6

Section 19.98.130 allows a Conformity Review or Minor Activity Review permit holder to self certify compliance with the provisions of the Oil and Gas Activities Chapter during construction and operation under the permit. This certification is to be in writing, in a format to be specified by the County, and submitted when construction is complete. If a violation of the permit or applicable implementation standards occurs, a County inspector will conduct a "Certification and Finalization" process and the permit holder will be unable to self-certify under its next permit.

The process outlined in the self-certification section is unclear regarding the process and consequences for failures. Are there continuing compliance reporting obligations once construction is complete? If the self-certification reveals violations occurred but were appropriately and adequately remedied, is the

2300 Bahamas Drive
Bakersfield, CA 93309
661.635.2300 f.661.635.2317
Since 1905

BAKERSFIELD ASSOCIATION OF REALTORS®
GROWING A STRONGER COMMUNITY

permit holder prevented from further self certification? How is it determined that a violation occurred-is there County oversight or will the County rely on complaints? Is the information provided to the County in the self-certification statement publicly available? What inspection and compliance process applies to a permit holder that is no longer permitted to self-certify due to violations? 0057-6 Continued

Recommendation: Section 19.98.130, as drafted, is vague and needs to be clarified regarding when compliance is measured, how information provided by the permit holder will be used, and what alternative process is there for permit holders who have allowed violations to occur. **Issue:** It is not clear that the County has the capacity to review the Conformity Review and Minor Activity Review application materials within 7 days, since the documentation of compliance with the Mitigation Measures may be voluminous. 0057-7

Recommendation: As part of the proposed streamlining of the permit process, complete applications for Conformity Review (with surface owner signature) and Minor Activity Review will be reviewed within 7 days. If supplemental materials are submitted, the second review must be completed within 3 days. It appears that the time frame is not an absolute requirement in that the Proposed Amendments state that the Planning Director "shall make reasonable efforts" and the Proposed Amendments are silent regarding the consequences for failing to act on an application within the time frame specified. 0057-8

The County states that a staffing proposal, which would increase fees, add additional staff, and obtain new permitting software tools to address the increased permitting work load, will be presented to the Planning Commission and the Board of Supervisors for consideration. The volume of material to review in any given application is likely to be substantial. The Staff 0057-9

Report tentatively sets the fees for processing applications at $1,190 for Conformity Review and $890 for Minor Activity Review, for an estimated $2,142,000 to $4,339,930 collected annually based on the expected volume of permits. These fees would be used to fund the staffing proposal. Assuming most of the 88 mitigation measures proposed in the EIR are incorporated into the Mitigation Monitoring and Reporting Program, the applicant will have to demonstrate compliance with, or a plan for compliance with, or inapplicability of each. The County estimates that between 1,800 and 3,647 applications will be submitted annually. These figures translate to between 35 and 70 applications per week, or 7 to 10 per day on average, with peak volumes that could be much higher. The County currently has a substantial planning staff but the work of reviewing this volume of applications in compliance with the short review times will require substantially more people. 0057-10

Has the County determined how long it will take to review each application at both ideal and less-than-ideal staffing level? What does the County propose to do if the required fees for increased staff are denied by the Board of Supervisors? Perhaps the County should consider amending the proposal to provide the County sufficient time to complete a review. Will the final proposed application fees generate sufficient revenues to support the proposed increased staffing levels? Can those application fees be increased at a later time? Would it be beneficial to the County to consider third party certified inspectors? 0057-11

2300 Bahamas Drive
Bakersfield, CA 93309
661.635.2300 f.661.635.2317
Since 1905

BAKERSFIELD ASSOCIATION OF REALTORS®
GROWING A STRONGER COMMUNITY

Issue: The Proposed Amendments should be revised to clarify inconsistent language and provide all attachments and figures referenced within the text. The Proposed Amendments contain several inconsistencies and the public draft does not contain all of the relevant referenced information. 0057-12

Section 19.98.020 references Appendix A, which supposedly includes the definitions of the "highly technical" oil and gas activities. Presumably, Appendix A also contains definitions of the capitalized terms used throughout the Chapter, including "Oil and Gas Production Boundary Area" and "Certification and Finalization." The Chapter also references Figure 19.98.01577, but that figure is not attached to the draft. 0057-13

Section 19.98.030 sets out the Tier designation (and references Figure 19.98.015 as showing which lands are in each Tier) and most of the sections reference the Tiers regarding the scope of applicability. However, the applicability of the Conditional Use Permit process references the areas to which it applies by zoning district rather than by Tier. In other sections the Proposed Amendments then use "Tier 4" to describe the lands subject to the Conditional Use Permit. 0057-14

Although Sections 19.98.090 and 19.98.100 have parallel structures, Section 19.98.090 does not have an introductory paragraph stating what activities it governs. Also, Subparagraph A of Sections 19.98.090, 19.98.100 and 19.98120 all start with the words "An applicant for a ministerial permit pursuant to this chapter." The Proposed Amendments distinguishes between Conformity Review and Minor Activity Report as two types of ministerial permits under the chapter. Each of these sections should distinguish between the two types of permit - otherwise three different sections all appear to apply to the same type of application. 0057-15

Section 19.98.090(A) cross-references to the Conformity Review application requirement that notice of the application be sent to the surface owner, but the cross-reference is to the incorrect subsection. 0057-16

The Conditional Use Permit process is applicable not only to lands in zoning districts listing oil and gas activities as a conditional use but also to lands outside of the lands mapped into Tiers I through 5, i.e. lands outside of the Project Area. However, the various application requirements outlined in the Proposed Amendments do not cover what is required for a Conditional Use Permit on land outside of the Project Area. Section 19.98.080 applies only to applications for Conformity Review in Tiers 1-3 and Tier 5 and Conditional Use Permits in Tier 4. 0057-17

The Staff Report states that Conformity Review under Section 19.98.100 will take a minimum of 120 days: 30 days' pre-application notice to the surface owner, 30 days for the first review, 30 days for a second mandatory review, and a 30 day waiting period before construction may begin. However, Section 19.98.100(C) indicates that the second review is not mandatory, but only required if the application was incomplete and required a second submission. 0057-18

Recommendation: There are several inconsistencies and omissions in the current draft of the Proposed Amendments and it is recommended that a detailed review of the Proposed Amendments be conducted to be sure that the final ordinance, as adopted, is internally consistent and establishes procedures for all available approval processes. 0057-19

2300 Bahamas Drive
Bakersfield, CA 93309
661.635.2300 f.661.635.2317
Since 1905

BAKERSFIELD ASSOCIATION OF REALTORS®
GROWING A STRONGER COMMUNITY

0057-20

Issue: Section 19.98.070 well workover, geophysical monitoring, well testing, vegetation, fencing, well abandonment and revegetation require no permits.

Recommendation: It is critical that all surface activities be subject to some type of permitting and notification process. A permitting process must be established for these activities. The surface owner should receive notification throughout every stage of the process. Additionally, we would recommend that County Staff offer every opportunity to the surface owner to assist with understanding the process.

0057-21

Issue: Mitigation Measure 4.4 – If an applicant wishes to complete a land study, the surface owner would not be notified as it is written now.

Recommendation: Any studies should require the surface owner's approval.

0057-22

Issue: Proposed Mitigation Fees

The Draft EIR proposes four mitigation fees, intended to offset the impacts created by the activity permitted under the Proposed Amendments. To offset the impacts to performance objectives of fire and police services, Mitigation Measure 4.14-1 will impose a fee of $150 per well on each Conformity Review permit until the purchase price of a new "Combination Walk in/Non-Walk-in Industrial Firefighting Vehicle," not to exceed $850,000, is reached. To offset potential increase in rural crimes, Mitigation Measure 4.14-2 imposes a $425 fee per Conformity Review permit to pay personnel in the Sheriff's Rural Crime Unit. To offset wear and tear on pavement on roads used by oil and gas industry traffic, Mitigation Measure 4.16-1 requires payment of $1,500 per permit for new wells to fund roadway maintenance and other improvements. To offset cumulative impacts of increases in "Criteria Pollutants," Mitigation Measures 4.3-8 requires the County to enter into an emissions reduction agreement with the San Joaquin Valley Air Pollution Control District, requiring the Applicant to pay fees to fully offset certain emissions. The Staff Report states that the mitigation fee range per well is estimated at between $8,000 and $17,850.

0057-23

These proposed mitigation fees are broader than typical development exactions because they are intended to offset the expense of providing new capital facilities and services (e.g. roads and firefighting equipment) and also to mitigate impacts to the environment. The imposition of the proposed fees as a condition for permitting will facilitate continued and expanded oil and gas exploration and production activities in the County under the streamlined permit process of the Proposed Amendments, which can only be adopted after completing the CEQA process (of which these mitigation measures are a part).

0057-24

The National Association of REALTORS® (NAR) and The Bakersfield Association of REALTORS® both have an adopted policy position opposing impact fees. Where impact fees exist, we urge their repeal. When impact fees are used, they should follow strict guidelines, for example: proceeds from impact fees should he segregated from other governmental revenues; impact fees should be used solely for capital improvements related to a specific new development. However, the Association realizes the importance of the proposed fees to the EIR process supporting the County's adoption of the Proposed Amendments, and the Association would consider supporting adoption of the fees.

2300 Bahamas Drive
Bakersfield, CA 93309
661.635.2300 f.661.635.2317
Since 1905

BAKERSFIELD ASSOCIATION OF REALTORS®
GROWING A STRONGER COMMUNITY

How were the proposed fees established? Will the adoption of the proposed fees set a precedent for imposing these types of fees for future developments or projects? The Association would strongly oppose the adoption of such fees in the future. 0057-24 Continued

Ag Land Conversions 0057-25

Regarding agriculture land conversions in Mitigation Measure 4.2-1, the Association would like to suggest a focus on item (c) restoring agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment. This could require that the County work with the Farm Bureau to establish an account where the funds to mitigate would be deposited and then there would be a list established by the County and Farm Bureau of wells that would need to be abandoned. The funds would remain in the county and also other industries like development, solar and wind may also mitigate by depositing their funds in the same account.

The Association supports streamlining the permitting process to reduce time and administrative hurdles businesses face in Kern County. The Association is also committed to the preservation of property rights. Again, the Bakersfield Association of REALTORS® applauds the Planning and Community Development Department and the efforts of the various stakeholders throughout this process. We appreciate the continued efforts to find middle ground that offers protection for surface owners and their land, without over regulation for the oil and gas industries.

Sincerely yours,
Bakersfield Association of REALTORS®

Sheri Anthes, 2015 President

2300 Bahamas Drive
Bakersfield, CA 93309
661.635.2300 f.661.635.2317
Since 1905

0057-1

Commenter's description of the importance oil and gas, and agriculture, to the County's economy is noted, as are commenter's conclusions that the Amended Ordinance does not differentiate between oil and gas operators who act in good faith to negotiate agreements with surface owners and those that do not. Commenter's request that the ordinance include a faster permit track for applicants who use good faith efforts to negotiate agreements with surface owners but remain unable to reach agreement is also noted, as is commenter's conclusion that it is difficult to make a ministerial conclusion about the extent a party has engaged in good faith negotiations. This is a policy recommendation that does not address impacts or mitigation relating to the physical environment, and is included in the record for further consideration.

0057-2

Please see response to 0057-1.

0057-3

Please see response to 0057-1.

0057-3 cont'd

Please see response to 0057-1.

0057-4

Please see response to 0057-1.

0057-5

Please see response to 0057-1.

0057-6

The Revised Amended Ordinance includes expanded surface owner notice requirements, and provides more documentation to surface owners, to help inform surface owners of the scope of authorized activities. The Amended Ordinance also requires compliance with zoning and mitigation requirements, as explained in GR 19. These and related ordinance amendments provide greater accountability for Applicants who are eligible to self-certify.

0057-6 cont'd

0057-7

Please see response to 0057-6.

0057-8

Please see response to 0057-6.

0057-9

Commenter's questions regarding application fees and staffing are noted for the record for further consideration. This comment does not address or mitigation relating to the physical environment.

0057-10

Please see response to 0057-9.

0057-11

Please see response to 0057-9.

0057-12

Commenter raises several questions about the text of the Amended Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3. This comment does not address or mitigation relating to the physical environment.

0057-13

Please see response to 0057-12.

0057-14

Please see response to 0057-12.

0057-15

Please see response to 0057-12.

0057-16

Please see response to 0057-12.

0057-17

Please see response to 0057-12.

0057-18

Please see response to 0057-12.

0057-19

Please see response to 0057-12.

0057-20

Commenter suggests that cultural resources studies be allowed only with surface owner consent. As explained in GR 4, surface owners must provide access required to extract mineral resources (including related activiteis) to mineral owners under applicable laws, and it would be legally infeasible for the County to impose a surface owner approval requirement for a cultural resource study that is required to avoid disturbance of significant cultural resources as required by the EIR.

0057-21

Please see response to 0057-20.

0057-22

Commenter's concerns about the mitigation fees are for further consideration. Mitigation for impacts to roads and firefighting equipment is appropriate under CEQA given the impacts of the Project (e.g., higher levels of wear and tear from heavier well construction equipment, and specialized hazard emergency response needs for production-related accidents). Commenter's policy opposition to impact fees is also noted for further consideration.

0057-23

Please see response to 0057-22.

0057-24

Please see response to 0057-22.

0057-24 cont'd

0057-25

Commenter's endorsement of prioritizing legacy equipment removal as a compensatory agricultural impact mitigation measure is noted. MM 4-2-1 has been amended to prioritize preservation of larger blocks of agricultural lands, and removal of legacy equipment, in future County use of agricultural mitigation funding.

58 Home Builders Assoc. of Kern County

HOME BUILDERS ASSOCIATION
OF KERN COUNTY

September 11, 2015

Kern County Planning and Community Development Department
Attention: Mr. Christopher B. Mynk, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Reference: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, Focused on Oil and Gas Local Permitting

Dear Mr. Mynk;

The Kern County Home Builders Association (HBA) supports local agriculture as well as the oil and gas industry, and we value the benefits they bring to our community. We commend the Planning and Community Development Department for their long term efforts to find solutions and work through complex issues. The HBA has reviewed the proposed amendments to the Kern County Zoning Ordinance which will implement a streamlined permitting process for all new oil and gas wells and associated facilities. The proposal includes environmental review and introduces new processes to ensure that surface owners in split estate situations are afforded sufficient notice and the opportunity to enter into negotiated access agreements with oil and gas companies intending to drill. Our review is based on the proposed amendments to the Zoning Ordinance dated July 15, 2015, the Workshop Staff Report from the Kern County Planning and Community Development Department, dated July 27, 2015, and portions of the Draft Environmental Impact Report, dated July 2015 that describes the impact mitigation measures that may be incorporated into the Proposed Amendments after the Final EIR is released. Again, the HBA recognizes that our local economy is heavily dependent on both the oil and gas and agriculture industries and that the continued operation and expansion of each industry is important to our community. The HBA has identified a few potential issues in the Zoning Ordinance below and appreciate the opportunity to provide our comments. 0058-1

Mitigation Fees

Our primary concern is regarding the four proposed mitigation fees. These fees are intended to offset the impacts created by the activity permitted under the Proposed Amendments to the Zoning Ordinance as stated below. 0058-2

1. Mitigation Measure 4.14-1: Police and Fire fees are shown at $150 per well for each Conformity Review until the purchase price of a new "Combination Walk-in/Non-Walk-in Industrial Firefighting Vehicle until $850,000 is collected. 0058-3

P.O. Box 21118, Bakersfield, CA 93390
(661) 633-1316 www.kernhba.com

2. Mitigation Measure 4.14-2: $450 per Conformity Review to pay personnel in the Sheriff's Rural Crime Unit.
3. Mitigation 4.16-1: requires the payment of $1,500 per permit for new wells to fund roadway maintenance and other improvements.
4. Mitigation Measure 4.3-8: requires the County to enter into an emissions reduction agreement with the San Joaquin Valley Air Pollution Control District, requiring each Application to pay fees to fully offset certain emissions. The Staff Report states that the mitigation fee range per well is estimated between $8,000 and $17,850 per well.

0058-3 Continued

Please provide clarification for the following items:

0058-4

Fire Truck Mitigation Fee

The Draft EIR states that fire protection requirements are "based on the number of residents and workers in the primary service area." That is, demand is largely a factor of population size, not land use, because the majority of response calls provided by a fire department are medical calls. The Draft EIR then notes that the oil and gas exploration activities that will be conducted under the Proposed Amendments and the EIR are not expected to result in substantial population increases because the industry is already well established in the County and will employ existing members of the local workforce. The Draft EIR does note that the increase in the number of oil and gas facilities could cause significant impacts if the hazardous material response teams do not have sufficient firefighting equipment to deal with potential situations.

0058-5

Because oil and gas activities are not expected to generate measurable increases to population, any impact fee for firefighting services should only be based on the increase in requirements for responding to hazardous materials incidents. It is not clear whether the firefighting vehicle to be bought with the generated funds is primarily a vehicle required for hazardous materials response or is intended to fill a general need in the county firefighting arsenal.

Rural Crimes Unit Mitigation Fee

0058-6

The Draft EIR describes a recent increase in property crimes in rural areas of the county, particularly metal theft. It notes that the rise in crime is not attributed to oil and gas activity but suggests that activities could increase the level of demand for police because most oil and gas exploration will likely be in rural areas. Furthermore, it states that the oil and gas industry contributes approximately 30% of the property tax revenues collected by the County but claims that the industry does not contribute its fair share for firefighting and rural sheriff services.

0058-7

It is not clear that the continuation and expansion of oil and gas activities in unincorporated areas of the County will generate additional demand for police services. Also, the fee applies to all permits issued under Conformity Review without regard to whether the activities are within the areas served by the Rural Crimes Unit but does not apply to other developments in the rural areas of the county. Mitigation Measure 4.14-2 states that, if other sources of funding are secured, the fee may be reduced. This suggests that the need for the additional resources is more broad-based and not just attributable to the oil and gas industry.

Road Improvement Mitigation Fee

0058-8

Similar to the Rural Crimes Unit Mitigation Fee, the Road Improvement Mitigation Fee is not clearly related only to the impacts of oil and gas activities. The County identified 750 centerline miles of state and county roads and evaluated those roads for current pavement conditions. Of those miles, the County identified 400 centerline miles as primary and secondary routes for oil and gas traffic. It then assigned specific volumes of traffic to each of the primary and secondary routes and a "nominal volume" of traffic to the non-primary and non secondary routes. The study concluded that the additional traffic assigned to these routes "could contribute to the degradation of pavement conditions and the service life for roadways."

0058-9

The traffic study described in the Draft EIR does not appear to have considered actual traffic counts of oil and gas vehicles nor did it connect pavement degradation only to use of the roads by vehicles associated with oil and gas activities. The discussion of the cause of pavement degradation does not suggest that vehicles in other uses (i.e. personal vehicles or vehicles used in the agriculture industry) do not contribute to pavement degradation. Further, Mitigation Measures 4.16-1 requires the fee to be revaluated if a broad based sales tax dedicated to transportation funding becomes available. This suggests that the cause of the impact is more diverse than just oil and gas activities. Additionally, there is no discussion as to how the dollar amount of the fee was calculated. Is $1,500 per well expected to generate the full budget for performing maintenance and reconstruction each year or does it only account for the maintenance and reconstruction associated with vehicles serving oil and gas activities?

Emissions Mitigation Fee

0058-10

Mitigation Measure 4.3-8 calls for the County to enter into an emission reduction agreement with the San Joaquin Valley Air Pollution Control District (the "District") and establish the amount that each applicant will pay to reduce emissions. Emission reduction agreements are voluntary agreements typically entered into by developers whereby the developer pays fees to mitigate the development's impact on air quality. The District will then use the fees generated under these agreements to undertake specified emissions reduction projects. In 2014, the District's projects reduced targeted emissions by 165 tons, at a cost effectiveness of $6,974 per ton. Although the Staff Report suggests that the range of the fee imposed on each well will be $8,000 to $17,000, it is not clear what that estimate is based on. At this point there is insufficient information available to adequately assess this mitigation fee.

0058-11

These proposed mitigation fees above are very broad based because they are intended to offset the expense of providing new capital facilities and services (e.g. roads and firefighting equipment) and also to mitigate impacts to the environment. The imposition of these fees as a condition for permitting will facilitate continued and expanded oil and gas exploration and production activities in the County under the streamlined permit process of the Proposed Amendments, which can only be adopted after completing the CEQA process (of which these mitigation measures are a part).

0058-12

The HBA is sensitive to the precedent that implementation of these fees would establish. If impact fees are used, it should be under strict guidelines and the proceeds should be segregated from other governmental revenues; impact fees should be used solely for capital

improvements related to a specific new development. The HBA understands that the fees are important to this EIR process and, upon clarification of the items above, should be supported. 0058-12 Continued

Additional Concerns 0058-13

1. The Proposed Amendments should be revised to clarify inconsistent language and provide all attachments and figures referenced within the text. The Proposed Amendments contain several inconsistencies and the public draft does not contain all of the relevant referenced information.

Section 19.98.020 references Appendix A, which supposedly includes the definitions of the "highly technical" oil and gas activities. Presumably, Appendix A also contains definitions of the capitalized terms used throughout the Chapter, including "Oil and Gas Production Boundary Area" and "Certification and Finalization." The Chapter also references Figure 19.98.01577, but that figure is not attached to the draft. 0058-14

Section 19.98.030 sets out the Tier designation (and references Figure 19.98.015 as showing which lands are in each Tier) and most of the sections reference the Tiers regarding the scope of applicability. However, the applicability of the Conditional Use Permit process references the areas to which it applies by zoning district rather than by Tier. In other sections the Proposed Amendments then use "Tier 4" to describe the lands subject to the Conditional Use Permit. 0058-15

Although Sections 19.98.090 and 19.98.100 have parallel structures, Section 19.98.090 does not have an introductory paragraph stating what activities it governs. Also, Subparagraph “A” of Sections 19.98.090, 19.98.100 and 19.98120 all start with the words "An applicant for a ministerial permit pursuant to this chapter." The Proposed Amendments distinguishes between Conformity Review and Minor Activity Report as two types of ministerial permits under the chapter. Each of these sections should distinguish between the two types of permit - otherwise three different sections all appear to apply to the same type of application. 0058-16

Section 19.98.090(A) cross-references to the Conformity Review application requirement that notice of the application be sent to the surface owner, but the cross-reference is to the incorrect subsection. 0058-17

The Conditional Use Permit process is applicable not only to lands in zoning districts listing oil and gas activities as a conditional use but also to lands outside of the lands mapped into Tiers I through 5, i.e. lands outside of the Project Area. However, the various application requirements outlined in the Proposed Amendments do not cover what is required for a Conditional Use Permit on land outside of the Project Area. Section 19.98.080 applies only to applications for Conformity Review in Tiers 1-3 and Tier 5 and Conditional Use Permits in Tier 4. 0058-18

The Staff Report states that Conformity Review under Section 19.98.100 will take a minimum of 120 days: 30 days’ pre-application notice to the surface owner, 30 days for the first review, 30 days for a second mandatory review, and a 30 day waiting period before construction may begin. However, Section 19.98.100(C) indicates that the second review is 0058-19

not mandatory, but only required if the application was incomplete and required a second submission. 0058-19 Continued

There are several inconsistencies and omissions in the current draft of the Proposed Amendments and it is recommended that a detailed review of the Proposed Amendments be conducted to be sure that the final ordinance, as adopted, is internally consistent and establishes procedures for all available approval processes. 0058-20

2. Mitigation Measure 4.4 – If an applicant wishes to complete a land study, the surface owner would not be notified as it is written now. This should be amended to require the surface owner's approval. 0058-21

3. The permit process involving split estates where the mineral rights owner is unable to obtain the signature of the surface rights owner requires a longer approval process - to give the parties more time to negotiate and reach agreement - and by requiring on-site County inspectors to be present during all activities conducted under the permit. Use of private third party deputy inspectors should be added as an additional option for inspections. 0058-22

4. Section 19.98.070 well workover, geophysical monitoring, well testing, vegetation, fencing, well abandonment and revegetation require no permits. It is critical that all surface activities be subject to some type of permitting and notification process. A permit process must be established for these activities. The surface owner should receive notification throughout every stage of the process. Additionally, we recommend that County Staff offer every opportunity to the surface owner to assist with understanding the process. 0058-23

Thank you for the opportunity to provide comments during this process.

Sincerely,
The Home Builders Association of Kern County

By: Donna L. Carpenter
Executive Director

HOME BUILDERS ASSOCIATION OF KERN COUNTY

0058-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-2

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-3

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-3 cont'd

0058-4

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response, but rather summarizes the DEIR. This comment is noted and will be considered by County decision makers. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-5

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-6

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response, but rather summarizes the DEIR. This comment is noted and will be considered by County decision makers. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-7

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-8

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-9

Please see Global Response TR-1, Traffic Analysis and Mitigation Program. These and related comments informed preparation of the Revised

Amended Ordinance included in Section 7.1.3. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-10

Please see Global Response Air-2: Emission Reduction Agreement as Mitigation. These and related comments also informed revised mitigation measures included in Section 7.1.4.

0058-11

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0058-12

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0058-12 cont'd

0058-13

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-14

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-15

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-16

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-17

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-18

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-19

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-19 cont'd

0058-20

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3.

0058-21

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3. See also Global Response 4: Surface Owners and Agriculture.

0058-22

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3. See also Global Response 4: Surface Owners and Agriculture.

0058-23

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Commenter raises several questions about the text of the Amended Zoning Ordinance. These and related comments informed preparation of the Revised Amended Ordinance included in Section 7.1.3. See also Global Response 4: Surface Owners and Agriculture.

59 Trudy Douglass

0059

Chris Mynk - kern draft EIR for oil and gas permitting comments

From: "Trudy Douglass (GMail)" <trudydouglass2@gmail.com>
To: <mynkc@co.kern.ca.us>
Date: 9/11/15 3:05 PM
Subject: kern draft EIR for oil and gas permitting comments

To: The Planning Department,

Your proposed EIR plan will erase many safe guards for our land, air and water in the goal of pleasing the oil production business. This plan is shortsighted and selfish, it calls for maximum stripping of oil resources in the next 25 years with no regard for the future needs of our grandchildren and great-grandchildren. It is a return to the greed that crippled our country in the 80's and 90's. 0059-1

You are choosing to turn over the keys to our county to a business that has proven it self to be neither honest nor trustworthy. I won't repeat their short comings because they have been well documented. 0059-2

This plan should not be approved for 25 years. Make it for 5 years, and then have a review of the air, water, and land quality and pollution levels before renewing it. 0059-3

A 5 year review will also check to see that the oil companies are using the best and most current safety practices to protect our air, land and water. Kern County is fairly famous for letting businesses get away with shoddy practices, don't let the oil companies slide by in this area any longer. 0059-4

It is not enough to make new laws, you must put together a team of experts to insure compliance. Inspection should be done twice a year and well documented. Fines and stop work orders should be issued for noncompliance. 0059-5

Neither state nor county make these companies follow the most basic rule learned in kindergarten: If you make a mess clean it up. Include a rule that sites must be returned to their original condition within a year of removing the pumping equipment. 0059-6

Are you really going to hold back on permitting solar farms in order to provide the oil companies more land to exchange for farm land they will usurp? That is very shortsighted. In the long run solar is a much better resource for our future. 0059-7

Please consider these recommendations before approving this EIR. 0059-8

Trudy Douglass 9-11-15

Trudydouglass2@gmail.com

0059-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment and the author's concerns are noted and will be considered by County decision makers.

0059-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0059-3

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and the commenter's request for a five year plan will be considered by County decision makers.

0059-4

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. It should be noted that Project approval will not allow permit applicants to avoid applicable federal, state or local requirements, now or in the future.

0059-5

Please see Global Response 19, Enforcement of Mitigation Measures and Ordinance. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document, including enhanced oversight mechanism by County regulators that address commenter's concerns.

0059-6

Please see Global Response 19, Enforcement of Mitigation Measures and Ordinance. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document, including enhanced oversight mechanism by County regulators that address commenter's concerns.

0059-7

Kern County is a leader in the promotion of renewable energy development. According to the California Energy Commission, as of June 30, 2015, Kern County has 100 renewable energy facilities online, providing 4,372 megawatts renewable capacity (CEC, 2015). These numbers far exceed any other county in California.

0059-8

Thank you for your comment and participation in the public review of the Project and the environmental document. Your comments are noted and will be considered by County decision makers.

60 National Assoc. of Royalty Owners – California Inc.

NATIONAL ASSOCIATION OF ROYALTY OWNERS – CALIFORNIA, INC.
Serving the Citizens Who Own California's Natural Resources

September 11, 2015

VIA ELECTRONIC MAIL: planning@co.kern.ca.us

Lorelei Oviatt, Director
Kern County Planning and Development Department
Public Services Building
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2370

Re: Draft EIR for Revisions to Kern County Zoning Ordinance – 2015 C, Oil & Gas Permitting, Public Comment

Dear Ms. Oviatt:

The California chapter of the National Association of Royalty Owners advocates to protect and preserve the rights of royalty and mineral rights owners, many of whom live or own rights within Kern County. On behalf of these royalty and mineral rights owners, we welcome the opportunity to offer comment on Kern County's Draft Environmental Impact Report (EIR). 0060-1

An owner of land in fee has the power to sever the mineral rights from surface rights. The mineral rights may be sold or leased, or they may be reserved or accepted in a sale of the land. In any case, the mineral owner or lessee has obtained an interest in real property called a **profit a prendre**, the right to take something, such as oil and gas, from the land itself. The profit a prendre has been considered to be analogous to an easement, but it has generally been considered something more. In most cases the profit a prendre includes an implied easement to use the land for the development of the minerals. Whatever the nuances controlling its definition, the ownership of a profit a prendre usually brings with it a general, exclusive, and potentially all pervasive right of surface entry. In the absence of contrary language in the instrument conveying the interest, a mineral owner or lessee can make any reasonable use of the surface of the land to develop the minerals, even to the complete exclusion of the surface owner. This is well established in state law. 0060-2

We appreciate the thorough work of the Planning Department, however, as we understand the current proposal, additional requirements for access of minerals could impose significant barriers to mineral extraction, decreasing the value of the minerals and resulting in a reduction in ad valorem property tax and potentially a reduction in services to the residence of Kern County. 0060-3

State laws first enacted nearly 150 years ago established the rights for mineral owners (*Civil Code DIVISION 2. PROPERTY [654-1422] (Heading of Division 2 amended by Stats. 1988, Ch. 160, Sec. 13.)*.) Many judicial rulings since then have confirmed and upheld these rights. 0060-4

179 Niblick Road, #418 • Paso Robles, CA 93446-4845
Office: (805) 801-5877 • info@naro-ca.org • www.naro-us.org

0060-5

As the dominant estate, mineral owners have specific rights to enter the surface pending the completion of the Section 848 process.

0060-6

When minerals are severed from the surface, many times there are specific rights deeded to the mineral owner. The County does not have the right to supersede these rights granted. Any attempt to constrict these rights would be detrimental to the value of the minerals and may require just compensation for that loss.

0060-7

As a result, the County may be forced into the unintended consequence of incurring costly legal expenses to defend this action. The current process, which is already codified in state law, is sufficient and does not expose the County to unnecessary legal burdens.

0060-8

Thank you for making this process inclusive and our organization hopes that the concerns addressed above will be reflected in the final EIR and ordinance language. Should you have any questions, feel free to contact me at (209) 481-7005.

Sincerely,



EDWARD S. HAZARD
President

Cc: Christopher B. Mynck, AICP – mynkc@co.ker.ca.us
Edward S. Renwick, Esq, Hanna and Morton LLP – erenwick@hanmor.com

0060-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0060-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0060-3

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0060-4

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0060-5

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0060-6

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture, and Global Response Alt-1, Alternatives Eliminated from Conservation.

0060-7

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture, and Global Response Alt-1, Alternatives Eliminated from Conservation.

0060-8

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

61 Wonderful Orchards

Wonderful orchards

September 11, 2015

Kern County Planning and Community Development Department
Attn: Christopher B. Mynk, AICP
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Re: Draft Environmental Impact Report (EIR) for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear Mr. Mynk,

Wonderful Orchards, and its associated agricultural entities, Wonderful Pistachios & Almonds ("WPA"), Wonderful Citrus ("WC"), and Vintage Nurseries LLC ("Vintage") (collectively "The Wonderful Company"), appreciate the opportunity to provide comments to the Kern County Planning and Community Development Department ("Department") regarding the Draft EIR for oil and gas permitting in unincorporated areas of Kern County. 0061-1

The Wonderful Company farms and markets pistachios, almonds, pomegranates, various citrus varietals and grapevine nursery stock throughout California's Central Valley. As a large agricultural landowner in Kern County, we feel strongly that agricultural operations and oil and gas activities, the backbone of the Kern County economy, can successfully co-exist, and appreciate the County's efforts to promote the continued viability of both industries. 0061-2

To this end, the Wonderful Company generally supports the proposed project to amend the Kern County Zoning Ordinance to include new site development standards for oil and gas exploration, extraction, and production in unincorporated Kern County; however, we respectfully request that the Department consider the following comments before finalizing the Ordinance. 0061-3

1. The Draft EIR assumes that an average of 2,697 new producing wells would be permitted annually through the proposed project. We seek clarification on the basis for this estimate. 0061-4

6801 East Lerdo Highway, Shafter, California 93263 · 661.399.4456 · 661.399.1735

Wonderful orchards

Agricultural Resources (Impact 4.2-1 & Impact 4.2-5)

2. We support the proposed requirement for applicants to provide mitigation for new ground disturbance, especially the option of "restoring agricultural lands to productive use through removal of legacy oil and gas production equipment", but are concerned that this option is not incentivized sufficiently. We request that this area of the proposal be reviewed and revised to promote restoration of lands containing legacy oil and gas facilities, particularly those that have been abandoned. 0061-5

   The restoration of legacy facilities and idle wells is a concern for surface owners and should take priority over the conservation easement mitigation option. This could be accomplished through the establishment of an abandonment fund during the permitting stage. Once cleanup of these facilities are complete, then the conservation easement option could be initiated. Furthermore, the current water situation does not make the conservation easement option reasonable at this time. 0061-6 0061-7

3. The proposal tentatively provides measures to "protect crops and structures adjacent to oil and gas activities on active agricultural lands" including the requirement to show underground pipeline on submitted site plans. The Wonderful Company urges the Department to also consider requiring applicants to show how they will minimize disturbance with underground agricultural pipelines and related facilities on these plans. 0061-8

Hazards and Hazardous Materials (Impact 4.8-1)

4. While we agree with the proposed mitigation measures for significant hazards to the public or environment, we believe the requirements under MM 4.8-3 should also include a requirement to provide adequate notice of the activities that will take place on the site. Accordingly, The Wonderful Company suggests that the Department include language providing that notice must be given within a specified time period before any actions are to be taken on the surface – this will provide protection to both the mineral owner and its employees and the surface owner and its employees. 0061-9

Transportation and Traffic (Impact 4.16-1)

5. The Department proposes to mitigate potential transportation and traffic issues by requiring that site plans include relevant information pertaining to the current transportation infrastructure. We support these measures, but believe that site plans should be required to include access routes as well. 0061-10

6801 East Lerdo Highway, Shafter, California 93263 · 661.399.4456 · 661.399.1735

Wonderful orchards

Utilities and Service Systems (Impact 4.17-4)

6. The proposal sets a goal that the additional oil and gas activities in unincorporated Kern County provide 30,000 acre-feet per year of agricultural irrigation water. We seek clarification on whether this estimate includes both agricultural irrigation water and groundwater recharge, and believe that groundwater recharge should also be an option for use of produced water. Additionally, The Wonderful Company would like to understand whether the 30,000 acre-feet per year estimate is in addition to the current produced water being supplied to agricultural water districts or whether the reuse goal already includes these existing sources, and would support that an additional 30,000 acre-feet of water be developed. 0061-11 0061-12

19.98.080 Oil and Gas Conformity Review

7. **Application Contents (Site Plan).** We agree with the currently listed requirements, but believe the site plan should not be considered complete without also including access routes, landscaping plans and notification requirements. 0061-13

8. **Notification Requirements – Tier 1, 2, 3, 4 and 5 Areas.** The Wonderful Company seeks further explanation on what is intended by the use of the word "sent" in the following statement: "The package shall be sent 30 days before submittal of application." If the Department interprets this to mean that the materials must be **delivered** to the recipient 30 days before submittal, we believe that this sentence should be modified as such. Without this clarification, there is little assurance that adequate notification to affected surface owners will be given. Furthermore, we also suggest providing additional language specifying the required delivery method (i.e., certified mail or a comparable method). 0061-14

The Wonderful Company appreciates the opportunity to provide feedback on the Draft EIR. We are available to discuss our comments should the Department require additional information. 0061-15

Sincerely,

Joseph C. MacIlvaine
President

6801 East Lerdo Highway, Shafter, California 93263 · 661.399.4456 · 661.399.1735

0061-1

Thank you for your comments on the Draft EIR. This introductory comment is noted.

0061-2

Thank you for your comments on the Draft EIR. This introductory comment is noted.

0061-3

This introductory comment is noted.

0061-4

See GR-08: Future Well Projections.**0061-5**

The agricultural land compensatory mitigation components of MM 4.2-1 has been revised to prioritize acquisition of larger agricultural properties and removal of legacy equipment.

0061-6

The Project addresses future permitting for future oil and gas activities, and does not apply to abandoned wells or other legacy equipment and structures. The state also has a fund for removal of abandoned equipment. The Revised Amended Ordinance also includes a new procedure for reporting potentially abandoned or idled wells to the County, which can then coordinate with DOGGR to assure regulatory compliance, and to withhold new permits from applicants DOGGR has determined to be in violation of idled well requirements.

0061-7

Comment's assessment of the difficulty of acquiring conservation easements during this drought period is noted. MM 4.2-1 provides a menu of options for mitigating impacts to agricultural lands. See also, prior response for prioritization of funding for conservation.

0061-8

The Site Plan must show the construction of new pipelines and other related facilities by oil and gas producers. Surface owners are encouraged to provide information about the location of underground agricultural pipelines and related facilities to the County, so this informatiion can be uploaded onto the Kern Gateway (a GIS site with multiple layers of data that will be publically accessible) to better inform oil and gas infrastructure locations. Surface owners are also encouraged to provide such information to Applicants. The Project does not include regulating agricultural operations, or imposing disclosure or other requirements on agricultural operators or surface owners.

0061-9

Commenter's request for expanding surface owner notice requirements are noted. Both the Revised Amended Ordinance and several mitigation measures have been revised to expand mandatory reporting obligations to surface owners.

0061-10

Commenter's suggestion that Site Plans include access road information has been included in the Revised Amended Ordinance.

0061-11

GR 5 water update for corrected number of ag irrigation (which does include GW faciliteis designed to be part of ag irrigation). Groundwater recharge is an option for managing produced water. 30K AFY is net addition to existing produced water being supplied to ag water districts.

0061-12

GR 5 water update for corrected number of ag irrigation (which does include GW faciliteis designed to be part of ag irrigation). Groundwater recharge is an option for managing produced water. 30K AFY is net addition to existing produced water being supplied to ag water districts.

0061-13

Commenter's recommendations regarding landscaping plans, access roads and surface owner notifications are noted. The Amended Ordinance and revised mitigation measures expand notice requirements, include access roads as a required component of site plans, and MM 4.1-4 has been modified to remove vegetation screening requirements on agricultural lands.

0061-14

The Revised Amended Ordinance includes more detailed information on the timing of required notices, and the need for notices to be sent with required signature receipts from recipients under designated circumstances.

0061-15

See comment 14.

62 South Valley Farms

SOUTH VALLEY FARMS 15443 Beech Avenue • Wasco, CA 93280 • Ph: 661.391.9000 • Fax: 661.391.9012 • www.southvalleyfarms.com

September 11, 2015

VIA HAND DELIVERY and E-MAIL

Kern County Planning and Community Development Dept.
Attn.: Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

E-Mail: mynkc@co.kern.ca.us

Re: Comments on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting) ("DEIR")

Dear Mr. Mynk:

I am writing this letter on behalf of South Valley Farms with operations growing almond and pistachio trees primarily in northern Kern County. As all residents of Kern County are aware, we recognize that the two largest economic drivers in this county are the oil industry and the agricultural industry, and we hope to have both industries thrive. In addition, as is the case with many farmers, our farmland is situated on split estate lands and is subject to the proposed ordinance amendments and analysis contained in the DEIR. Our hope is that this DEIR can operate as a vehicle to better the necessary relationship and cooperation between the surface owner and mineral owner in split estate situations through the land use authorities of Kern County. 0062-1

We are aware that the Kern County Farm Bureau ("KCFB") has submitted a comment letter regarding the DEIR dated September 10, 2015. By this letter, we support the KCFB letter and requests made in it, and we additionally request that you consider the following comments to revise the DEIR: 0062-2

Ordinance

(1) At least under Tier 2, for split estate scenarios, a signature by the Land/Surface Owner should be absolutely required on the site plan as set out in Section 19.98.080(G) with only one pathway forward. The timing for all permits, once the signature has been obtained, should remain as set out in Section 19.98.090. With land use issues at the very heart of these site plans as affecting the surface owners, who typically continue to own the land after the mineral owners set up their operations, it seems that this request is reasonable and respectful of the rights of both the surface owner and the mineral owner. 0062-3

(2) If the County continues on a dual pathway for split estate scenarios as established by Section 19.98.090 and 19.98.100, then we request that Section 19.98.080(H) be changed to provide a notification period to the Land/Surface Owner of 60 days before submittal of the application, as opposed to only 30 days. The minimum notification period by law is 30 days, and nothing prevents the County from extending the required notification period. An additional 30 days of notification allows time for the Land/Surface Owner and the mineral owner to come together and work out terms with the goal of getting a signature by the Land/Surface Owner and proceeding along the path of Section 19.98.090. This should be the goal of all parties involved, including the County. This can be particularly important for smaller farms that do not have the staff to deal with these kinds 0062-4

SOUTH VALLEY FARMS 15443 Beech Avenue • Wasco, CA 93280 • Ph: 661.391.9000 • Fax: 661.391.9012 • www.southvalleyfarms.com

of issues in a short timeframe, especially if the notice were to be received during harvest. An extra 30 days could make the difference. 0062-4 Continued

(3) Please include in Section 19.98.080(H) that the letter of notification to be provided to the Land/Surface Owner include a complete copy of the application for an Oil and Gas Conformity Review. 0062-5

Mitigations

(1) While we do not disagree with the general proposal for MM 4.2-1 as contained in the KCFB comment letter, dated September 10, 2015, we believe that a dollar amount for a mitigation measure needs to be meaningful and should be specified. Since we are talking about a method to return Ag land within the County at a ratio of 1:1, including land with currently idle and/or abandoned oil/gas wells, the dollar amount needs to be sufficient enough to return the land to Ag land as quickly as possible. We would suggest a dollar figure in the range of $20,000 - $25,000 per acre per permit. 0062-6

We thank you, again, for this opportunity to comment on the DEIR. Our hope is that issues can be balanced in a way to help both the Agricultural and Oil and Gas industries thrive to promote opportunities in Kern County. To that end, we look forward to your consideration of our requests above. 0062-7

Sincerely,

Eric Miller
General Manager

0062-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0062-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0062-3

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0062-4

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0062-4 cont'd

0062-5

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please see Global Response 4, Surface Owners and Agriculture.

0062-6

Your request for modification of MM 4.2-1 has been considered and rejected as it is not required to mitigate related impacts to less than significant. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document that address commenter's concerns.

0062-7

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

63 Kern Citizens for Sustainable Government

Kern Citizens for Sustainable Government

September 11, 2015

Planning and Community Development Department
Attn: Christopher B. Mink, AICP
2700 "M" STREET, SUITE 100
BAKERSFIELD, CA 93301-2323

Kern County Oil/Gas Environmental Impact Report

Dear Mr. Mink,

Kern Citizens for Sustainable Government would like to applaud the efforts of Kern County Planning and Community Development Department on what is a complex issue that affects numerous stakeholders in Kern County. The County's determination to work with all interested parties has not gone unnoticed and our support is united with the understanding that this Environmental Impact Report will streamline processes for our oil and gas industry. Yet, there are some items we feel do not support our mission of sustainable government practices and allow the private sector to freely expand without overbearing fees. 0063-1

Below are a few items related to Section 4.14 Public Services and 4.16-1 we believe are unnecessary in the success and implementation of the Environmental Impact Report. In an effort to reduce burdensome and precedent setting mitigation measures, Kern Citizens for Sustainable Government opposes or questions the items below. 0063-2

With the recent drop in oil prices and slowing of projects in the industry, the fees associated with public services, transportation and traffic seem to be unsustainable and volatile. In relation to 4.14-1 and 4.14-2 where a fee is implemented per well: is there assurance that the fees will provide enough funding to sustain the costs incurred? What is the plan if fees are not able to adequately fund the rural crime unit and Industrial Firefighting vehicle? Will employees be laid off or will the county be liable for covering the personnel cost? 0063-3

In section 4.14-21 it is stated, *"the rise in crime is not attributed to oil and gas activity"*. Therefore, the rise in fees associated with the Sheriff's office seems to be a punishment, not a protectant. If it is assumed more activity in the oil and gas area would entice more criminal activity, then the applicants 30% contribution of property tax revenue should cover the assumed demand for fire-fighting and rural sheriff services. 0063-4

Kern Citizens for Sustainable Government
KERN CITIZENS FOR SUSTAINABLE GOVERNMENT
PO BOX 81075 • BAKERSFIELD, CA 93380

Kern Citizens for Sustainable Government

0063-5

"Additionally, in accordance with the KCGP, Public Services and Facilities, Policies 9 and 16 (see Section 4.14.3, Regulatory Setting), new developments would be required to pay a pro rata share of the local cost for the expansion of services under the Public Facilities Mitigation Program. Developers would be required to assume full responsibility for costs incurred in service extensions or improvements that are required to serve their project(s). Therefore, new projects would have to pay for the extension or improvement of fire, police, or other services to serve a specific development, if those services are not available and to ensure service objectives are met." These services should be covered through property and sales tax associated with an increase in economic growth. In essence this seems like a "hidden tax" to the applicant and/ or the "developer". The project area defined is within the County of Kern, which should have taken into consideration economic growth and hardship to mitigate the issues of providing public services. The level of significance after mitigation is more burdensome on the applicant than the public service. Overall, the connection of the additional fees needed for police and fire is not clear.

Sincerely,

Lauren M. Skidmore

Lauren Skidmore
Director,
Kern Citizens for Sustainable Government

Kern Citizens for Sustainable Government
KERN CITIZENS FOR SUSTAINABLE GOVERNMENT
PO BOX 81075 • BAKERSFIELD, CA 93380

0063-1

Commenter's support for the efforts of the Planning Department to work with all interested parties to develop a streamlined permitting process is noted for consideration. These comments are noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

0063-2

Commenter's concerns about the stability and feasibility of fees for public services, transportation, and the Rural Crimes program, are noted for further consideration. These fees were included to mitigate environmental impacts on public services and roads and are not development impact fees as defined by the government code as they mitigate the specific impacts of these activities. Mitigation fees must be paid for mitigation purposes, and are monitored and reported annually as part of the MMRP process.

0063-3

Please see response to 0063-1.

0063-4

Please see response to 0063-1.

0063-5

Please see response to 0063-1.

64 Kern County Taxpayers Assoc.

KernTax
Facts Through Research

September 11, 2015

Lorelei Oviatt
KC Planning Department
2700 M Street, Suite 100
Bakersfield, CA 93301

Ms. Oviatt:

RE: Comments Oil and Gas EIR

KernTax is a member-supported, 501(c) 4 non-profit corporation, with the mission to bring about more accountable, effective, efficient, reliable government. Basing its actions on common sense, innovation, and the long-term view, KernTax crafts positions based on adopted values. Founded in 1939, KernTax is committed to being the taxpayers' guard dog. 0064-1 Continued

KernTax views any government collection of funds through any financial conduit to be taxation, be it clearly identified as a tax, a fee for government service or a regulated rate structure. If it is excessive or not appropriate, KernTax must, by charter, educate, expedite resolution and ensure fair representation and treatment. We do not seek subsidies; we seek fair a return to our local citizens from all regulatory bodies and their agents for levied taxes and fees. 0064-2

KernTax's Basic Values are:

- All Taxes/Fees must be fair, understandable, responsible and benefit the economy.
- All Expenditures must be fiscally accountable, economically viable and societally equitable 0064-3

The mitigation measures of the Oil and Gas EIR follow:

MITIGATION MEASURES

The Draft EIR presents 88 mitigation measures to reduce significant impacts from the project. A mitigation monitoring program will be provided with the staff report for the Planning Commission Hearing and after the preparation of the Response to Comments and Final EIR. 0064-4

The following is a summary of some of the mitigation measures: 0064-5

- Aesthetics — require compliance with Dark Shies Ordinance; limit pump units to 80-ft in height; paint pumping units with approved color palette

- Agricultural Resources — require compensation of loss of ag land at a ratio of 1:1; protection of crops from surface water runoff, stormwater control and spill prevention
- Air Quality — A reduction in criteria pollutants through dust minimization measures and payment of fees or completion of applicant initiated programs, both through an Emission Reduction Agreement (ERA). The agreement will be between the Kern County Board of Supervisors and the San Joaquin Valley Air Pollution Control District. It is similar in details to the ISR (Indirect Source Rule) and Voluntary Emission Reduction Agreements (VERAs) completed with developers. Biological Resources — A reduction in potential take of a protected species through worker education, preconstruction surveys and habitat compensation at a ratio of 1:1
- Cultural Resources — A reduction in destruction of potentially significant cultural remains or artifacts through worker education and preconstruction surveys
- Green House Gas - reduction of all GHG emissions not covered under Cap-and-trade through a VERA
- Hazards and Hazardous Materials — Worker awareness training; proper handling and disposal of hazardous materials; compliance with State and federal regulations
- Hydrology and Water Quality — Compliance with applicable State and Federal regulations, including Underground Injection Control (UIC)
- Noise — Reduce construction and operational noise levels to less than 65 dBA or to not exceed ambient levels above 65 dBA; require a minimum of 190-foot setback from existing residential structures
- Public Services — Payment of $150 for first 2000 wells drilled for purchasing by the County of an industrial firefighting vehicle, not to exceed $850,000; payment of $425 per well for funding to be used by the County Sheriff's Department for the Rural Crimes Unit
- Transportation and Traffic - Payment of $1500 per well for roads maintenance of roads utilized by the oil and gas industry
- Utilities and Service Systems — Coordination by the oil and gas industry with the County Groundwater Sustainability Agency

0064-5
Continued

0064-6

DRAFT PERMIT FEES - OIL CONFORMITY REVIEW		Estimated Wells per Year 1800-3647
County Fees	**Amount per Well**	**Estimated Range Collected**
Planning and Community Development	$300 (Minor Activity	$500,000 - $1,100,00
	$600 (OG Conformity Review)	$1,000,000 - $2,200,00
General Plan Surcharge	$200	$360,000 - $729,400
Online Permitting System/Maintenance	$200	$360,000 - $729,400
Code Compliance (dedicated Building	$70	$126,000 - $255,290
Public Works — Engineering/Drainage	$60	$120,000 - $218,820

0064-7

0064-7
Continued

Program Administration	$60	$120,000 - $218,820
Total Fees	**$1,190**	**$2,142,000 -**
Mitigation Fees	**Amount per Well**	**Estimated Range**
'Sheriff Rural Crimes Unit	$425	$765,000 - $1,500,000
'Fire Equipment	$150	$850,000
[3]Traffic	$1500	$2,700,000 to
Total County and Fees	**$2075**	**$3,735,000 -**
Additional Mitigation	**Amount per Well**	**Estimated Range**
[4]Air Quality (ERA))	$8,000 - $17,850	$14,400,000 —

Additional (if needed: Agricultural and Biological mitigation compensation
' Sheriff Rural Crimes Unit (State contribution - $366,000 in addition to Mitigation cost). Sergeant (Supervisor), two Senior Deputies (investigators) three Deputies, one Support (clerical), and helicopter usage. If the higher amount collected, then additional resources will Annual report on response and incidents.
'Fire Equipment. ***Combination Walk-in/Non-Walk-in Industrial Firefighting vehicle*** responding with a minimum of five firefighters with the tools and equipment necessary for industrial firefighting and rescue. Total: $850,000 (This temporary fee will be collected for three years depending on permit activity).
[3]Traffic. $60 million maintenance cost over 20 years. Annual report on usage.
Public Works Director in consultation with Roads Director. If Kern becomes Self-help County —then amount reevaluated.
[4]Air ERA — Emission Reduction Agreement ($6,974 per ton) RANGE: $8000 to $ 17,850 per well

KernTax has issues with the four proposed mitigation fees. These fees are intended to offset the impacts created by the activity permitted under the Proposed Amendments to the Zoning Ordinance.

1. Fire fees are shown at $150 per well for each permit to purchase a new fire truck until $850,000 is collected.
2. Sheriff's Rural Crime Unit are $450 per well.
3. Wear and tear on pavement and roads by oil and gas are $1,500 per well
4. Emissions reduction fees estimated between $8,000 and $17,850 per well

CEQA requires that the County consider mitigation measures for any impacts that the Proposed Amendments will have, but when proposing mitigation measures the County can only exercise powers that it normally has. It does not give them the authority to impose mitigation measures that it has without CEQA. These proposed mitigation fees look more like exactions and do not appear to meet the *Nollan/Dolan* dual nexus test.

0064-8

These mitigation fees look like a piecemeal implementation of portions of the old Capital Improvement Plan and sets a precedence. Where impact fees exist, KernTax has always fought them. If used, it should be under strict rules, and the proceeds should be separated from other governmental revenues. Impact fees should be used solely for capital improvements directly related to specific new exploration and must pass the "essential nexus" and be "roughly proportional" to the development's impact to be compliant with *Nolan/Dolan*. The proposed fees seem to be rather arbitrary.

0064-9

0064-9
Continued

KernTax worries that if the County implements fees like this to the oil companies, it will try and do the same on all new projects on a project basis.

Respectfully,

Michael Turnipseed

Michael Turnipseed
Executive Director

0064-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This introductory comment is noted and will be considered by County decision makers.

0064-1 cont'd

0064-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0064-3

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0064-4

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers.

0064-5

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document.

0064-5 cont'd

0064-6

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document.

0064-7

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document.

0064-7 cont'd

0064-7 cont'd

0064-8

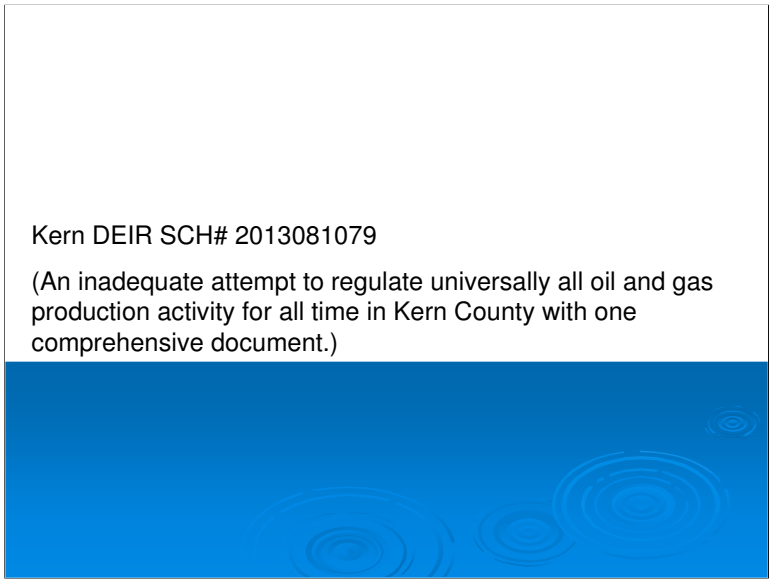
Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document.

0064-9

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment is noted and will be considered by County decision makers. Please also see the section 7.1.4 for a table of mitigation measure revisions that have been implemented through this document.

0064-9 cont'd

65 Tom Frantz



Tom Frantz

29389 Fresno Ave, Shafter, CA 93263

Kern DEIR SCH# 2013081079

These comments are made on my own behalf and on behalf of the Association of Irritated Residents which has members living in Kern County. 0065-1

Introduction:

These comments on the DEIR for oil and gas production in Kern County concern the protection of residents and prime farmland from groundwater contamination, exposure to toxic gases, and exposure to general air pollution. 0065-2

Kern County should protect resources such as prime farmland and the health of the general public above and beyond any protections imposed by DOGGR and other outside agencies. Kern County has the best perspective on how to protect these resources. 0065-3

The following six pages illustrate areas where the DEIR is lacking in needed protections. These are areas which DOGGR regulations have failed to address. Kern County must address these specific issues. 0065-4



How does Kern County, in the EIR, propose to mitigate this type of soil contamination on a well pad surrounded by prime farmland? 0065-5

This particular well is located within one mile of the City of Shafter and there are dozens more similar to this in the immediate area. Farmers in the area understand, from past history, that everything they spill or apply to the soil eventually ends up in the local groundwater. Please notice that the well pad is simply flat ground level with the surrounding fields. 0065-6

The solution to this problem is the county should require containment of all leakage from wells and pipes on an impermeable surface surrounded by curbs that prevent outflow or inflow of all liquids including spilled crude oil, waste water, and rain water. 0065-7



How does the Kern County EIR prevent flooding of the well pad area located on prime farmland during a rain event?

0065-8

This photo was taken about a quarter mile from the City of Shafter and Sequoia Elementary School. The contaminated soil surrounding the well head is flooded with water which will percolate into the ground and eventually into the ground water. Prime farmland and irrigated fields are immediately adjacent to this site and dozens of other similar flooded well heads in just a two mile radius of this site.

0065-9

Again, the solution to this problem is to require an impermeable well pad with curbs high enough to prevent rain water from flowing into the contaminated area of the well head. A plan also has to be made to pump out accumulated water and contamination and safely dispose of it when necessary.

0065-10



How does the Kern County EIR deal with wells no longer pumping but which allow rain water to run into the cavities surrounding these wells? This particular well has not had a pumping jack on it for many years but it is used for injection of waste water at over 1200 pounds of pressure per square inch according to the pressure gauge on the well head. There are many other wells in this area near Shafter which are abandoned and have obvious holes where rainwater can run into the soil immediately surrounding these old well heads.

0065-11

How often does the oil company have to monitor the pressure when injecting waste water such as in this photo? How would a small crack in the pipes and cement casing be detected when only a few gallons per minute are escaping and contaminating local irrigation and drinking water aquifers.

0065-12

The solutions to the above two points include requirements for impermeable surfaces around injection wells with curbs preventing rainwater infiltration. Also, older wells used for injection of waste products must be proven leak free through pressure testing monthly at pressure levels at least 50% higher than the pressure used for injection of the waste products.

0065-13



0065-14

How does Kern County propose to protect school children and residents from breathing toxic fumes and emissions from leaking oil wells and associated activity?

0065-15

This photo shows one of several oil wells that sit within half a mile of Sequoia Elementary School in Shafter. The smell of hydrocarbons and other VOC's in this area is frequent enough for the County to consider the safety of the students when they are on the playground.

0065-16

Solution: The county should not allow new drilling activity within one mile of a school where children play outside. Current wells, such as the one in the photo, which are pumping within one mile of a school should have weekly inspections for leakage of gases and liquids with remedial action performed on seals and joints immediately when leaks are detected. An infrared camera should be used weekly on these inspections for detection of any gases which are leaking from the wellhead, pipes, and seals. If any gases are detected the well must be shut down immediately until the remedies are in place because of the proximity of the school and adjoining residences.



How does Kern County propose to protect residents both near and far from the air pollution associated with oil field production?

0065-17

Here is an infrared photo calibrated to show VOC gases. It was taken in 2014 of the Shafter processing facility located approximately three quarters of a mile north of Sequoia Elementary School. There is a large cloud of VOC gases in the photo. The normal winds in the area will take these gaseous emissions to the school and into the residential areas immediately beyond the school. How does the Kern County EIR protect people and students from exposure to these toxic and dangerous emissions.

0065-18

Solution: If a facility like this is located within a mile of a school, then infrared testing for gases must be done weekly and all leaks minimized immediately. If the leaks cannot be minimized within an hour to undetectable levels or levels deemed safe by state and federal health agencies, then the leaking facilities and equipment must be shut down immediately.

0065-19



How does Kern County propose to protect land and residents from abandoned oil field property?

0065-20

An abandoned oil well, in the photo, sits next to agricultural fields on the south side of Shafter. This is a common site in this area and in the Rosedale area. This long unused oil well is a direct conduit of rusted metal and cracked cement to fresh groundwater aquifers in the area. The threat of contamination can come from percolation on the surface and through upward migration of contamination from closer to the bottom of the well. How long must farmers be faced with this sort of threat to their ground water after a well has been abandoned?

0065-21

The solution is to requiry an annual analysis of all unused oil wells located on prime farmland. All such wells should be fully abandoned properly unless there is complelling evidence of future use within two years. After evidence has been shown of future use and that use has not taken place within the two years, then these wells must be abandoned properly and completely within six months. The same should happen with abandoned tanks. They must be justified periodically to remain in place and removed when there is no compelling evidence of future use presented.

0065-22

0065-1

The commenter's statement that he is speaking on behalf of himself and the Association of Irritated Residents is noted for the record for consideration by the Planning Commission and Board of Supervisors.

0065-2

This is an introductory statement describing commenter's concerns for which specific responses are provided below.

0065-3

Commenter's opinion that the County has the best perspective on protecting prime farmland and the health of the general public is noted for the record for consideration by the Planning Commission and Board of Supervisors.

0065-4

Commenter's introductory statement regarding the shortcomings of DOGGR regulations is noted; specific responses are provided below.

0065-5

Commenter includes a photograph showing what appears to be oil leakage onto bare soil beneath a well, which commenter reports is on agricultural land. Commenter suggests that the County require containment of leakage from wells on impermeable surfaces with curbs that prevent outflow and inflow of liquids. The Draft and Final EIR includes more than 20 mitigation measures to address hazards and water quality, including containment and cleanup requirements for leaks and spills.

0065-6

Please see response to 0065-5.

0065-7

Please see response to 0065-5.

0065-8

Commenter includes a photograph of a well located in standing water during a rain event. The EIR includes numerous mitigation measures to water quality, including containment and cleanup requirements for leaks and spills. See, for example, revised MM 4.9-2.

0065-9

Please see response to 0065-8.

0065-10

Please see response to 0065-8.

0065-11

Commenter includes a photograph of a well with nearby standing rainwater. The Final EIR includes numerous mitigation measures to protect water quality, including an expanded stormwater management measure to address this type of situation. See, for example, revised MM 4.9-2.

0065-12

Please see response to 0065-11.

0065-13

Please see response to 0065-11.

0065-14

Commenter raises concerns about air quality emissions near schools, and suggests a one-mile setback between wells and school facilities. As described in response to comment 45 and related global responses referenced in that response, a comprehensive health risk assessment was included in the Draft EIR, and a revised Health Risk Assessment was included in the Final EIR, to inform the setback distances that are needed to protect sensitive receptors such as schools. These health risk assessments concluded that risks are higher during construction activities, and the EIR includes required setback requirements and performance standards that are protective of human health (including children) during the construction process. Operational emissions are lower, and compliance with the noise setback requirements is also protective for air emission-related risks. Commenter's picture of a Shafter Elementary School is noted; this school is in the City of Shafter and is outside the County's land use jurisdiction. Commenter's further recommendations regarding gas leak detection and evaluation requirements are noted, but this type of well equipment falls within the jurisdiction of other expert agencies and was not determined to be warranted for CEQA purposes. The EIR also includes accident preparation planning and response mitigation measures, as well as measures to require inspection, repair, reporting and as warranted evacuation of residents if gas leaks from pipes are detected. Revised mitigation measures are included in Section 7.1.4.

0065-15

Please see response to 0065-14.

0065-16

Please see response to 0065-14.

0065-17

Commenter's concerns about air pollution is noted, as is a photo that commenter explains was calibrated to show volatile gases at a well near Sequoia Elementary School. The commenter requests infrared, bi-weekly testing for gases, and the shutdown of equipment if gas leaks cannot be repaired immediately. Please see response 14-16.

0065-18

Please see response to 0065-17.

0065-19

Please see response to 0065-17.

0065-20

Commenter's concerns about abandoned oil equipment is noted, as is a photograph that commenter explains is of an abandoned well in Shafter. Commenter's request for an annual analysis of unused oil wells on prime farmland, including a requirement that wells and tanks that were unused for more than 2 years be abandoned. Idle and abandoned wells are regulated by DOGGR, as explained in the EIR and in GR Haz 2. The County has adopted a new procedure for working with members of the public, and DOGGR, to address idle well concerns (including the concerns that an idle well is actually abandoned).

0065-21

Please see response to 0065-20.

0065-22

Please see response to 0065-20.

66 Victoria Golden

Response to Request for Comment on Draft EIR – Oil and Gas

0066-1

There is a significant danger to the health and general welfare of the Public in providing more local control to a critical resource such as regulation of energy markets and enhanced and/or increased drilling activities since the short term needs for economic stability in Kern County should not outweigh the safety welfare of its people. Big Oil and the stability it can provide to local economy is given such weight by local officials at the local level that officials area prevented from a total impartial review of the project and its alternatives. The EIR states the Project was undertaken at the request of the Oil industry and if approved under the alternatives, with the exception of the no action alternative, will allow a significant expansion of activities that will ultimately and disproportionately affect and impact those living around or near oilfields and on the San Joaquin Valley Floor.

0066-2

Without significant revision to the Draft EIR to address additional alternatives and to require effective mitigation which not only imposes minimum standards but mitigates actually mitigates the actions proposed, the County can provide no assurances to the public that the actions that would be authorized under the newly expanded ordinance will be effectively regulated and/or monitored. All activities authorized under the EIR shall be completed in compliance with Section 15097 of CEQA guidelines and the County should implement and maintain records of its monitoring requirements in a diligent matter as required under CEQA:

Public Review

0066-3

Public Review of Draft Section 15087 of CEQA guidelines (g) – After inquiring over the phone with a librarian, I was informed that there was no copy of the Draft EIR available for Public Review at the local library.

Zoning Ordinance

0066-4

The Zoning Ordinance in Kern County contains a provision under Section 19.06.020 – Authority to Administer which allows for total discretion for interpretation all adopted provisions Zoning Ordinance. If the revised and expanded Oil and Gas ordinance were adopted, the total rules, standards and enforcement will be subject to and at the discretion of the Director of Planning. No adopted mitigation, condition or regulation included this Draft EIR can be ensured to be enforced since the County allows for modifications of any mitigation measure, condition or regulation to accommodate new activities not originally contemplated under this Draft EIR. Without effective enforcement of all adopted provisions in the Final Program EIR, as originally adopted, the processes included in the adopted EIR to provide necessary insurances to the public will slowly erode and undermine the value and integrity of the analysis contained in the Draft EIR without a reevaluation of effects. The Draft EIR should not be adopted by the considering bodies without a revision to the Zoning Ordinance that requires a discretionary review of all actions considered significant which deviate from the original actions considered under this EIR, such as a conditional use permit and the respective changes to Section to address the Oil and Gas Ordinance. Activities undertaken and not previously permitted under the EIR as should NOT be issued permit without consideration of penalties under 19.02.070 and a reevaluation of the project effects. Additionally, the consideration of variances under any revised adopted zoning ordinance should be denied, unless the use of the variances was considered in the Draft EIR, or is reevaluated under CEQA for effects and opened for Public comment. This is an important point since variances set precedent for the program and would allow actions outside of the original scope of this EIR.

0066-5

Alternatives Analyzed

The alternatives analyzed under the Oil and Gas Draft EIR did not include a complete review of potential alternatives. The report should have analyzed and considered the impacts of the limited action areas alternative or Alternative 3 and enhanced EOR (Alternative 5) since it would be feasible to implement and would likely be superior to environmental alternatives considered under the EIR. If that activities were jointly reviewed the benefits to impacted resources would be expanded across the board. Under the current list the likely Alternative 5 would allow for unrestricted drilling throughout the County and outside of the current adopted administrative oilfield boundaries with only minimal improvements to air quality. The Draft EIR should be considered inadequate since it did not include an alternative to address small footprint areas and EOR technologies as a joint strategy to reduce impacts to the environment so the combined benefits of both techniques/technology can concurrently be reviewed and considered under the EIR.

0066-6

Air Quality

The evaluation of effects under the Draft EIR contained no quantification of the amount of commuter trips associated with the expanded number of sites that would be Commuter trips are a cumulative impact from the activities that would be authorized under this document. Commuter Trips and the number vehicle miles traveled by passenger vehicles other than company owned and operated vehicle fleets are significant contributors to the decline in air quality in the San Joaquin region.

0066-7

The provisions included in the Draft EIR to address the EPA Air Quality Standards were not properly quantified to show the mitigation proposed will meet the EPA standard. The regulated pollutants, NOX, ROG AND PM10 should be quantified for the total project authorized under the Draft EIR and the mitigation proposed to address the increase in pollution must demonstrate that the EPA standards will not be exceeded and that the project is consistent with the State Implementation Plan. Without that assurance, the Draft EIR is a violation of EPA Standards. If the proposed project is undertaken under the current alternatives and mitigation, the project will lead to further air quality violations San Joaquin area is classified as Extreme Non-Attainment for the 2008 Ozone Standard and mitigation is adequate to assure the impacts will be offset by the mitigation proposed in the Draft EIR.

0066-8

The associated risks to health and safety from regulated State Air pollutants have not been adequately addressed in the Draft EIR, including the effects of expanded need and use of Hazardous Air Pollutants in the project area. The current EIR proposal to collect a fee for retrofitting engines will not address the increase in total pollutants and impacts to the population for chemicals regulated under Proposition 61. Oil and gas related activities and exposure to those chemicals have been known to cause cancer in laboratory animals and there is a need for mitigation to address the risks to health and safety of public. This issue was not adequately considered in the Draft EIR.

0066-9

Biologic Impacts

Unrestricted grading activities are particularly problematic in the Project area since the actions are authorized as a by-right use in the A Zone by County Ordinance. Unrestricted grading activities permitted under existing zoning have resulted to prior violations of the Endangered Species Act and the direct loss

0066-9
Continued

of habitat crucial to the survival of the Blunt Nosed Leopard Lizard and San Joaquin Kit Fox and other listed/protected species. Therefore any adopted ordinance should evaluate requiring an overlay zone classification for all oilfield related actions in order to address and curb unrestricted grading permitted in the A Zone. This will ensure that no grading occurs prior to permit review and consideration by the permitting agency under the adopted oil ordinance and without an overlay in the A Zone unrestricted grading will continue to be unchecked. Although the ESA allows for limited take under certain circumstances this EIR intends to authorize take of No Take Species specifically the Blunt Nosed Leopard Lizard in violation of the Endangered Species Act. The EIR should not in any warrant the taking of No take species since that would violate Section 7 and 10 of the ESA.

0066-10

Aesthetics

The Draft EIR states that Aesthetic impacts from Oil and Gas development Countywide were considered significant and unavoidable. However visual impact techniques could be employed to improve the aesthetic impacts from Oil and Gas development that have been used in other parts of the State and the Country. The question is the County should determine what techniques could be employed locally and mitigate future development for this impact. The effects are avoidable when there is the political will to impose visual standards on one of the most disruptive visual components to the landscape. The idea that this can be addressed is absurd, inadequate and not in the spirit of CEQA. The County must effectively explore techniques which will effectively reduce the aesthetic impacts to the landscape in all permits issued under the adopted ordinance.

Thank You for your consideration and inclusion in the record,

Victoria Golden, Concerned Resident of Kern County, District 5

Victoria Golden
1911 Buena Vista St.
Bkfld. CA 93304
Stormynight817@yahoo.com
661) 204-2034

0066-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

0066-2

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response.

0066-3

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. The County's notice of availability of the DEIR was sent to all County libraries. The main Kern County Library in Bakersfield (Beale Library) received a full copy of the DEIR. As noted in the DEIR's notice of availability, the DEIR and the documents referenced in the DEIR were also made available for review at the Planning and Community Development Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301, and on the County's website (http://pcd.kerndsa.com/planning/latest-planning-news/420-oil-gas-eir, accessed September, 2015). In addition, free copies of the DEIR on CD-ROM available to the public from the County, free of charge. The County received no requests for a copy of the DEIR on CD-ROM.

0066-4

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see Global Response 1, Ministerial Permit Process, and Global Response 19, Enforcement of Mitigation Measures and Ordinance.

0066-5

Please see Global Responses Alt-1 and Alt-2. Regarding the comment's suggestion that the EIR combine various alternatives, such analysis is not required by CEQA. The EIR fully evaluates six alternatives to the Project: No Project Alternative (Alternative 1); CUP Alternative (Alternative 2); Reduced Ground Disturbance Alternative (Alternative 3); No Hydraulic Fracturing Alternative (Alternative 4); Low-Emission Enhanced Oil Recovery (EOR) Technology Alternative (Alternative 5); Recycled Water Alternative (Alternative 6). For each alternative, the EIR provides a detailed description of the alternative, compares its impacts to those of the Project, and evaluates the relationship between the alternative and the Project objectives. In addition, Table 6-1 of the Draft EIR sets forth a matrix that provides a summary comparison of the significant impacts of each alternative to the project and the remaining alternatives for each impact category analyzed in the EIR. This analysis, combined with the detailed evaluation of each alternative's impacts as compared to the Project provides the information necessary to weigh the relative advantages and disadvantages of each alternative and to permit a reasonable choice thereof. As such, the EIR is not defective for not discussing variations on the alternatives it does consider. *See Village of Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal.App.3d 1022, 1028-1029.

0066-6

The DEIR does quantify emissions related to commuter trips. Please DEIR Appendix I for such emission estimates. Please also see Global Responses Air 1 through Air 12 for more information related to commenter's concerns.

0066-7

As explained in DEIR section 4.3.4, the EIR conducts a full evaluation of air quality impacts for the Project using air quality significance criteria consistent with the SJVAPCD CEQA significance criteria, approved CEQA air quality checklists, and considering other federal criteria. Project air quality impacts were also evaluated to determine consistency with applicable air quality plans, including SJVAPCD's one-hour ozone plan, eight-hour ozone plan, PM_{10} maintenance plan, 2008 $PM_{2.5}$ plan, and 2012 $PM_{2.5}$ plan. Project air emissions were also evaluated to determine whether they would violate any air quality standard, including those established by EPA and/or the Air District. Please see DEIR page 4.3-69 *et seq*. The EIR determined that that Project emissions will be mitigated to less than significant, though this impact would be significant and unavoidable on a cumulative basis. Please see Global Responses Air 1 through Air 12 for additional analysis related to commenter's concerns.

0066-8

The commenter's opinion of the EIR's analysis of health risks associated with Project air emissions is noted, as is commenter's failure to identify any specific deficiencies with such analysis. Please see Global Responses Air 1 through Air 12 for additional analysis related to commenter's concerns.

0066-9

This comment alleges unspecified past conflicts between "unrestricted" grading and certain protected species, and requests that the Revised Amended Ordinance include an "overlay zone classification" to address unrestricted grading in the Project Area. No such overlay zone is required, however, because Kern County Code of Ordinances Chapter 17.28, the grading ordinance, already regulates grading activities on a Countywide basis. In any case, grading activities that have the potential to take a protected species or its habitat are subject to the permit authority of the state and federal wildlife agencies. As a matter of law, the EIR will not, and could not, "warrant the take" of any protected species.

0066-9 cont'd

This comment alleges unspecified past conflicts between "unrestricted" grading and certain protected species, and requests that the Revised Amended Ordinance include an "overlay zone classification" to address unrestricted grading in the Project Area. No such overlay zone is required, however, because Kern County Code of Ordinances Chapter 17.28, the grading ordinance, already regulates grading activities on a Countywide basis. In any case, grading activities that have the potential to take a protected species or its habitat are subject to the permit authority of the state and federal wildlife agencies. As a matter of law, the EIR will not, and could not, "warrant the take" of any protected species.

0066-10

Please see Responses 200 to 211 to comment Letter 43.

67 Mike Haddon

RAMSGATE ENGINEERING, INC.

2331 Cepheus Court • Bakersfield, California 93308 USA Telephone: 661-392-0050 • Facsimile: 661-392-9606

Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 'M' Street, Suite 100
Bakersfield, CA 93301

Subject: Oil and Gas EIR

To: Mr. Christopher Mynk,

I have worked in the oil industry in Kern County since 1978 doing Mechanical and civil construction, equipment fabrication, and engineering and project management. I have seen the permit process and other government regulations continually increase. This has placed a burden on the industry that has greatly delayed and sometime caused the cancelation of viable projects. 0067-1

I am very encouraged by your proposed project review plan. I hope you are able to implement the plan. The oil industry has been good for my family and for our community. I hope it continues to be an important part of Kern County's economy. 0067-2

Sincerely,
Mike Haddon
Senior Project Engineer

© 2015, Ramsgate Engineering, Inc. All Rights Reserved

0067-1

Thank you for your comment and participation in the public review of the project and environmental document. The comment indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

0067-2

Thank you for your comment and participation in the public review of the project and environmental document. The comment indicates support of the proposed project. The comment does not state a specific concern related to the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. Therefore, a detailed response is not required. This comment has been noted for the record and has been provided to the Kern County Planning Commission and the Kern County Board of Supervisors for consideration.

68 Michael Hopkins

[DATE]

Kern County
Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 M Street
Bakersfield, CA 93301

E-Mail: mynkc@co.kern.ca.us

Re: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) Focused on Oil and Gas Local Permitting

Dear Mr. Mynk:

I am a farmer in Kern County with a [type of orchard/farm] located [general vicinity]. My farm is on split estate lands [and there are already a number of wells located on my property that take land out of production.] [Option to add additional impacts from existing wells on your property here if you like]. 0068-1

I am not opposed to oil and gas development in Kern County, but I'm concerned that oil companies will drill new wells on my property and neighboring properties without sufficient protections for my crops, home, and workers. Kern County has an opportunity to ensure that new oil and gas wells will not endanger our health, quality of life, or the economic prosperity of Kern's agricultural industry. I do not believe the County's draft revisions to the zoning ordinance, or the mitigation measures in the Draft Environmental Impact Report (DEIR), go far enough. In addition, the DEIR for this project seriously understates the project's impacts—especially to the agricultural community. 0068-2

Please consider the following comments and revise the DEIR to accurately reflect the project's impacts and identify additional mitigation measures. As the DEIR stands now, I don't believe it complies with the County's responsibility to inform the public about the project's significant impacts and mitigate those impacts to the extent feasible as required under the California Environmental Quality Act. 0068-3

[Select any bullet points you would like to include]

Project Description: 0068-4

- The DEIR underestimates the number of new wells that could be drilled under the project, especially on agricultural lands. There has been an increase in drilling on agricultural lands over the last 10 years and it is unreasonable to assume that only 6% of future drilling will occur on agricultural lands

Land Use Impacts: 0068-5

- The DEIR concludes that there will be significant land use conflicts between oil and gas operations and surface uses, such as agricultural operations. But nothing

0068-5 Continued

in the proposed zoning ordinance will reduce these conflicts and the mitigation measures proposed don't address many of the types of conflicts that can occur.

- The County should require surface owner sign-off for drilling on split estate lands to allow these conflicts to be worked out at the site-specific level. Other attorneys agree that the County has the authority to require sign-off without exposing the County to liability from mineral rights owners. 0068-6

- If surface owner sign-off is not required, the County should require a conditional use permit for development on split estate lands to enable the County to consult with surface owners and address site-specific conflicts. The County does not expect a significant number of permits on split estate lands and regardless the County can charge applicants for the costs to process these permits, including hiring additional staff if necessary. 0068-7

Agricultural Impacts: 0068-8

- The DEIR underestimates the amount of farmland that will be converted to non-agricultural use because it does not consider that land in between or near oil and gas facilities cannot be farmed.

- The DEIR must identify mitigation measures requiring oil and gas facilities to be clustered together, instead of being spread out across a farm. 0068-9

- The DEIR must discuss the problem of long-term idle wells and out of service facilities taking farmland out of production for longer than necessary. The DEIR's mitigation measures should require that unnecessary idle wells be abandoned and out of service equipment be removed before allowing other types of mitigation that do not restore farmland. 0068-10

- Rangeland is an important part of Kern County and its agricultural economy. The DEIR must analyze the project's impacts to rangeland and fully mitigate for the loss of rangeland to oil and gas uses. 0068-11

Water Supply Impacts:

- The DEIR assumes there is more water available that is suitable for municipal and agricultural uses than there actually is. Farmers are finding salt levels in groundwater are increasing to the point where they are harming crops. Also, the DEIR doesn't identify which aquifers will be impacted the most by oil and gas development. As a result, I can't determine what the water supply impacts to my farm will be. 0068-12

- The DEIR concludes that the project will cause water shortages in Kern County. But it doesn't discuss what the impacts of those shortages will be. Who will be required to cut back? How will water shortages effect crops? 0068-13

- The DEIR should identify additional mitigation measures to reduce the project's impact on water supplies. For instance, the DEIR should require oil and gas operations to treat and reuse more of the produced water from their wells. 0068-13 Continued

Aesthetic Impacts: 0068-14

- The DEIR concludes that the proposed Project would have significant unavoidable impacts to the County's rural character but it ignores mitigation such as limiting the number of drilling operations at any one time in scenic rural areas and requiring larger setbacks (e.g., 1,000 feet).

Traffic Impacts: 0068-15

- The DEIR underestimates the amount of traffic that the proposed Project will generate and does not analyze hazardous conditions that could be caused by truck traffic. The DEIR must include additional mitigation for traffic safety impacts and emergency access.

Noise Impacts: 0068-16

- The DEIR does not consider increased noise from actual conditions as they currently exist on the ground. It therefore vastly underestimates the Project's noise impacts in rural areas of the County.

- The DEIR's mitigation for noise impacts, including a trivial 190-foot setback requirement, will not go far enough to reduce those impacts to a less than significant level. The DEIR should include more realistic and effective setback requirements. 0068-17

Air Quality Impacts: 0068-18

- The project will lead to even higher ozone levels in Kern County and negatively impact human health and agricultural yields. The DEIR must consider additional air quality mitigation measures.

Alternatives: 0068-19

- The DEIR must consider the Conditional Use Permit (CUP) alternative in detail. Under the CUP alternative, the County can impose industry-wide mitigation while preserving its ability to consider the environmental effects of each permit on a case-by-case basis.

Sincerely,

[Your name and signature]

Michael A. Hopkins - for Hopkins Ag Inc

Michael A Hopkins

0068-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This introductory comment is noted and will be considered by County decision makers.

0068-2

Thank you for your comment and participation in the public review of the Project and the environmental document. Please see Global Response 4, Surface Owners and Agriculture.

0068-3

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. However, commenter's general opinion of the EIR is noted and will be considered by County decision makers.

0068-4

Please see Global Response 4, Surface Owners and Agriculture, and Global Response 8, Future Well Projections.

0068-5

Please see Response to comments 43-149 through 43-162. Please also see Global Response 4, Surface Owners and Agriculture.

0068-5 cont'd

0068-6

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see Global Response 4, Surface Owners and Agriculture.

0068-7

The comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. Please see Global Response 4, Surface Owners and Agriculture.

0068-8

Please see Response to comments 43-78 through 43-162.

0068-9

Please see Response to comments 43-149 through 43-162.

0068-10

Please see Global Response 4, Surface Owners and Agriculture, Global Response 7, Baseline Legacy Conditions, Global Response Haz 2, Idle Wells, and Global Response Ag 1, Agricultural Impacts and Farmland Mitigation Program.

0068-11

Please see Global Response Ag 1, Agricultural Impacts and Farmland Mitigation Program, and Global Response Water 5, Water Supply and Demand Update. Please also see Responses 43-78 to 43-199.

0068-12

Please see Responses 43-78 to 43-199.

0068-13

Please see Responses 43-171 to 43-199. Please also see Global Response Water 8, Produced Water Irrigation.

0068-13 cont'd

0068-14

Please see Responses 43-200 to 43-211.

0068-15

Please see Responses 43-221 to 43-233.

0068-16

Please see Responses 43-212 to 43-220.

0068-17

Please see Responses 43-212 to 43-220.

0068-18

Please see Response 43-244.

0068-19

Please see Global Response Alt-2.

69 David Hurst

RAMSGATE ENGINEERING, INC.

2331 Cepheus Court • Bakersfield, California 93308 USA Telephone: 661-392-0050 • Facsimile: 661-392-9606

Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 'M' Street, Suite 100
Bakersfield, CA 93301

Subject: Oil and Gas EIR

To: Mr. Christopher Mynk,

I support the current Oil and Gas EIR that is currently open for public comment. 0069-1

We should have local control over what gets approved in the oil industry. We know how things are done. We can do things quicker and take a better look at the impacts instead of having someone from Sacramento involved who is unfamiliar with Kern County. We really do know the issues and we really do want Kern County to be a great place. Oil and gas production plays an important role in this goal.

Respectfully,

David Hurst
Sr. Project Manager
Ramsgate Engineering, Inc.
2331 Cepheus Ct
Bakersfield, CA 93308

© 2015, Ramsgate Engineering, Inc. All Rights Reserved

0069-1

The commenter's support for the project is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

70 Joe Pena

RAMSGATE ENGINEERING, INC.

2331 Cepheus Court • Bakersfield, California 93308 USA Telephone: 661-392-0050 • Facsimile: 661-392-9606

Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 'M' Street, Suite 100
Bakersfield, CA 93301

Subject: Oil and Gas EIR

To: Mr. Christopher Mynk,

Please accept my support for the EIR issue. This would help all interest in the oil business here By speeding up permitting here in Kern County. 0070-1

Regards

Joe Peña
Sr. Automation Technician

© 2015, Ramsgate Engineering, Inc. All Rights Reserved

0070-1

Commenter's support for the project is noted. This comment is noted for the record and will be provided to the Planning Commission and Board of Supervisors for consideration.

71 Kerri Roberts

RAMSGATE ENGINEERING, INC.

2331 Cepheus Court • Bakersfield, California 93308 USA Telephone: 661-392-0050 • Facsimile: 661-392-9606

Kern County Planning and Community Development Department
Attn: Christopher Mynk, AICP
2700 'M' Street, Suite 100
Bakersfield, CA 93301

Subject: Oil and Gas EIR

To: Mr. Christopher Mynk,

This letter is to inform you that I am in support of the current Oil and Gas EIR that is currently open for public comment.

I, Kerrie Roberts have been working in the oil industry for 25 + years and have personally been involved with permitting in Kern County for the last 15 years. I want to express my opinion on the positive direction that Kern County Planning Department is taking by addressing all the impacts that are seen locally Kern County and laying them out in the Draft EIR so that our County can make decisions on whether or not to approve infrastructure and drilling in the oil industry. 0071-1

I personally have dealt with Kern County Environmental Health on water issues, SJVAPCD on emissions, Kern County Zoning Department on issues affecting public safety and nuisance, Kern County Roads Department on accessibility and ADA issues and all the different building departments on issues relating to civil, structural, mechanical and electrical. These departments all abide by all regulations that fall within the California Building Code. I have also dealt with State Department of Fish and Game for anything on Bureau of Land Management Property. I would just like to say that all of these departments have Kern County's best interest at heart. They are not looking to take short cuts or skipping over any issues. They are following State guidelines for everything and have the public's interest, safety and welfare in mind for everything. Outside environmentalists may oppose this but what they don't realize is that there are environmentalist working within the County who are very passionate about our local area and want us all to have clean air, clean drinking water and a safe and healthy public. These people work very hard to protect us and not only our endangered species but all wildlife. 0071-2

It only makes sense that we should have local control over what gets approved in the oil industry. We know how things are done, we can do things quicker and take a better look at the impacts instead of having someone from Sacramento do this work who has never been here. We really do know the issues and we really do want Kern County to be a great place. 0071-3

Respectfully,

Kerrie Roberts
Sr. Permitting Coordinator
Ramsgate Engineering, Inc.
2331 Cepheus Ct
Bakersfield, CA 93308

© 2015, Ramsgate Engineering, Inc. All Rights Reserved

0071-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for the Project is noted and will be considered.

0071-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for federal, state and local regulatory agencies and their respective staff is noted and will be considered.

0071-3

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the DEIR and therefore does not require a detailed response. This comment's expression of general support for federal, state and local regulatory agencies and their respective staff is noted and will be considered.

7.3 Letters of Support

From: "Gilbert Garcia" <gilodad@hotmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/16/15 5:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Gilbert Garcia

Sincerely,

Gilbert Garcia
6004 Georgia Pine Way
Bakersfield, CA 93313

From: "Julie Bell" <joolay.bell@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 8:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Julie Bell
6810 Lindsay Rd
Bakersfield, CA 93313

From: "Steven Gaede" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sincerely,

Steven Gaede
8917 Andrieu Ct
Bakersfield, CA 93311
stevengaede@yahoo.com

From: "Monte Myers" <montemyers.wkec@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

As a small business owner, we employ 6 full time biologists with bachelor degrees or master degrees. We also utilize several subcontractors for additional biology work, accounting, bookkeeping, and clerical/personnel services. When oil production goes down there is a direct effect to our employees including reducing hours and layoffs.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Monte myers
5750 Coronado St W
Bakersfield, CA 93314

From: "Kay Coodey" <rkcoodey@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kay Coodey
13501 Cascade Ct
Bakersfield, CA 93314

From: "Jake Ammeraal" <ammeraal1@att.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jake Ammeraal
10713 Vista Bonita Dr
Bakersfield, CA 93311

From: "Bill Trivitt, Jr" <wltrivitt@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bill Trivitt
4509 Devlin Ct
Bakersfield, CA 93311

From: "Greg Burum" <gburum@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Greg Burum
12420 Abercromby Dr
Bakersfield, CA 93312

From: "Kenneth Mulder" <kennethmulder@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kenneth Mulder
8408 Blue Heron Dr
Bakersfield, CA 93312

From: "Terry Ellis" <tellis@rhcteam.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

As a Lifelong Kern County Resident and employee for more than 30 years in the Energy Industry, I have seen the tremendous Integrity of the people who drive the Industry and ask you to trust them to protect our Children and Environment all the while managing the businesses' that bring so much value to the Kern County Economy!

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Terry D. Ellis
5401 Woodmere Dr
Bakersfield, CA 93313

From: "George Hurd" <georgeahurd@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

George Hurd
600 S Dennison Rd Spc 80
Tehachapi, CA 93561

From: "Dennis Church" <dennis.church@weatherford.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Dennis Church
5060 California Ave
Bakersfield, CA 93309

From: "Jacob Farewell" <jfarewel@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jacob Farewell
8005 Shetland Dr
Bakersfield, CA 93309

From: "Monica Sanchez" <monica.sanchez@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. Many people depend on jobs that will be saves as well as created. I have been in the gas and oil industry for over 10 years and just recently completed my B.S Degree in Geology to continue in this industry. again thank you for basing your decision on factual data.

Sincerely,

Monica Sanchez
2601 San Pablo Ave
Bakersfield, CA 93306

From: "Gary Chambers" <garyc@acehydraulic.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Gary Chambers
3007 Truxtun Ave
Bakersfield, CA 93301

From: "Mick Swen" <mlswen@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

As a 60 year resident of Kern County and Bakersfield I have seen first hand the importance of oil and gas production to the vitality of our community. It is apparent through observation and diligent reporting that the industry has made a monumental effort to enhance their partnership with the community.

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mick Swen
10000 Ming Ave
Bakersfield, CA 93311

From: "David Parker" <Dave@hydrocatwest.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, I understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report.

Sincerely,

David Parker
812 Ferdinand Ct
Bakersfield, CA 93309

From: "Peter Okita" <pjokita@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Peter Okita
10616 Harpenden Ave
Bakersfield, CA 93311

From: "Andrew Taylor" <andrew@edisonfreight.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Andrew Taylor
6747 E Brundage Ln
Bakersfield, CA 93307

From: "Alvin Campos" <acampos7522@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Alvin Campos
11517 California Poppy Dr
Bakersfield, CA 93311

From: "Terry Scott" <tscott8@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, I understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I applaud you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report.

Thank you,

Sincerely,

Terry Scott
15701 Black Hawk Ave
Bakersfield, CA 93314

From: "Mike Florence" <mflorence@chancelloroiltool.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mike Florence
2709 Parkfield Ct
Bakersfield, CA 93306

From: "Matthew Gilligan" <mgilligan@bacpas.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Matthew Gilligan
4200 Truxtun Ave
Bakersfield, CA 93309

From: "Bob Decker, PE" <rdecker@semprautilities.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bob Decker, PE
11009 Yorkshire Dr
Bakersfield, CA 93312

From: "Don Cohen" <donicohen@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Don Cohen
8613 Oak Branch Ave
Bakersfield, CA 93311

From: "Lee Payne" <lee.payne@bakerhughes.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Lee Payne
11108 Lonon Ave
Bakersfield, CA 93312

From: "Owen Rigdon" <owen@bakersfieldarmory.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 10:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Owen Rigdon
324 Berry Meadow Way
Bakersfield, CA 93308

From: "Casey Prohaska" <casey.prohaska@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Casey Prohaska
9314 Buckingham Way
Bakersfield, CA 93312

From: "Jonathan Harshman" <jonathan.harshman@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jonathan Harshman
11201 Vista del Christo Dr
Bakersfield, CA 93311

From: "Mark Smith" <mark@kbaeng.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mark Smith
2157 Mohawk St
Bakersfield, CA 93308

From: "Gilbert Quevedo" <gquevedo@bowmanasphalt.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Gilbert Quevedo
8921 Great Harvest Dr
Bakersfield, CA 93313

From: "John Sanders" <jesandman3@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

John Sanders
2300 El Portal Dr Unit 59
Bakersfield, CA 93309

From: "Ryan Nelson" <rpnelson@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ryan Nelson
10000 Ming Ave
Bakersfield, CA 93311

From: "Brianna Vogel" <bcvogel90@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Brianna Vogel
9508 Downie River Dr
Bakersfield, CA 93311

From: "Raul Sanchez" <srudy1067@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Raul Sanchez
9312 Lacroix Ct
Bakersfield, CA 93311

From: "Milton Burford" <mburford@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Milton Burford
12210 Arbor Park Pl
Bakersfield, CA 93311

From: "Jack West" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 12:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jack West, retired geologist
6513 Ambergrove St
Bakersfield, CA 93313
bonfeather@yahoo.com

From: "Suzan Sindelar" <suzan.sindelar@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 12:29 PM
Subject: APPROVE!! Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Suzan Sindelar
10800 Stratton Ct
Bakersfield, CA 93312

From: "Beth Pandol" <bpandol@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 12:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Beth Pandol
6612 Iron Oak Dr
Bakersfield, CA 93312

From: "John Haley" <chopperjohn@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 12:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

John Haley
5707 Sunny Hills Ct
Bakersfield, CA 93306

From: "Kevin Reiser" <klreiser@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 12:49 PM
Subject: EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kevin Reiser
1500 Manchester Park Way
Bakersfield, CA 93311

From: "David Sutherland" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 12:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

David Sutherland
3106 Worthington Ave
Bakersfield, CA 93308
davesuth58@aol.com

From: "Mr. & Mrs. Aaron Speirs" <abspeirs@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Aaron Speirs
6500 Audene Way
Bakersfield, CA 93308

From: "Keith Kostelnik" <kostelnik.keith@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Keith Kostelnik
10805 Stratton Ct
Bakersfield, CA 93312

From: "Bud Hensley" <lkhensley@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 1:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bud Hensley
11612 Lindalee Ln
Bakersfield, CA 93312

From: "Guy Chaffin" <gjchaffin@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 1:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Guy Chaffin
PO Box 22043
Bakersfield, CA 93390

From: "Dan Corriea" <dan@weststar-inc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 2:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Dan Corriea
5760 E Lerdo Hwy
Shafter, CA 93263

From: "Thomas Plante" <pencal@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 3:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Thomas Plante
3529 Standard St
Bakersfield, CA 93308

From: "Paul Conrad" <paul.conrad@twimail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 4:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Paul Conrad
3992 Marion Ave
Los Alamitos, CA 90720

From: "Paul Molinaro" <paulswelding@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 5:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Paul Molinaro
2915 Berkeley St
Bakersfield, CA 93305

From: "Jeff Nickell" <jnickell@kernalc.org>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 5:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

The California Council on Science & Technology, in collaboration with the Lawrence Berkeley National Laboratory, recently released its 858-page peer-reviewed independent scientific assessment produced for the California Natural Resources Agency. It found 'no science-based evidence' that fracking hurts the environment.

I strongly encourage to approve and implement this report that will allow for the next oil boom in Kern County and strengthen Kern County's economic future.

Sincerely, Jeff Nickell, MA

Sincerely,

Jeff Nickell
331 18th St
Bakersfield, CA 93301

From: "Greg Cherry" <gcherry@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 5:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, I understand this industry's importance to not only our local economy, as I work in the beverage industry and strong jobs equal a secondary, well paid job within my company, which in turn ensures the well-being of our families, and more importantly, strengthens national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Greg Cherry
5200 District Blvd
Bakersfield, CA 93313

From: "Mackenzie Burke" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 5:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mackenzie Burke
5500 Sisken Ave
Bakersfield, CA 93311
kenziemarief@aol.com

From: "John Wold" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 6:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

John Wold
3400 Harris Rd
Bakersfield, CA 93313
woldswelding@yahoo.com

From: "Rob Bordenave" <rob.bordenave@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 6:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Rob Bordenave
10401 Hinderhill Dr
Bakersfield, CA 93312

From: "Nabil EL Shaari" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 7:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Nabil EL Shaari
5616 Greenhorn Mountain Ct
Bakersfield, CA 93313
nabilelshaari@yahoo.com

From: "William Prout" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/17/15 11:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

william Prout
435 Maple St
Shafter, CA 93263
bullet5512@yahoo.com

From: "Teresa Caudill" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 9:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Teresa Caudill
108 Blanding Ct
Bakersfield, CA 93309
tcaudill42@yahoo.com

From: "Dwayne Roach" <droach@pacediversified.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 9:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Dwayne Roach
105 Capistrano Ct
Bakersfield, CA 93314

From: "Dave Plivelich" <dave@themarcomgroup.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Dave Plivelich
6511 Regent Wood Ct
Bakersfield, CA 93312

From: "Janice Bracken" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Janice Bracken
2323 Easthills Dr Unit 68
Bakersfield, CA 93306
Jankeynote@aol.com

From: "Barbara Michael" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Barbara Michael
2612 Corto St
Bakersfield, CA 93306
mattbarbmichael@yahoo.com

From: "Jackie Cummings" <jaackieetta@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 2:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jackie Cummings
10508 Lonon Ave
Bakersfield, CA 93312

From: "Jose Flores" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 9:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jose Flores
2100 James Ct
Arvin, CA 93203
mayorjflores@yahoo.com

From: "maher eskander" <meskander62@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/18/15 9:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

maher eskander
8200 N Laurelglen Blvd Apt 1607
Bakersfield, CA 93311

From: "Mr. & Mrs. Richard Mershon" <kmershon@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/19/15 11:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

We are writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As residents of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county. Without it, unemployment already double digits will continue to rise. Tax payments that support our county infrastructure will continue to shrink.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. The oil and gas industry is critical for Kern County's future. Please save our county before we become another Detroit. We strongly urge approval and implementation of this report.

Sincerely,

Richard & Kathleen Mershon
11708 Andretti Ave
Bakersfield, CA 93312

From: "Brian Burt" <burtbw@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/19/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Brian Burt
13506 Plumas Wood Ln
Bakersfield, CA 93314

From: "Chad Evans" <cevans@keyenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/19/15 1:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Chad Evans
12401 Southworth Ct
Bakersfield, CA 93311

From: "Jack Stevenson" <Jack.Stevenson@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/19/15 7:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jack Stevenson
9902 Barnes Dr
Bakersfield, CA 93311

From: "Dane Allen" <dballen@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Dane Allen
12605 Lanai Ave
Bakersfield, CA 93312

From: "Ariel Auffant" <aauffant@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ariel Auffant
311 Penzance Dr
Bakersfield, CA 93312

From: "Pamela Martinez" <pemartinez@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Pamela Martinez
11606 Marazion Hill Ct
Bakersfield, CA 93311

From: "Mr. & Mrs. Alfredo Urdaneta" <ahurdaneta@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Alfredo Urdaneta
2212 Tilden Way
Bakersfield, CA 93309

From: "Irina Hardesty-White" <idhardesty@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Irina Hardesty-White
4000 Scenic River Ln Apt 16K
Bakersfield, CA 93308

From: "Sara Palmer" <sdpalmer@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sara Palmer
11806 Kenseth St
Bakersfield, CA 93312

From: "Jag Patel" <jppatel@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - provide protection for our community and utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jag Patel
11014 Eagle Rock Dr
Bakersfield, CA 93312

From: "Nancy Ashby" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Nancy Ashby
10014 Mona Lisa Ln
Bakersfield, CA 93312
nanc11@aol.com

From: "Matt Grimm" <MrGrimm@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Matt Grimm
3540 Phairfield St
Bakersfield, CA 93314

From: "Sean Bryant" <sean.bryant@convergint.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sean Bryant
16023 Screaming Eagle Ave
Bakersfield, CA 93314

From: "Herb Watkins, Jr" <hawatkins@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Herb Watkins Jr
325 Oleander Ave
Shafter, CA 93263

From: "Anselmo Reyes" <afreyes@aeraenegy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Anselmo F. Reyes
10003 Silverthorne Dr
Bakersfield, CA 93314

From: "francisco pacheco" <fapacheco@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 7:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

francisco pacheco
6300 Pennsylvania Way
Bakersfield, CA 93313

From: "Virginia Carver" <vcarver@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Virginia Carver
11108 Myers Ranch Ct
Bakersfield, CA 93311

From: "Scott Guidry" <saguidry@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Scott Guidry
10000 Ming Ave
Bakersfield, CA 93311

From: "Stanley Gomes" <sjgomes@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Stanley Gomes
10000 Ming Ave
Bakersfield, CA 93311

From: "Joy Johnson" <jsjohnson@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Joy Johnson
8008 Sutherland Dr
Bakersfield, CA 93309

From: "Larry Kunkel" <larry.kunkel@corelab.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Larry Kunkel
3437 Landco Dr
Bakersfield, CA 93308

From: "Javier Iozano" <jlozano@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Javier Iozano
10000 Ming Ave
Bakersfield, CA 93311

From: "Erica Corriea" <erica.corriea@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Erica Corriea
10005 Patterson St
Bakersfield, CA 93311

From: "Sean O'Connor" <smoconnor@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sean O'Connor
3101 Tresselwyck Ln
Bakersfield, CA 93311

From: "Mr. & Mrs. ROBIN COOPER" <ROBINSENVIROVAC@BAK.RR.COM>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

ROBIN COOPER
1907 Nute St
Bakersfield, CA 93312

From: "Richard Guzman" <rguzman2@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Richard Guzman
520 Brightwood St
Bakersfield, CA 93314

From: "Clayton Montgomery" <comontgomery@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 8:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Clayton Montgomery
10615 Desert View Pl
Bakersfield, CA 93311

From: "Hugo Grijalva" <xaviergrijalva@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Hugo Grijalva
1012 Lisbury Ct
Bakersfield, CA 93311

From: "Sandra Bertrand" <skbertrand@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sandra Bertrand
100 Bedford Way
Bakersfield, CA 93308

From: "Jenifer Pitcher" <jpitcher@wspa.org>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jenifer Pitcher
8500 Lighthouse Dr
Bakersfield, CA 93312

From: "Matt Erbes" <maerbes@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Matt Erbes
4201 Jewetta Ave Apt B8
Bakersfield, CA 93312

From: "Aimee Blaine" <apblaine@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Aimee Blaine
16003 Tradition Ct
Bakersfield, CA 93314

From: "Neil Malpiede" <nmalpiede@naftex.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Neil Malpiede
2108 Haggin Oaks Blvd
Bakersfield, CA 93311

From: "Joseph Hampton" <jehampton@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Joseph Hampton
10000 Ming Ave
Bakersfield, CA 93311

From: "Brad Edwards" <bwedwards@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Brad Edwards
3141 Batch Ln
Bakersfield, CA 93312

From: "Kristen Tejeda" <ktejeda@genprod.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kristen Tejeda
9811 Mona Lisa Ln
Bakersfield, CA 93312

From: "Jay Haas" <jshaas@areaenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jay Haas
750 Meadow Ct
Exeter, CA 93221

From: "Kathy Miller" <donkathymiller@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kathy Miller
13404 Phoenix Palm Ct
Bakersfield, CA 93314

From: "Scott Cravins" <sccravins@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Scott Cravins
10624 Tivoli Ct
Bakersfield, CA 93311

From: "Brian DeWitt" <brian.dewitt@petrotechresources.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Brian DeWitt
12212 Tule River Way
Bakersfield, CA 93312

From: "Lukasz Nader" <lnader@ualberta.ca>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Lukasz Nader
10509 Gainsborough Ct
Bakersfield, CA 93312

From: "Mr. & Mrs. James Marchesini" <jemarchesini@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

James Marchesini
5901 Cedar Falls Dr
Bakersfield, CA 93306

From: "Doyle Ratliff" <dratliff@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Doyle Ratliff
205 E Calvin St
Taft, CA 93268

From: "Steven Shihady" <sishihady@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Steven Shihady
14809 Lemon Lily Dr
Bakersfield, CA 93314

From: "Tracy Peyton" <tjpeyton@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:40 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tracy Peyton
28429 Valley Oak Rd
Keene, CA 93531

From: "Jared McKnight" <JMcKnight@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:40 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jared M McKnight
14352 Rowland Ave
Bakersfield, CA 93314

From: "Ivan Tomazin" <IKTomazin@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ivan Tomazin
28 Belfast Ct
Bakersfield, CA 93314

From: "ray clanton" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 10:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ray Clanton
9118 Celeste Ct
Bakersfield, CA 93312
kellyclanton@yahoo.com

From: "Margo Neuhauser" <maneuhauser@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 11:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Margo A. Neuhauser
1409 Thunderbird St
Bakersfield, CA 93309

From: "Alyssa Reed" <anreed@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 11:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Alyssa Reed
9915 Tuscarora Dr
Bakersfield, CA 93312

From: "Chris Banker" <bigcountrybanker@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 11:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once appJroved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Chris Banker
16640 Stephenie St
Bakersfield, CA 93314

From: "Ima Resident" <jimcpa405@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 11:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, I understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report.

Sincerely,

Ima Resident
11000 Ainswick Dr
Bakersfield, CA 93311

From: "Mr. & Mrs. Brian Kachelhoffer" <bpkachelhoffer@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Brian Kachelhoffer
811 Concord Ct
Bakersfield, CA 93314

From: "Glennda Spears" <gfspears@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Glennda Spears
13607 Morocco Ave
Bakersfield, CA 93314

From: "Ken Aldridge, Jr" <kcaldridge@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 12:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ken Aldridge Jr
10113 Commodore Dr
Bakersfield, CA 93312

From: "Nate Thompson" <njthompson@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 12:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Nathanial J Thompson
11325 Park Square Dr
Bakersfield, CA 93311

From: "Scott Lynch" <swlynch@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 12:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Scott Lynch
910 3rd St
Taft, CA 93268

From: "Sharon Byers" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 1:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I have lived in Kern County since I was born. I am an active member of this community as well as my 6 brothers and sisters, their children and husbands, as well as my children. I am writing in support of the draft environmental review. As a resident of Kern County, we are employed by this industry and understand the importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sharon
10290 Sunrise Dr
Bakersfield, CA 93308
ibesharcash@yahoo.com

From: "Tanner Ottaway" <TKOttaway@AeraEnergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 1:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tanner Ottaway
15434 Quintero Pl
Bakersfield, CA 93314

From: "jayme fahy" <msjmfahy@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 1:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

jayme fahy
804 Coyote Springs Dr
Bakersfield, CA 93312

From: "Jaron Lucero" <jjlucero2@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 1:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jaron Lucero
9129 Hoxie Ct
Bakersfield, CA 93311

From: "Ericka Harper" <esharper@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 1:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ericka Harper
11418 Lindalee Ln
Bakersfield, CA 93312

From: "John Hester" <jwhester@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 2:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

John Hester
13115 Queen Palm Ct
Bakersfield, CA 93314

From: "Tammy Russell" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 2:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tammy Russell
6909 Elkhorn St
Bakersfield, CA 93313
tamera93313@yahoo.com

From: "Sheila Buoni" <sbuoni@brinderson.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 3:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sheila Buoni
PO Box 22822
Bakersfield, CA 93390

From: "Jerrad Massey" <j_mass_33@hotmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 3:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jerrad Massey
8013 Boggs Ct
Bakersfield, CA 93313

From: "Mary Anne Kinsella" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 4:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mary Anne Kinsella
2824 Hines Way
Bakersfield, CA 93304
apanthersfan777@yahoo.com

From: "Marc Cooper" <marc@alumni.lsu.edu>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 4:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Marc Cooper
9508 Meadow Leaf Ct
Bakersfield, CA 93311

From: "Harvey Hall" <hallh@hallamb.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 4:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Harvey Hall
1001 21st St
Bakersfield, CA 93301

From: "Cherie Williams" <cjdwilliams@charter.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 4:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Cherie Williams
2916 Ridgedale St
Bakersfield, CA 93306

From: "Bradley Cosby" <bwcosby@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 4:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bradley Cosby
6008 Alderpointe St
Bakersfield, CA 93313

From: "Christopher Benhardt" <cebenhardt@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/20/15 5:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Christopher Benhardt
8012 Boggs Ct
Bakersfield, CA 93313

From: "Donna Eckels" <djeckels@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 6:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely yours,
Donna J Eckels

Sincerely,

Donna Eckels
6551 Halleluiah St
Bakersfield, CA 93307

From: "Tina Harmon Carmona" <tdharmon-carmona@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tina D Harmon-Carmona
6303 Briolette St
Bakersfield, CA 93313

From: "Carol Beahm" <cbeahm@linnenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 8:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Carol Beahm
903 Vermillion Dr
Bakersfield, CA 93312

From: "Caleb Thompson" <CThompson@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 9:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Caleb Thompson
10501 Panther Falls Ave
Bakersfield, CA 93312

From: "Gregory Wheeler" <gregory.wheeler@erm.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 9:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Gregory J. Wheeler, PG
13201 Phoenix Palm Ct
Bakersfield, CA 93314

From: "Kelly Clanton" <kelly.clanton@lfg.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 10:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kelly Clanton
9118 Celeste Ct
Bakersfield, CA 93312

From: "Matthew Ver Halen" <matt@imsca.us>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 1:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Matthew J Ver Halen
11220 Patagonia Way
Bakersfield, CA 93306

From: "Patrick Tsang" <ptsang@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 3:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Patrick Tsang
12503 Monterey Beach Dr
Bakersfield, CA 93311

From: "Bruce Stanton, PE" <blstanton@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 3:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bruce L. Stanton, PE
8915 Limoges Way
Bakersfield, CA 93311

From: "Steve Pressley" <swpressley@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 6:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Steve Pressley
13810 Summit Village Rd
Bakersfield, CA 93306

From: "Marvin St. Pierre" <bakosaints@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/21/15 10:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Marvin St. Pierre
2700 LEHR PL # P
BAKERSFIELD, CA 93311

From: "Jason Lopez" <jjlopez@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/22/15 7:11 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jason Lopez
1549 Muscat Pl
Hanford, CA 93230

From: "Carol Meek" <cameek@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/22/15 8:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Carol Meek
7605 Hooper Ave
Bakersfield, CA 93308

From: "Kevin Ward" <krward@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/22/15 11:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kevin Ward
14700 Glover Ct
Bakersfield, CA 93314

From: "Robert Fairman, Jr." <rpfairman@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/22/15 3:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Robert P. Fairman, Jr.
9009 Summer Creek Rd
Bakersfield, CA 93311

From: "Quetta Woodard" <quettaw@icloud.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/22/15 5:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Quetta Woodard
3700 Purdue Dr
Bakersfield, CA 93306

From: "Timothy Willis" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/22/15 8:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Timothy Willis
9017 Thurber Ln
Bakersfield, CA 93311
tadawillis@yahoo.com

From: "Edwin Loveless, D" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 6:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Edwin D. Loveless
4418 Orrick Ct
Bakersfield, CA 93308
Oilmaned1@aol.com

From: "Nicolas Burnett, 2nd" <nburnett45@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 6:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

nicolas burnett
2700 McNutt St
Bakersfield, CA 93306

From: "Pat Perri" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Pat Perri
2218 Ribble Valley Dr
Bakersfield, CA 93311
perri1996@aol.com

From: "Chad Jones" <chad.jones@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Chad Jones
10800 Stockdale Hwy
Bakersfield, CA 93311

From: "Derek Abbott" <dabbott@tejonranch.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Derek Abbott
2700 Slender Oak Ct
Bakersfield, CA 93311

From: "Lisa Rollans" <lirollans@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Lisa Rollans
10000 Ming Ave
Bakersfield, CA 93311

From: "Sara Maloney" <sjmaloney82@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sara Maloney
12200 Fairburn Way
Bakersfield, CA 93312

From: "Graci Griebling" <ggriebling@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Graci Griebling
14322 Cedar Creek Ave
Bakersfield, CA 93314

From: "Anthony Arias" <anthony.arias@weatherford.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

D. Anthony Arias Jr
10802 Rancho Cordova St
Bakersfield, CA 93311

From: "Tom Funkhouser" <tcfunkhouser@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tom Funkhouser
12102 Bedfordshire Dr
Bakersfield, CA 93311

From: "Scott Wilcox" <srwilcox87@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

We need our oil, out of the ground.

AMERICA needs our oil, OUT OF THE GROUND!

Sincerely,

Scott Wilcox
3618 Rampart St
Bakersfield, CA 93306

From: "Lester Dalton" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Lester Dalton
1017 Las Cruces Ave
Ridgecrest, CA 93555
daltonlj@verizon.net

From: "Peter Foy" <peter@pcfoy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Peter Foy
550 Unique Ln
Simi Valley, CA 93065

From: "Jeff Rollans" <jsrollans@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jeff Rollans
2013 Branch Creek St
Bakersfield, CA 93312

From: "Thomas Plante" <pencal@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Thomas Plante
3529 Standard St
Bakersfield, CA 93308

From: "Greg Bonner" <gmbonner@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Greg Bonner
519 Terrace Dr
Taft, CA 93268

From: "Jeff Gurican" <jagurican@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jeff Gurican
3632 Truman Ct
Bakersfield, CA 93309

From: "Ken Frost" <krf8181@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

The oil and gas industry is a key component to the economic viability of Kern County. By being proactive improving the process of permitting development of these important resources is showing the leadership the county can have on its financial strength.

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, I understand this industry's importance to not only our local economy and the well-being of our families, but to the state of California and the country. When the ordinance is approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in Kern county.

I thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report.

Sincerely,

Ken Frost
2019 Autumn Rose Ct
Bakersfield, CA 93312

From: "Tim Hay" <tmmahay@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tim Hay
2217 Elm St
Bakersfield, CA 93301

From: "Luis Lopez" <llopez@howard-supply.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Luis Lopez
3824 Buck Owens Blvd
Bakersfield, CA 93308

From: "Dave Temple" <dmtemple@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Dave Temple
10000 Ming Ave
Bakersfield, CA 93311

From: "Keith Sobieck" <keith.sobieck@ticus.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 12:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Keith Sobieck
1550 James Rd
Bakersfield, CA 93308

From: "Edward Paulsen" <epaulsen@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

Hello, I am writing to voice my support of the Kern County oil and gas industry. I moved to Kern County ten years ago to pursue a career in food processing/agriculture at Paramount farms. I have always seen the combination of Ag/Oil as being a cornerstone of the areas prosperity. I am very happy to understand the revised ordinance will streamline the process while still providing environmental safeguards.

I strongly believe this ordinance should be passed.

Thanks,
Edward Paulsen

Sincerely,

Edward Paulsen
2621 Loma Linda Dr
Bakersfield, CA 93305

From: "Ken Carter" <kencarter@watsonrealty.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ken Carter
6704 Saddleback Dr
Bakersfield, CA 93309

From: "Thomas Bayne" <tom@soilsengineering.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Thomas Bayne
4400 Yeager Way
Bakersfield, CA 93313

From: "Allen Anderson" <macatac@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Allen Anderson
3908 Panorama Dr
Bakersfield, CA 93306

From: "Chris Smithen" <smithenchris@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Chris Smithen
5311 White Pine Way
Bakersfield, CA 93313

From: "Jim Zaben" <jzaben@kingsoiltools.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jim Zaben
13701 Carpaccio Ln
Bakersfield, CA 93306

From: "Roy Pierucci" <rapnitwthu0310@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Roy Pierucci
8212 Birmingham St
Bakersfield, CA 93311

From: "Erin Larner" <enlarner@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Erin Larner
10000 Ming Ave
Bakersfield, CA 93311

From: "Colleen Falke" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 1:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Colleen Falke
7901 Luces Corta
Bakersfield, CA 93309
colleenFalke@yahoo.com

From: "Mr. & Mrs. David Williams" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 2:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

David Williams
9205 Hull St
Mojave, CA 93501
dslm4ofus@yahoo.com

From: "Timothy Dillon" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Timothy R. Dillon
6804 Newquist Dr
Bakersfield, CA 93306
wldtrd@yahoo.com

From: "Chris Sheldon" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 2:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Chris Sheldon
4947 Standard St
Bakersfield, CA 93308
sheldonoilfieldservices@yahoo.com

From: "Cheryl Ketchum" <ketchum.realtor@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 3:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Cheryl Ketchum
8200 Kroll Way Apt 208
Bakersfield, CA 93311

From: "Mr. & Mrs. George James" <georgejames@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 3:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

George James
146 Douglas St
Bakersfield, CA 93308

From: "Patrick Plugge" <pplugge@ebresources.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 3:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

Thank you for allowing me to comment on the Draft EIR and consequent revisions to the county zoning ordinance. I appreciate the opportunity to participate in the process.

I am writing in support of our county's oil and gas industry. As a native Californian and resident of Kern County, I understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal of reducing our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

Thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of the Environmental Impact Report.

Sincerely,

Patrick Plugge
13341 Pimlico Ct
Bakersfield, CA 93314

From: "John Simmons" <jwsimmons@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 3:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

John Simmons
2446 Hasti Acres Dr
Bakersfield, CA 93309

From: "Mary Christenson" <Mary@marycRealtor.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 3:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mary Christenson, Realtor
10701 Haworth Ln
Bakersfield, CA 93311

From: "Mike Dover" <valperco@valleyperf.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 4:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

Our family of employees want to express our support of our County's oil and gas , and geothermal energy. We appreciate the opportunity to comment on the draft environmental review. As residents of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our economy, our community and the environment. The current market will again gain strength allowing for continued growth of these important industries in our county.

We hope the powers that be continue utilizing factual data to arrive at a sensible permitting structure. Approval and implementation of this report is critical to our continued well being for all 65 families.

Sincerely,

Valley Perforating
3201 Gulf St
Bakersfield, CA 93308

From: "Tracey Carlile" <brucecarlile@att.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 4:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tracey Carlile
14939 Thunder Valley Rd
Bakersfield, CA 93314

From: "Randal Horne" <tr7rand@hotmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 4:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Randal K. Horne
13614 Morocco Ave
Bakersfield, CA 93314

From: "Charles Rindels" <chrindels@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 5:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Charles Rindels
12004 Bedfordshire Dr
Bakersfield, CA 93311

From: "Shane Ripley, In" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 6:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Shane Ripley In
58 Arborside
Irvine, CA 92603
radicalrocks@yahoo.com

From: "Harold Lind" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/23/15 7:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Harold Lind
746 N Calvert Blvd
Ridgecrest, CA 93555
hrldlind@yahoo.com

From: "Carla Musser" <carlamusser@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 6:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Carla Musser
10201 Within Heights Dr
Bakersfield, CA 93311

From: "Mark Sawaya" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 7:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, I understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report.

Sincerely,

Mark Sawaya
10210 Salisbury Dr
Bakersfield, CA 93311
mtsawaya@yahoo.com

From: "Marcia Rodriguez" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 7:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Marcia A. Rodriguez
8845 Oak Brook Ct
Bakersfield, CA 93312
mullal_2000@yahoo.com

From: "Carlos Alvarez" <alvarezcq@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Carlos Alvarez
14619 Yellow Lupine Dr
Bakersfield, CA 93314

From: "Lorena Vazquez" <lgutierrez1020@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Lorena M Vazquez
1813 San Jose Ave
Wasco, CA 93280

From: "Glen Olmsted, J" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 8:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Glen J. Olmsted
1513 N Calvert Blvd
Ridgecrest, CA 93555
gleno4570@yahoo.com

From: "Paul Finnegan" <cur8or@att.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

My family is proud of the outstanding work, over the many years of our lease, with our producer AERA!!!!

Sincerely,

Paul Finnegan
PO Box 51235
Pacific Grove, CA 93950

From: "Diana Cortez" <dcortez@linnenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 1:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Diana Cortez
11903 Holabird Ave
Bakersfield, CA 93311

From: "Stacey Loubey" <sloubey@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 1:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Stacey Loubey
7501 Arleta Ave
Bakersfield, CA 93308

From: "BRANDON DICKEY" <bdickey@ramsgate.us>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Brandon Dickey
2331 Cepheus Ct
Bakersfield, CA 93308

From: "Sara Alsbury" <saraalsbury@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sara R Alsbury
14635 Pomegranate Ave
Bakersfield, CA 93314

From: "Jamie Smith" <jamie@maranathapetroleum.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jamie Smith, Local Oil Producer
9906 Boone Valley Dr
Bakersfield, CA 93312

From: "George Nichol" <georgenichol@arenapainting.biz>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a company that does business in Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

George Nichol
525 E Alondra Blvd
Gardena, CA 90248

From: "Weldon Sons" <weldon@imprint4us.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

W.R. Sons
5100 Dewalt St
Bakersfield, CA 93308

From: "Roger Putnam" <Roger.putnam@twimail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Roger Putnam
9809 Cheyenne Dr
Bakersfield, CA 93312

From: "GABRIEL MILLER" <gmiller@arenapainting.biz>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Gabriel A. Miller
11045 Stagg St
Sun Valley, CA 91352

From: "Christopher Knaak" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Christopher Knaak
2001 Manning St
Bakersfield, CA 93309
chriskknaak@yahoo.com

From: "ERIC OLSON" <EOLSON@MMI-SERVICES.COM>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

ERIC OLSON
4042 Patton Way
Bakersfield, CA 93308

From: "George Wolfe" <ggwo@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 2:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

George Wolfe
21400 Grand Oaks Ave
Tehachapi, CA 93561

From: "Keith Watkins" <keith@wci-jvt.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 3:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Keith Watkins
12216 Old Town Rd
Bakersfield, CA 93312

From: "Ko Smith" <jackthewall@comcast.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 3:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ko Smith
4330 McCray St
Bakersfield, CA 93308

From: "keith welch" <kwelch@ifgservices.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 3:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

keith welch
1409 Ensley Dr
Bakersfield, CA 93312

From: "Kevin Edwards" <kedwards@kimray.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 3:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review.

As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I am also concerned about the latest Commission the Gov. Jerry Brown has formed to evaluate (alleged) chemicals used in Fracking. My guess is that this is not to help the oil industry.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kevin Edwards
34928 Gazelle Ct
Bakersfield, CA 93308

From: "Debbie Charpentier" <debsetfree@hotmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 6:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Debbie Charpentier
11006 Ainswick Dr
Bakersfield, CA 93311

From: "Jesse Hernandez" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/24/15 8:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jesse Hernandez
1205 University Ave
Bakersfield, CA 93305
jaylv1@yahoo.com

From: "Carolyn Ronald" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/25/15 11:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Carolyn Ronald
5948 Lewis Falls Ave
Las Vegas, NV 89139
ronalca@yahoo.com

From: "James Loubey" <loubey@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/25/15 7:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

James Loubey
7501 Arleta Ave
Bakersfield, CA 93308

From: "Brett Moseley" <brett@americansafetyservices.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/25/15 9:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Brett moseley
10408 Polo Trail Ave
Bakersfield, CA 93312

From: "Michael Vasquez" <mvasquez@certex.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/26/15 10:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Michael Vasquez
5611 Warren Ridge Dr
Bakersfield, CA 93313

From: "Jeff Holm" <holmj11@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/26/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jeff Holm
8603 Areli St
Bakersfield, CA 93313

From: "Todd Bivens" <tbivens@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/26/15 1:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Todd Bivens
601 Hidalgo Dr
Bakersfield, CA 93314

From: "Derek Lukas" <DRLukas@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 6:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Derek Lukas
12208 Marigold Dr
Bakersfield, CA 93311

From: "Tim Braly" <timbraly@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 7:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tim Braly
5909 Oneida Falls Dr
Bakersfield, CA 93312

From: "Elias Ramirez" <eramirez@pcl.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 7:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Elias Ramirez
1500 S Union Ave
Bakersfield, CA 93307

From: "David Nelson" <david.nelson@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 7:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

David Nelson
10800 Stockdale Hwy
Bakersfield, CA 93311

From: "Rick Davis" <rcdavis@wildwell.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. While not a resident of Kern County, I understand this industry's importance to not only your local economy and the well-being of your families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for the community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in your county.

I thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Rick Davis
10556 Wheeling St
Commerce City, CO 80022

From: "ray clanton" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

ray clanton
9118 Celeste Ct
Bakersfield, CA 93312
kellyclanton@yahoo.com

From: "Justin Seger" <justin.seger@ge.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Justin Seger
6109 Goldstone Dr
Bakersfield, CA 93313

From: "Krista Pierce" <krista.pierce@ge.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Krista Pierce
1811 June Ave
Bakersfield, CA 93304

From: "Tina Seger" <tinaleeseger@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tina Seger
6109 Goldstone Dr
Bakersfield, CA 93313

From: "Larry Williams" <larry@workforcestaffing1.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Larry Williams
1813 Embarcadero Ln
Bakersfield, CA 93311

From: "Gary Grillette" <gary@trcopco.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Gary Grillette
1305 Capricorn Ct
Bakersfield, CA 93309

From: "Monda Byrd" <monda@mts-stim.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Monda Byrd
7131 Charity Ave
Bakersfield, CA 93308

From: "Joe Alvidrez" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Joe Alvidrez
11501 Lindalee Ln
Bakersfield, CA 93312
bigal19575@aol.com

From: "Donae Seger" <donaeseger@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Donae Seger
4709 Country Place Ln Apt A
Bakersfield, CA 93313

From: "Jimmy Clark" <jimmy@americansafetyservices.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 8:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jimmy Clark
1604 Dimare Ct
Bakersfield, CA 93312

From: "Steve Rupp" <steve.rupp@stantec.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 9:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Steve Rupp
9911 Casa del Sol Dr
Bakersfield, CA 93311

From: "Joe Jephson" <joseph.jephson@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Joe Jephson
10800 Stockdale Hwy
Bakersfield, CA 93311

From: "pat mccarthy" <patmccarthy615@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

pat mccarthy
140 Gaviota Ave Apt 5
Long Beach, CA 90802

From: "Jesse Price" <Jesse.Price@realtorjesseprice.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 9:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jesse Price
7601 Sutters Mill St
Bakersfield, CA 93313

From: "Kenneth Haney" <haneyklcb@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 11:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kenneth Haney
10611 Salisbury Dr
Bakersfield, CA 93311

From: "Jen Starkey" <jenniferranes2@msn.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jennifer Starkey
12620 Fallstaff Ln
Bakersfield, CA 93312

From: "John Mettler" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 2:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Oil and agriculture can work together as it has in the past but it needs a positive attittude on both sides to stay this way. So many companies and people depend on the oil industry.

Sincerely,

John Mettler
3800 Singleton Ave
Bakersfield, CA 93313
jm07486@yahoo.com

From: "Phillip Richardson" <philow31@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 4:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Phillip Richardson
8906 Staten Island Dr
Bakersfield, CA 93311

From: "Grant Paulson" <grant.paulson@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 4:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

GWP
15434 Quintero Pl
Bakersfield, CA 93314

From: "Matthew Seger" <mattdonae@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/27/15 5:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Matthew Seger
4709 Country Place Ln Apt A
Bakersfield, CA 93313

From: "David Mersereau" <dmersereau@kvstrans.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/28/15 5:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

David Mersereau
11916 Brockridge Ct
Bakersfield, CA 93312

From: "James Dempsey" <jdemps504@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/28/15 7:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

James Dempsey
11325 Park Square Dr Apt E205
Bakersfield, CA 93311

From: "Mary Corona" <marycorona36@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/29/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to, not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

The U.S. has tremendous amounts of oil and natural gas, and the politicians need to allow these resources to be made available. It makes no sense to be dependent on oil from nations who declare openly they are our enemy. Please - stop playing games, stop "you scratch my back and I'll scratch yours" and simply use the common sense God gave you. WE NEED TO MAINTAIN THIS INDUSTRY IN KERN COUNTY AND THE ENTIRE U.S.

Sincerely,

Mary Corona
10748 Mendiburu Rd
California City, CA 93505

From: "Eric Paulson" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/29/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

E.W. (Eric) Paulson
7608 Las Cruces Ave
Bakersfield, CA 93309
ewpaulson@aol.com

From: "Eloy Ruiz" <eloy_ruiz@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/29/15 12:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Eloy Ruiz
4300 Tretorn Ave
Bakersfield, CA 93313

From: "Rebecca Murillo" <rmurillo@laverne.edu>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Rebecca Murillo
1201 24th St Ste D200
Bakersfield, CA 93301

From: "Ron Hardin" <rwhardin@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ron Hardin
10000 Ming Ave
Bakersfield, CA 93311

From: "Heather Handy" <hdhandy@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Heather Handy
10814 Anacostia Way
Bakersfield, CA 93311

From: "Kyle Hensley" <lkhensley2@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kyle Hensley
13500 Deerlodge Ct
Bakersfield, CA 93314

From: "Ed Patterson" <eepatterson@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Ed Patterson
401 Church St
Taft, CA 93268

From: "Heather Strickland" <hmstrickland@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I have been working in the industry for the last 5 years, and worked in Kern County for the last 2 years. My hope for the future is to raise my family here in Kern County and work in the oil and gas industry until I retire, decades from now. We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. My family and I strongly urge approval and implementation of this report.

Sincerely,

Heather Strickland
10000 Ming Ave
Bakersfield, CA 93311

From: "Regina Chaney-Neira" <regina@neiras.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Regina Chaney-Neira
12003 Cactus Flower Ave
Bakersfield, CA 93311

From: "Laura Barnes" <lbarnes@abccentralcal.org>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Laura Barnes
19466 Flightpath Way
Bakersfield, CA 93308

From: "Kris Rickards" <kristopher.rickards@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kris Rickards
10718 Pinebrook Falls Dr
Bakersfield, CA 93312

From: "Craig O'Brien" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Craig O'Brien
12306 Ruby River Dr
Bakersfield, CA 93312
obriencraig@ymail.com

From: "Michael Scott" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Michael Scott
608 Petrol Rd
Bakersfield, CA 93308
mscott5206@aol.com

From: "Scott Sindelar" <scott.sindelar@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review.

As a resident of Kern County, I understand the importance of oil and gas development to the economy. I also know that oil and gas development can be done in an environmentally way. That's why I strongly support the work that has been accomplished with this EIR.

I thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report.

Sincerely,

Scott Sindelar
10800 Stratton Ct
Bakersfield, CA 93312

From: "Deryk Gross" <dsreh@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Deryk Gross
413 Copinsay Ct
Bakersfield, CA 93312

From: "Alex Eppes" <ajeppes@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Alex Eppes
10000 Ming Ave
Bakersfield, CA 93311

From: "Mark Starcher" <mark.starcher@crc.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 12:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review.

Approval of the proposed KCEIR is critical to my livelihood. My livelihood is connected to the safe construction and stimulation of oil & gas wells in Kern County. I arrived in Kern County to work with fracturing stimulation crews in the mid 80s. As a professional petroleum engineer in the state of California I have been astonished at the misinformation used in attempt to slow and stop the new well construction process. Wow - would we rather purchase energy and export income to folks who hold us in contempt and threaten our well being?

Since 1986 I have made a living construction and stimulation Oil & gas wells in Kern County. I have bought 8 cars, three homes, paid for college educations.

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mark Starcher
9036 Quail Cove Ct
Bakersfield, CA 93314

From: "Dave Miner" <dmminer@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 1:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I consider myself an expert in oil and gas activities in California with 36 years of varied scientific and engineering study. I have read many segments of the Draft EIR and strongly urge approval and implementation of the report. The experts who have supplied opinions are using scientific and engineering data to make their assessments without bias to arrive at a sensible permitting process. I feel confident that, once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I strongly urge approval and implementation of this report.

Sincerely,

Dave Miner
613 Vista Verde Way
Bakersfield, CA 93309

From: "Linda Elston" <jstslinda@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 1:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Linda Elston
7808 Sechart Ct
Bakersfield, CA 93309

From: "Kevin O'Neill" <oneillk@ticus.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 1:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kevin O'Neill
1550 James Rd
Bakersfield, CA 93308

From: "Riley Mann" <rileylove12798@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 1:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Riley Mann
28881 Shannon Ct
Tehachapi, CA 93561

From: "Thomas Plante" <pencal@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 1:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Thomas Plante
3529 Standard St
Bakersfield, CA 93308

From: "Steven Short" <sshort@kenaidrilling.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 1:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Steven A. Short
13310 Plumas Wood Ln
Bakersfield, CA 93314

From: "Marsha Harwardt" <mharwardt@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 1:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

As the spouse, daughter and mother of men who have and do work in the Kern County oil industry, I realize how important the industry is to Kern County. Also, as a retired Kern County employee, last working for the Assessor-Recorder's Office, I'm even more aware of how important the industry is to Kern County.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Marsha Harwardt
10116 Rain Check Dr
Bakersfield, CA 93312

From: "kevin stevenson" <mstevenson@kenaidrilling.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

kevin stevenson
1602 Spanke St
Bakersfield, CA 93312

From: "Dan Holmes" <dholmes@aqueossubsea.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Dan Holmes
4409 Westmont St
Ventura, CA 93003

From: "Amber Rodriguez" <arodriguez@kenaidrilling.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Amber Rodriguez
1238 Washington Ave
Bakersfield, CA 93308

From: "Bruce Saunders" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bruce Saunders
608 Southampton Blvd
Bakersfield, CA 93311
bmurf101@aol.com

From: "Michael White" <mikewhite93280@hotmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report. Our economy remains in a very fragile condition and I know several people that have already been laid off work in the oil fields. Oil and Ag are our lifeblood here in Kern County.

Sincerely,

Michael W. White
12612 Jacksonville Ave
Bakersfield, CA 93312

From: "Christian Torres" <ChristianTorres@Chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 2:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Christian Torres
9525 Camino Media
Bakersfield, CA 93311

From: "Blaine Lyons" <bslyons@aeraenergy.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 3:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Blaine Lyons
9910 Casa del Sol Dr
Bakersfield, CA 93311

From: "Mr. & Mrs. Patricia Starcher, L" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 4:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Patricia Starcher
9036 Quail Cove Ct
Bakersfield, CA 93314
trisha_starcher@yahoo.com

From: "Kenny Elmore" <kelmore@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 5:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kenny Elmore
4910 Sanderling Ln
Bakersfield, CA 93312

From: "Kelly Elmore" <kellyelmore@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 5:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kelly Elmore
4910 Sanderling Ln
Bakersfield, CA 93312

From: "Deena Christman" <deenachristman@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 6:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Deena christman
12114 Jacksonville Ave
Bakersfield, CA 93312

From: "Bob Forker" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 6:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bob Forker
9805 Greenacres Dr
Bakersfield, CA 93312
day69tona@yahoo.com

From: "Kassi Harrington" <kharrington@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 6:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kassi Harrington
9525 Camino Media
Bakersfield, CA 93311

From: "Nabil El Shaari" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 7:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Nabil El Shaari
5616 Greenhorn Mountain Ct
Bakersfield, CA 93313
nabilelshaari@yahoo.com

From: "Mike Haddon" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 7:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Mike Haddon
13702 Reserve Ct
Bakersfield, CA 93314
jackie.haddon@yahoo.com

From: "Paul Quinton" <pbquinton@sbcglobal.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 8:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Paul Quinton
10205 Michele Ave
Bakersfield, CA 93312

From: "Jeff Mojo" <jmojo@bak.rr.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 9:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jeff Mojo
2017 Mountain Oak Rd
Bakersfield, CA 93311

From: "Mr. & Mrs. Jerry Laura Tate" <yorkymom@reagan.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/30/15 11:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jerry Laura Tate
20339 Clear Creek Ct
Keene, CA 93531

From: "FRANK CHAPMAN, II" <frank@willcom.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/31/15 5:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Frank Chapman
505 Canton St
Berwick, LA 70342

From: "Mr. & Mrs. Richard Holdcraft" <rholdcraft1@att.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/31/15 7:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Richard Holdcraft
4018 Desert Palm Way
Bakersfield, CA 93311

From: "Tim Cowan" <tcowan@kenaidrilling.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/31/15 7:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tim Cowan
8621 River Springs Ct
Bakersfield, CA 93312

From: "Jason Ritchey" <jritchey@kenaidrilling.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/31/15 8:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jason Ritchey
10408 Sterling Silver St
Bakersfield, CA 93311

From: "Joshua Scott" <Amsoldier@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/31/15 3:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Joshua Scott
4930 Gosford Rd Apt 105
Bakersfield, CA 93313

From: "Mr. & Mrs. Jerald Lupinek" <jeralup@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 7/31/15 4:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Jerald Lupinek
2125 Sunset St
Wasco, CA 93280

From: "Lee Russoniello" <leekleiner@att.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/1/15 4:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Lee Russoniello
5209 Glacier Canyon Ct
Bakersfield, CA 93313

From: "Daniel Lee" <dan.lee@wonderful.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/2/15 3:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

Having been involved with the oil, gas and food manufacturing industries in Kern County for the last 35 plus years, I am writing in support of the oil and gas industry in Kern County and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, I understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report in lending a common sense approach to overseeing such a vital industry.

Thank you for your attention,

Sincerely,

Daniel Lee
2600 Brookside Dr
Bakersfield, CA 93311

From: "Elvin PItss" <JamesPitts@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 8:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

E. James Pitts
613 Sunset Ln
Taft, CA 93268

From: "Richard Byers" <RByers@Chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 8:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Rick Byers
10290 Sunrise Dr
Bakersfield, CA 93308

From: "Danny Enriquez" <denriquez@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 8:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Danny Enriquez
4801 Old Port Ct
Bakersfield, CA 93312

From: "Alisha McClellan" <BDXX@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 9:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Alisha McClellan
1812 Embarcadero Ln
Bakersfield, CA 93311

From: "Kevin Wagner" <kevin.wagner910@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 9:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kevin Wagner
4101 Brittany St Apt 119
Bakersfield, CA 93312

From: "Olu Adeoye" <OlumideAdeoye@Gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 10:09 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Olu Adeoye
11219 Draper Ct
Bakersfield, CA 93311

From: "Linh Vo" <vomylinh@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Linh Vo
9601 Holly Oak Dr
Bakersfield, CA 93311

From: "Janet Sparks Strandberg" <jsparks@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 10:19 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Janet Sparks Strandberg
7020 Seapines Dr
Bakersfield, CA 93309

From: "Adam Graham" <adam.graham@bakerhughes.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 10:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Adam Graham
6609 Chinook Falls Dr
Bakersfield, CA 93312

From: "Michael Crain" <mmcrain@earthlink.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 10:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kind regards,
5617 Sugar Pine Dr
Bakersfield, CA 93313

From: "John Figueroa" <jhfg@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 11:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

John Figueroa
3646 Reward Rd
McKittrick, CA 93251

From: "Daniel Davis, Jr" <ddpb@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 1:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Daniel Davis
9104 Blossom Time Ave
Bakersfield, CA 93311

From: "Phil Kessler" <pkessler@bakersfieldpipe.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 1:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Phil Kessler
PO Box 177
Fellows, CA 93224

From: "Cece Muharam" <cecemhm@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 3:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Cece Muharam
11209 Bright Water Way
Bakersfield, CA 93311

From: "Leesa Penry" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 4:29 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Leesa Penry
5101 Stormy Ct
Bakersfield, CA 93309
leesapenry@yahoo.com

From: "Tom Wilson" <Tom.Wilson@Chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 4:49 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Tom Wilson
8814 S Granite Rd
Bakersfield, CA 93308

From: "Hendra Susanto" <paperdimension@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/3/15 5:09 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Hendra Susanto
1910 Delacorte Dr
Bakersfield, CA 93311

From: "Sabra Russell" <srussell@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/4/15 7:59 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Sabra Russell
11516 Equinox Ave
Bakersfield, CA 93312

From: "David Crane" <dcgj@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/5/15 10:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

David Crane
1707 Classen St
Bakersfield, CA 93312

From: "Terry Davis" <terrydavis@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/5/15 12:39 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Terry Davis
11410 Reagan Rd
Bakersfield, CA 93312

From: "Christian Torres" <ChristianTorres@Chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/7/15 9:49 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Christian Torres
9525 Camino Media
Bakersfield, CA 93311

From: "Thomas Burt" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/8/15 6:19 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Thomas Burt
9716 Commodore Dr
Bakersfield, CA 93312
tntbrt69@yahoo.com

From: "Bo Bravo" <brvb@chevron.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/10/15 6:29 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Bo Bravo
801 B St
Taft, CA 93268

From: "T. Massey" <user@votervoice.net>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/11/15 1:59 PM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

I thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. I strongly urge approval and implementation of this report.

Respectfully Submitted.

Sincerely,

Dedicated Employee
2446 Marva Marie Ct
Bakersfield, CA 93314
t_bmass@yahoo.com

From: "Kevin Salyer" <kevinsalyer4881@gmail.com>
To: "AICP Supervising Planner Christopher B. Mynk" <MynkC@co.kern.ca.us>
Date: 8/14/15 10:39 AM
Subject: Draft EIR for Revisions to the Kern County Zoning Ordinance – 2015 C, Oil and Gas Local Permitting

Dear AICP Supervising Planner Mynk,

I am writing in support of our County's oil and gas industry and appreciate the opportunity to comment on the draft environmental review. As a resident of Kern County, we understand this industry's importance to not only our local economy and the well-being of our families, but to our national security and the goal to reduce our dependence on foreign oil. Once approved, this revised ordinance will continue to provide protection for our community and the environment, while stabilizing the permitting structure for oil and gas production, allowing for continued growth of this important industry in our county.

We thank you for the tremendous effort that has gone into studying the industry - utilizing science and factual data to arrive at a sensible permitting structure. We strongly urge approval and implementation of this report.

Sincerely,

Kevin Salyer
4309 Lakeland St
Lake Isabella, CA 93240

References

American Association of Petroleum Geologist (AAPG), 2012. Monterey Development Possible – Eventually, Accessed at: http://www.aapg.org/Publications/News/Explorer/Details/ArticleID/3434/Monterey-Development-Possible-%E2%80%93-Eventually Accessed on: September 15, 2015.

Bjurlin, Curtis D., Brian L. Cypher, Carie M. Wingert, and Christine L. Van Horn Job. 2005. Urban Roads and the Endangered San Joaquin Kit Fox. Prepared by the California State University, Stanislaus, Endangered Species Recovery Program for California Department of Transportation.

Brandt, A. (2015, April 1). Oil Production Greenhouse Gas Emissions Estimator. OPGEE v1.1 Draft E. (A. Brandt, Ed.) Stanford University.

California Code of Regulations (CCR). 2012, Title 14, Division 6, Chapter 3, Sections 15000–15387

California Council on Science and Technology (CCST). 2015. Well Stimulation Technologies and their Past, Present, and Future Use in California, An Independent Scientific Assessment of Well Stimulation in California. Volume II, July 2015.

California Energy Commission – Tracking Progress, http://www.energy.ca.gov/renewables/tracking_progress/documents/renewable.pdf (accessed September 16, 2015)

California Energy Commission (CEC), 1996. Studies of the San Joaquin Kit Fox in Undeveloped and Oil-Developed Areas. August 1996 Staff Report. Sacramento, California.

Caryotakis, A., Davies, I., Hafiz, S., Niketen, J., Noakes, D., Wang, R., and Wu, A. 2015. An Analysis of Hazardous Materials Spills with a Focus on Oil and Gas Production: A 2015 Undergraduate Practicum Project for the UCLA Institute of the Environment and Sustainability. Report prepared for the Natural Resources Defense Council.

CDFG (California Department of Fish and Game), 2015c. California Natural Diversity Database. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication, 125 pp. July.

CDFW (California Department of Fish and Wildlife), 2015a. State and Federally Listed Endangered and Threatened Animals of California. State of California, the Natural Resources Agency, Department of Fish and Game, Biogeographic Data Branch, California Natural Diversity Database. 13 pp. July.

CDFW (California Department of Fish and Wildlife), 2015b. State and Federally Listed Endangered, Threatened, and Rare Plants of California. State of California, the Resources Agency, Department of Fish and Game, Resource Management and Planning Division, Biogeographic Data Branch, California Natural Diversity Database. 6 pp. July.

California Native Plant Society (CNPS), Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 19 August 2015].

Chevron. 2015. Letter from Greta Lydecker to Susan Hackwood Re: Classification of Erroneous Information Contained in the Independent Scientific Assessment of Well Stimulation Treatments in California. July 24, 2015.

Colburn, Theo, Carol Kwiatkowski, Kim Shultz, and Mary Bachran. 2012. Natural gas operations from a public health perspective. Human and Ecological Risk Assessment 17:1039-1056.

Cypher, B.L. 2010. Kit foxes. Pp. 49-60 in S.D. Gehrt, S.P.D. Riley and B.L. Cypher (eds.), Urban carnivores: ecology, conflict, and conservation. Johns Hopkins University Press, Baltimore.

Cypher, B.L. and Frost, N. 1999. Condition of kit foxes in urban and exurban habitats. Journal of Wildlife Management. 63:930-939.

Cypher, B.L. et al. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16: 25-31.

Department of Oil, Geothermal and Gas Resources (DOGGR), 2009. Annual Report of the State Oil & Gas Supervisor, Accessed at: http://www.conservation.ca.gov/dog/pubs_stats/annual_reports/Pages/annual_reports.aspx. Accessed on September 15, 2015.

Fiehler, C. A. and B. Cypher, 2011. Ecosystem Analysis of Oil Fields in Western Kern County, California. Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. 25 pp.

Frick, T.J, et al., "Petroleum Production Handbook", 1962, p9-35

Frost, Nancy. 2005. San Joaquin Kit Fox Home Range, Habitat Use, and Movements in Urban Bakersfield

Germano, David J., Galen B. Rathburn, Lawrence R. Saslaw, 2012. Effects of Grazing and Invasive Grasses on Desert Vertebrates in California. The Journal of Wildlife management 76(4):670-682.

Gorham, Bill, et al. (2015, September 18). Infeasibility of Alternative to Ban Drilling in Agricultural Land, AECOM.

Appendix B-1

Planning and Community Development Department Response Letter to Extension of Time Requests

This page intentionally left blank.

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

Planning
Community Development
Administrative Operations

July 29, 2015

ADDRESSEE LIST

RE: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting (COMMENT PERIOD EXTENSION)

Dear Interested Party,

The County of Kern will be extending the comment period of the above referenced DEIR from the original date of August 24, 2015 to **September 11, 2015**. Also, attached is a revised Notice of Availability reflecting revisions to the comment period. Please be advised the scheduled hearing date of October 5, 2015 at 5:00 PM, before the Kern County Planning Commission, has not changed. The Public hearing will be held at the Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California.

Comments can be also be submitted at one of our additional public workshops that will be held at **6:00 p.m.** at the following locations and dates:

Shafter Veterans Building, Room 2, 309 California Avenue, Shafter CA	**August 10, 2015**
Taft Veterans Hall, Room 1, 218 Taylor Street, Taft, CA	**August 17, 2015**

If you have any questions regarding this matter or would like to submit comment, please contact me directly at (661) 862-8607 or by email at MynkC@co.kern.ca.us.

Sincerely,

Christopher B. Mynk, AICP
Supervising Planner

EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

July 20, 2015

Via Electronic Mail

Lorelei H. Oviatt, AICP
Director
LoreleiO@co.kern.ca.us
661-862-8866

Christopher B. Mynk, AICP
Supervising Planner
MynkC@co.kern.ca.us
Kern County Planning Department
Public Services Building
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

Re: Extending Comment Period for Draft EIR

Dear Ms. Oviatt and Mr. Mynk:

The Center for Biological Diversity, the Center on Race, Poverty and the Environment, Earthjustice, the Natural Resources Defense Council and Sierra Club ("Environmental Advocates") request a 60-day extension to comment on Kern County's draft environmental impact report ("DEIR") for the Amendment to Title 19-Kern County Zoning Ordinance Chapter 19.98 (Oil and Gas Production) for Oil and Gas Permitting. Environmental Advocates seek sixty (60) days more than the minimum 45-day public review period to comment on the DEIR.

The extension request is eminently reasonable given the vast scope of the DEIR, which evaluates zoning ordinance changes that, if adopted, seek to create ministerial permitting for almost every activity related to oil and gas production in Kern County. A recent news article reports that Kern County has spent two and half years and employed 125 people, mostly consultants and three full-time staff, on preparing the DEIR.[1] To date, the oil industry has paid 12.2 million dollars in accrued costs for this DEIR.[2] By any measure, this DEIR is a massive

[1] John Cox, *Kern's New Oil Revew: 8 Things to Know*, THE BAKERSFIELD CALIFORNIAN (Jul. 12, 2015, 12:17 AM), http://www.bakersfield.com/News/2015/07/12/a-second-look-at-kern-s-oil-and-gas-review.html.
[2] *Ibid.*

Gardiner Family, LLC

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Gardiner Family, LLC, a local farm real estate holding company in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Keith Gardiner, Manager
Gardiner Family, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

29341 Kimberlina Road, Wasco CA Office (661) 587-2250 Fax (661) 587-2254

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Gardiner Farms, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of almond, sudan grass, and garlic harvest, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

James Gardiner, Member
Gardiner Farms, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

P.O. Box 1200, Wasco, CA 93280 Tel. 661-587-2250
Fax 661-587-2254

HOPKINS AG

AGRICULTURE

CONSULTANT•MANAGEMENT•SALES•APPRAISALS

HM: 661.663.9604
CELL: 661.201.0321
FAX: 661.663.9157

1904 Wedgemont Place
Bakersfield, California 93311

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

SUBJECT: Request for Extension of Time to Review and Comment on Draft Environmental Impact Report

Dear Ms. Oviatt and Mr. Mynk,

HOPKINS AG, INC. is a local farming operation in Kern County. We are aware that Kern County has prepared a draft Environmental Impact Report regarding the new permit process for the oil and gas activity. We appreciate the opportunity to review the 1800+ pages of the DEIR and 5800 pages of technical data. However, the time period of 45 days is simply too short to review and comment on such a massive document. A longer period of time for the comment period is appropriate due to the length and technical nature of the EIR.

We are starting our 2015 harvest period, making it difficult to devote sufficient time to read and review in such a short period. We appreciate the effort that has been devoted in preparing the DEIR, and would like the necessary time to review the documents and provide meaningful comments. This is an important opportunity to engage the public in the review process; therefore, we are requesting that the comment period be extended for a period of 90 days, or October, 2015.

Respectfully yours,

Michael D. Hopkins

July 20, 2015

Lorelei Oviatt

I am writing concerning the comment period for the Draft EIR on Oil and Gas permitting. Our company needs more than 45 days to discern how this proposed structure will impact our surface rights and the potential impact below and above ground.

We have farmland without mineral rights. Our farmland currently has neglected well heads, abandoned wells, storage tanks in disrepair, and debris left by oil companies. We have limited control over what they are doing to our land. And we have no idea how the below ground might be compromised by their negligence.

At over 1800 pages in the Draft EIR plus additional documents, there needs to be adequate time for a prudent analysis. Our experience with oil companies leads us to be very cautious with new ideas without a true understanding of our risks.

Please, we ask that you extend the public comment period to the maximum length. They have had substantial time to develop their plan. Please, give us enough time to realize it's true impact to us. Don't rush this important decision.

Sincerely

John Romanini

John Romanini and Sons
PO Box 786
Buttonwillow, CA 93206

King & Gardiner Farms, LLC

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn : Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, King & Gardiner Farms, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of almond and pistachio harvest, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Frank King

Frank King, Member
King & Gardiner Farms, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

29341 Kimberlina Road, Wasco CA Office (661) 587-2250 Fax (661) 587-2254

P&H ORCHARDS

AGRICULTURE

CONSULTANT•MANAGEMENT•SALES•APPRAISALS

HM: 661.663.9604
CELL: 661.201.0321
FAX: 661.663.9157

1904 Wedgemont Place
Bakersfield, California 93311

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

SUBJECT: Request for Extension of Time to Review and Comment on Draft Environmental Impact Report

Dear Ms. Oviatt and Mr. Mynk,

P&H Orchards is a local farming operation in Kern County. We are aware that Kern County has prepared a draft Environmental Impact Report regarding the new permit process for the oil and gas activity. We appreciate the opportunity to review the 1800+ pages of the DEIR and 5800 pages of technical data. However, the time period of 45 days is simply too short to review and comment on such a massive document. A longer period of time for the comment period is appropriate due to the length and technical nature of the EIR.

We are starting our 2015 harvest period, making it difficult to devote sufficient time to read and review in such a short period. We appreciate the effort that has been devoted in preparing the DEIR, and would like the necessary time to review the documents and provide meaningful comments. This is an important opportunity to engage the public in the review process; therefore, we are requesting that the comment period be extended for a period of 90 days, or October, 2015.

Respectfully yours,

Michael D. Hopkins

PALLA FARMS

AGRICULTURE

CONSULTANT•MANAGEMENT•SALES•APPRAISALS

HM: 661.663.9604
CELL: 661.201.0321
FAX: 661.663.9157

1904 Wedgemont Place
Bakersfield, California 93311

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

SUBJECT: Request for Extension of Time to Review and Comment on Draft Environmental Impact Report

Dear Ms. Oviatt and Mr. Mynk,

Palla Farms is a local farming operation in Kern County. We are aware that Kern County has prepared a draft Environmental Impact Report regarding the new permit process for the oil and gas activity. We appreciate the opportunity to review the 1800+ pages of the DEIR and 5800 pages of technical data. However, the time period of 45 days is simply too short to review and comment on such a massive document. A longer period of time for the comment period is appropriate due to the length and technical nature of the EIR.

We are starting our 2015 harvest period, making it difficult to devote sufficient time to read and review in such a short period. We appreciate the effort that has been devoted in preparing the DEIR, and would like the necessary time to review the documents and provide meaningful comments. This is an important opportunity to engage the public in the review process; therefore, we are requesting that the comment period be extended for a period of 90 days, or October, 2015.

Respectfully yours,

Michael D. Hopkins

effort and, if approved with the concurrent zoning ordinance, will affect Kern County communities and the environment for at least the next 25 years.

In order to respond adequately to this massive undertaking and the multiple issues that the project poses, Environmental Advocates seek 60 more days than the minimum public review period. DEIR identifies "significant and unavoidable" harm for a number of environmental categories. Moreover, there is no statutory or regulatory deadline forcing the adoption of these ordinances or DEIR at any particular time. Despite the length and complexity of this report, and the fact it was issued during the summer when many people already have scheduled vacations, the current deadline for public comments is set at the statutory minimum of 45 days.

Furthermore, two additional reports that are directly related to this DEIR were released virtually at the same time, and, therefore, were not adequately incorporated into the DEIR as required. On July 1st, 2015, the Final Environmental Impact Report on SB-4, "Analysis of Oil and Gas Well Stimulation Treatments in California," was issued. On July 9th, 2015, a day after the DEIR was issued, the California Council on Science and Technology (CCST) released the final volumes of its report on the environmental effects of well-stimulation techniques. It was well-publicized that the CCST report would be released on July 9th, but the County released its DEIR without analyzing this independent scientific assessment of well stimulation treatments in California. Since the County did not take into account these additional voluminous studies, Environmental Advocates must now review and analyze how those studies impact the analysis and findings in the DEIR.

For the foregoing reasons, Environmental Advocates respectfully request an extension of sixty (60) days more than the minimum public review period to submit a comment. Comments would then be due on October 23rd, 2015.

Sincerely,

William Rostov, Staff Attorney
wrostov@earthjustice.org
Earthjustice

Sofia Parino, Senior Attorney
sparino@crpe-ej.org
Center on Race, Poverty & the Environment

Damon Nagami, Senior Attorney
dnagami@nrdc.org
Natural Resources Defense Council

Elly Benson, Associate Attorney
elly.benson@sierraclub.org
Sierra Club

Hollin Kretzmann, Staff Attorney
hkretzmann@biologicaldiversity.org
Center for Biological Diversity

Rancheria Land & Livestock, LLC

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Rancheria Land & Livestock, LLC, a local cattle ranching operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Jake Cromley

Jake Cromley, Manager
Rancheria Land & Livestock, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

29341 Kimberlina Road, Wasco CA Office (661) 587-2250 Fax (661) 587-2254

ROSEDALE RANCH

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Rosedale Ranch, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of almond harvest, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Carol Adamson

Carol Adamson, Partner
Rosedale Ranch

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

P.O. Box 1200, Wasco, CA 93280 Tel. 661-587-2250
Fax 661-587-2254

Sequoia Riverlands Trust
Conserving California's Heartland

July 23, 2015

County of Kern
Planning and Community Development Department
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 M Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Public Comment Period on Draft EIR re: Oil and Gas Permitting Changes

Dear Ms. Oviatt and Mr. Mynk,

I am writing on behalf of Sequoia Riverlands Trust, an accredited regional land trust that works with willing landowners in the Southern San Joaquin Valley, including Kern County, to conserve farmland and rangeland. We understand that your office has prepared a Draft Environmental Impact Report ("DEIR") regarding proposed changes to the permitting process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the 45-day public comment period is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer comment period is appropriate given the scope of this project, the length and highly technical nature of the DEIR, and the legitimate interest of the public in a thorough and meaningful review process. **Therefore, we respectfully request that the public comment period be extended from 45 to 90 days, with a deadline for written comments of October 6, 2015.** If this is not possible, we would request that it at least be extended to 60 days, as is routinely done for complex EIRs.

Thank you for your consideration.

Sincerely,

Adam Livingston

Adam Livingston
Director of Planning and Policy
Sequoia Riverlands Trust

Cc: Kern County Board of Supervisors
Kern County Planning Commission

Sierra Land & Farming, LLC

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Sierra Land & Farming, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of almond harvest, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Santos Martinez, Member
Sierra Land & Farming, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

29341 Kimberlina Road, Wasco CA Office (661) 587-2250 Fax (661) 587-2254

SOUTH VALLEY FARMS 15443 Beech Avenue • Wasco, CA 93280 • Ph: 661.391.9000 • Fax: 661.391.9012 • www.southvalleyfarms.com

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, South Valley Farms, a local farming operation in Kern County. We are aware of the Kern County's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond and pistachio trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County could extend the public comment period to 60 days (with the comment period closing on September 8, 2015 – given the weekend and Labor Day), which we understand is routinely provided for complex EIRs.

Sincerely,

W. Todd Turley
Land & Govt. Affairs Manager

Cc: County of Kern
Board of Supervisors

SOUTH VALLEY FARMS 15443 Beech Avenue • Wasco, CA 93280 • Ph: 661.391.9000 • Fax: 661.391.9012 • www.southvalleyfarms.com

Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, Supervisorial District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

V Lions Holdings, LLC

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, V Lions Holdings, LLC, a local farm real estate holding company in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

John Gardiner, Manager
V Lions Holdings, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

29341 Kimberlina Road, Wasco CA Office (661) 587-2250 Fax (661) 587-2254

Wasco Real Properties I, LLC

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Wasco Real Properties I, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of almond harvest, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Jennifer Gardiner, Member
Wasco Real Properties I, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

29341 Kimberlina Road, Wasco CA Office (661) 587-2250 Fax (661) 587-2254

Wasco Real Properties II, LLC

July 20, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Wasco Real Properties II, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope, length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of almond harvest, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices. We would like the necessary time allotted to review the documents and provide thorough and meaningful comments. In addition, this is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Keith Gardiner, Member
Wasco Real Properties II, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

29341 Kimberlina Road, Wasco CA Office (661) 587-2250 Fax (661) 587-2254

July 23, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Calolina Ginning, Inc., a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the minimum time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

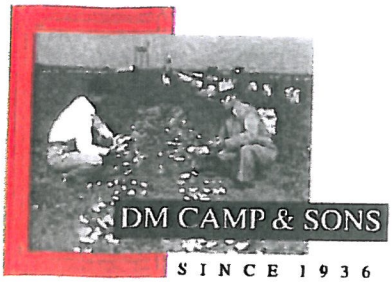
We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Edwin A. Camp
D. M. Camp & Sons

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301



July 23, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, D. M. Camp & Sons, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the minimum time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the



very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Edwin A. Camp
D. M. Camp & Sons

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Bryan Bone Farms
23951 Snow Rd. Bakersfield, CA 93314
661 588-2971 Huesos@prodigy.net

July 24, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

Thanks for the tremendous effort required in preparing this DEIR document. Of course, a document of this size and complexity surely wasn't written in forty five days and it would seem most appropriate that the public be granted the courtesy of an unrushed review. I believe a ninety day comment period would be sufficient.

Thanks in advance for your kind consideration

Kind regards,

Bryan Bone

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern

July 23, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Camp Frio, Inc., a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the minimum time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Edwin A. Camp
D. M. Camp & Sons

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

July 23, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Camp Kern County Investments, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the minimum time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Edwin A. Camp
D. M. Camp & Sons

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

July 23, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Camp Real Properties, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the minimum time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Edwin A. Camp
D. M. Camp & Sons

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Gold Dust Almond Ranch, LLC
P O Box 419
Shafter, Ca. 93263

July 24, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, Gold Dust Almond Ranch, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the **minimum** time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period

closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Geoffrey B. King, Managing Member
Gold Dust Almond Ranch, LLC

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

KERN COUNTY FARM BUREAU

801 South Mount Vernon Avenue
Bakersfield, CA 93307-2888
www.KernCFB.com

Phone: (661) 397-9635
Fax: (661) 397-3403
Email: kcfb@kerncfb.com

Greg Wegis
President

Jeff Rasmussen
1st Vice President

Catalino "Tito" Martinez
2nd Vice President

Beatris Espericueta Sanders
Executive Director

July 24, 2015

Kern County Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

Re: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Mrs. Oviatt:

On behalf of 1,400 members of the Kern County Farm Bureau, I am writing to thank you and your staff for your hard work in preparing the final draft of the Oil and Gas Draft Environmental Impact Report ("DEIR"). We appreciate your time and commitment in regards to the many agricultural stakeholders meetings you hosted in preparation for this DEIR. The many growers who attended these meetings are aware of the intense nature of this document and will forever be grateful that you welcomed their suggestions and guidance in this process.

As you may know, this time of year is very busy for our growers and ranchers as many of them are in the middle of harvest season. We have been asked from some of our members to ask for an extension of the comment period. Given the length of this DEIR and the time it would take our members to review the entire document and prepare comment, we are asking you to consider an extension. We suggest extending the comment period to 60 days, giving us an extra 15 days to review the agricultural impacts of this document.

Kern County is the second largest agricultural producing county in the nation and as a Farm Bureau, we want to thank you again for your proactive relationship with our growers and your willingness to make yourself available to us. We hope we can continue this dialogue with you and our Board of Supervisors to provide meaningful solutions for Kern County.

Sincerely,

Greg Wegis
President

P.O. Box 81435
Bakersfield, CA 93380-1435
Administration
Telephone: 661-393-2696
Facsimile: 661-393-6884

33380 Cawelo Avenue
Bakersfield, CA 93308-9575
Water Orders and Operations
Telephone: 661-393-3361
www.northkernwsd.com

NORTH KERN WATER STORAGE DISTRICT

July 27, 2015

Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
County of Kern
Planning and Community Development Dept.
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

Subject: Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015 C, focused on Oil and Gas Local Permitting - Request for Extension of Time Period for Public Review and Comment

Dear Ms. Oviatt and Mr. Mynk,

The North Kern Water Storage District (North Kern or District) appreciates the opportunity to review and comment on the subject Draft EIR. The EIR is of keen interest to the District since operation of the District's project to supply water to 60,000 acres of highly productive farmland routinely intersects with local oil operations.

Unfortunately, given the District's current singular focus on meeting landowner's water supply needs through the historic drought on the Kern River (the District relies on the Kern River for more than 90% of its surface water supplies), the District does not have resources available to review the voluminous documents comprising the Draft EIR (the Draft EIR itself (approximately 1,800 pages) and the Technical Appendices (approximately 5,800 pages)) within the allotted 45 day review period. Consequently, the District hereby requests that the County extend the current 45 day comment period for the Draft EIR (which is the minimum time period for public review) to at least 60 days and preferably 90 days. This additional review time is essential to allow the District to provide meaningful comments on the Draft EIR and will also assist the County in meeting its obligations for public disclosure and review under CEQA.

Very truly yours,

Richard Diamond
General Manager

cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman

1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

July 23, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, OMDC, LLC, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the minimum time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Edwin A. Camp
D. M. Camp & Sons

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

July 23, 2015

County of Kern
Planning and Community Development Dept.
Attn.: Lorelei H. Oviatt, AICP, Director
Christopher B. Mynk, AICP, Supervising Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323

RE: Request for Extension of Time Period for Public Review and Comment on Draft Environmental Impact Report (focused on Oil and Gas Local Permitting)

Dear Ms. Oviatt and Mr. Mynk,

I am writing this letter on behalf of my company, R29, LLP, a local farming operation in Kern County. We are aware of the County of Kern's preparation of a Draft Environmental Impact Report ("DEIR") regarding the new permit process for oil and gas activities and associated analyses, and we appreciate the opportunity to review the 1,800+ pages of the DEIR and 5,800+ pages of Technical Appendices. However, the time provided for the public comment period of 45 days is simply too short to allow meaningful review and comment on such a massive document.

As stated in the cover letter of the DEIR, 45 days is the minimum time period for public review of the DEIR. A longer period of time for the comment period is appropriate given the scope of this project and the length and highly technical nature of the EIR. Furthermore, we have received this enormous document for review right at the beginning of harvest for our almond trees, making it difficult at best to devote sufficient time to read and review in such a short timeframe.

We can appreciate the tremendous effort that has obviously been devoted in preparing the DEIR and associated Technical Appendices and would like the necessary time allotted to review the documents and provide thorough and meaningful comments. This is an important opportunity to engage the public in the review process. Therefore, we respectfully request that the comment period be extended to allow for a public review period of 90 days, with the comment period closing on October 6, 2015. At the very least, the County should extend the public comment period to 60 days, which we understand is routinely provided for complex EIRs.

Sincerely,

Edwin A. Camp
D. M. Camp & Sons

Cc: County of Kern
Board of Supervisors
Attn.: Supervisor David Couch, Chairman
1115 Truxtun Ave., 5th Floor (Room 504)
Bakersfield, CA 93301

County of Kern
Planning Commission
Attn.: Ronald Sprague, District 4
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Appendix D-1

Kern County Zoning Ordinance Amendments Public Workshop Notes

This page intentionally left blank.

Revisions to the Kern County Zoning Ordinance, 2015 C

Oil and Gas Activities

Joint Briefing Workshop

Lorelei H. Oviatt, AICP
Director
Kern County Planning
And Community Development Department

July 27,2015

Oil and Gas Activities

- San Joaquin Valley Portion
  - 2.3 Million Acres – existing and potential
- Largest oil producing county in California
- 2012- 43,000 active wells – 78% of all wells in CA
- 80% of oil and natural gas produced in state.

California State Law

- Local government controls land use through zoning
- Underground and drilling activities managed by State Division of Oil, Gas and Geothermal – DOGGR
- California Environmental Quality Act – implemented by either State or local government
- State constitution and Attorney General preempt local regulation of underground oil and gas extraction activities

Local Permitting Program Elements

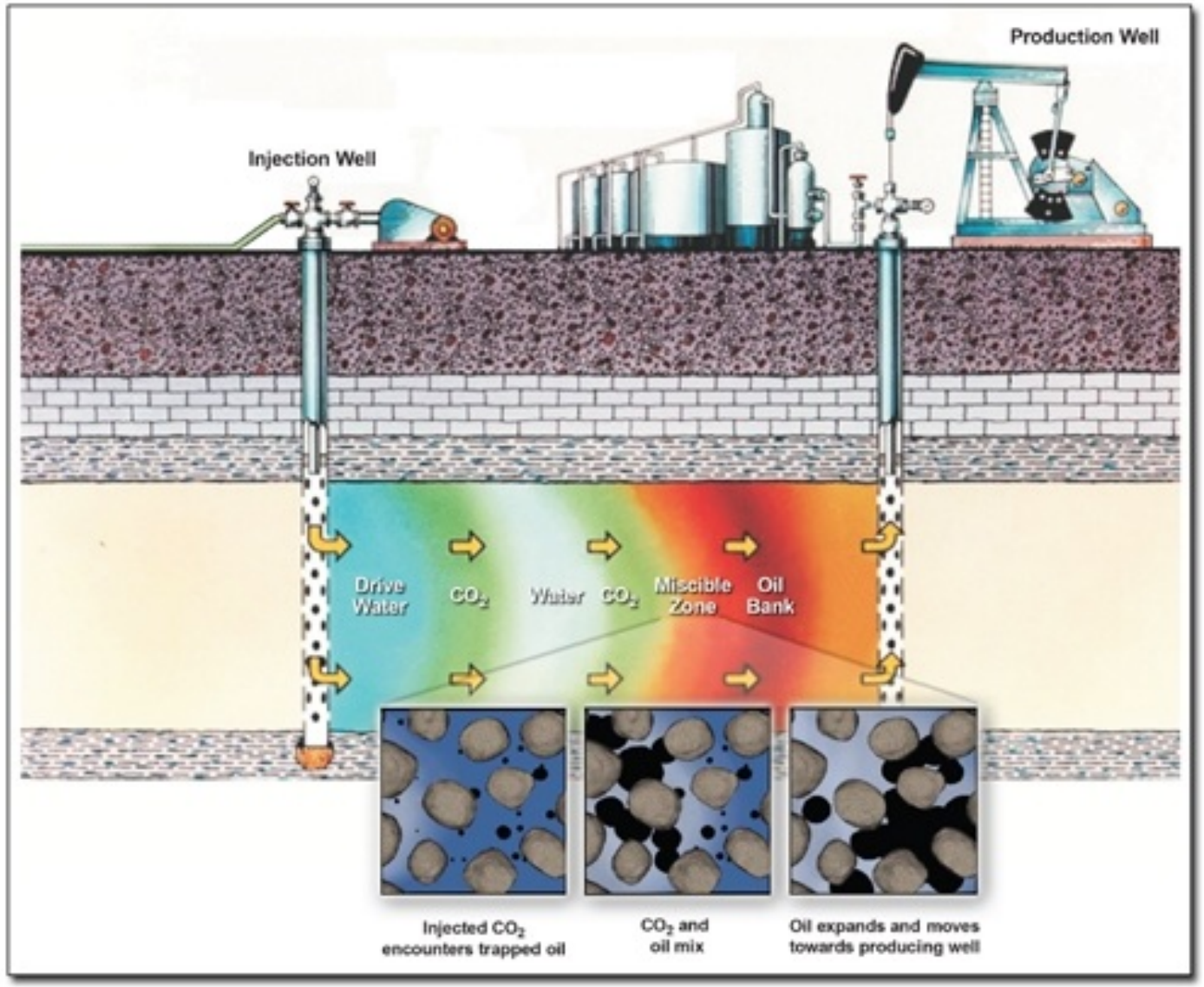
- Amendments to the Kern County Zoning Ordinance Text
- New Local Permit and Process
- Environmental Impact Report = Mitigation
- New GIS Gateway and Electronic Permit System
- New Staffing + Fees
- New Programs (Small Producers Assistance, Legacy Program)

California Oil Activities
Well Drilling

- Drilling a hole = wellbore
- Range in depth down to 10,000 feet
- Metal pipe= casing placed and cement pumped
- Cement pushes out around the bottom of casing

  flows up space between wellbore and casing to surface
- Cement hardens – forms bond
- Holes made in casing opposite reservoir
- Oil or Gas moves into the casing and up to surface

Explanation of Injection Well Process



California Oil Activities
Well Plug and Abandonment

- Oil or gas reservoir depleted or nothing found
- Cement places in the wellbore or casing at regulated intervals to act as seal
- Cement plugs required
  - Zone plugs – across the reservoir
  - Across the base of fresh water
  - Surface plug
  - Other plugs may be required
  - Hole is filled with drilling mud

California Oil Activities Groundwater protection

- During drilling, specially designed fluid pumped and circulated through wellbore and to surface

- Function of Drilling Fluid:
  - Lifts rock cuttings to the surface
  - Cool the drill bit
  - Counteract downhole formation pressure to keep out groundwater and prevent mixing
  - Well completion – casing cemented in wellbore

California Oil Activities
Well Stimulation

- Hydraulic Fracturing : high pressure injection of a mix of fluids and substances into a reservoir
- Vertical wells – conventional reservoirs
- Pressure fractures rock creating channels
- Fluids removed – substance (sand) keeps channels open
- Oil or Gas flows to surface
- Fluid mix is primarily water with small percentage of chemicals

Study Area

- Project Area
  - 3700 Square Miles (2.3 million acres)
  - San Joaquin Valley Floor Portion of Kern County
  - Excludes all City/State and Federal Jurisdictions
  - Includes all State and Federal Minerals under Private Surface

- Subareas
  - Project Area Split into Three Subareas
    - Western – West of I-5 Corridor
    - Central – Between SR-99 and I-5
    - Eastern – East of SR-99

Study Area

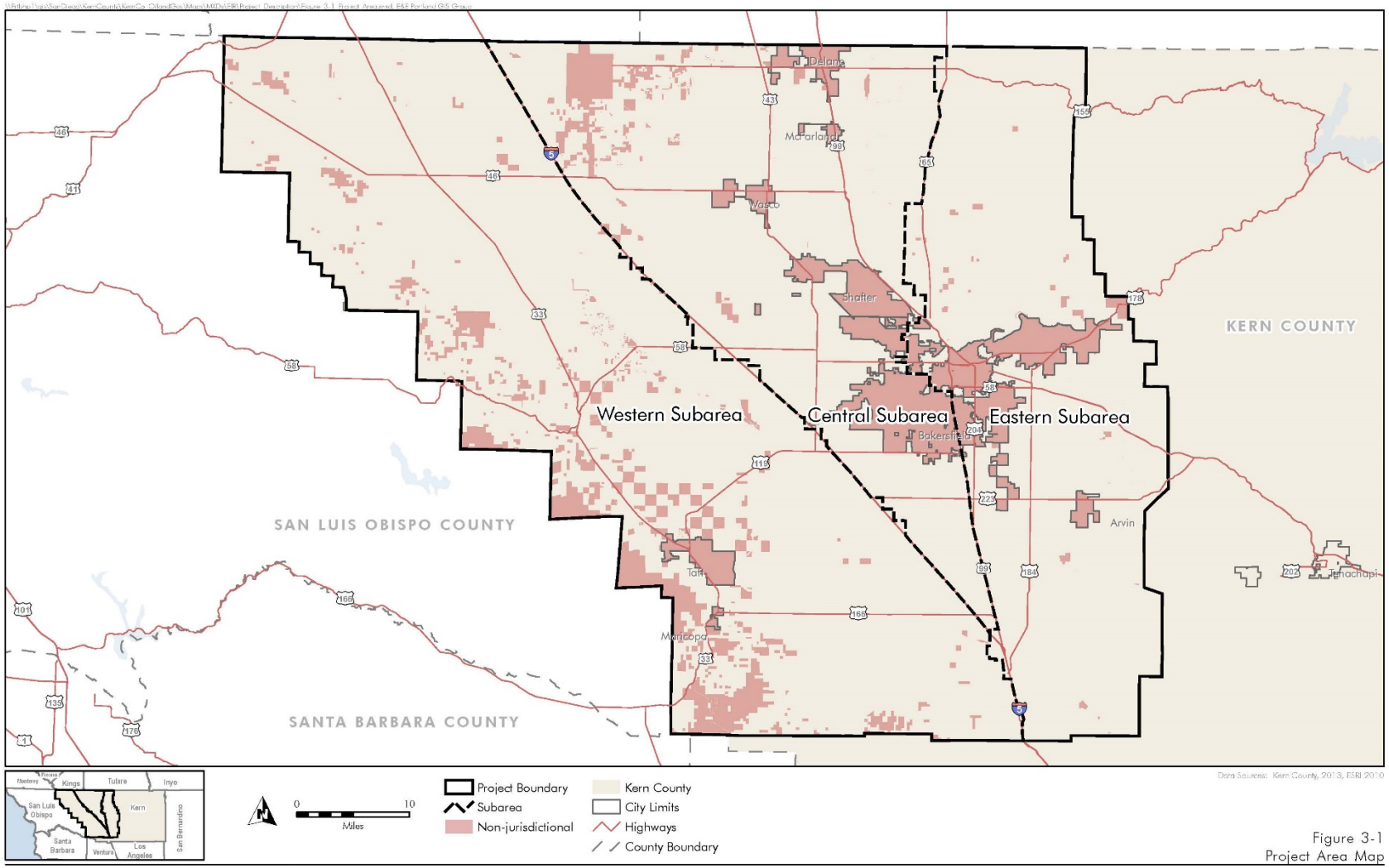


Figure 3-1
Project Area Map

Existing Zoning Ordinance

- Chapter 19.98 (Oil and Gas Production)
  - Allows for “Unrestricted” Drilling on Lands Zoned: A, A-1, M-2, M-3 and NR
  - Allows for “Ministerial” Drilling on Lands Zoned: M-1, RF, DI and PE
  - Conditional Use Permit on Lands Zoned: E, R-1, R-2, R-3, CO, C-1, C-2, CH and PL
  - Currently Prohibited on Lands Zoned: MP and OS

Permitting

- New Tier System for Identifying Lands for Oil and Gas Activities showed as a figure in the ordinance
  - Tier 1 Area
    - Tier 1 is shown as the area in which current oil and gas activity is the primary land use. The well and activity densities preclude almost all other uses
  - Tier 2 Area
    - Tier 2 includes all lands within the following agricultural zone districts that are not within Tier 1 and are Zoned A or A-1

Permitting

- Tier 3 Area
  - Tier 3 is shown as zone districts where historic drilling activity have been or could have been approved as “Unrestricted” or “Ministerial” under the existing Zoning Ordinance, and those areas that are not categorized as Tiers 1 or 2

- Tier 4 Area
  - Tier 4 consists of all zone districts where oil or gas exploration and production activities are currently or proposed to be allowed with a CUP

Permitting

- Tier 5 Area
  - Tier 5 are areas include current and future Specific Plan boundaries either adopted with a SP Zone District or include specific provisions for oil and gas. Oil or gas activities would be allowed with a CUP or as permitted by the regulations contained within the adopted Specific Plan(s)

- Non-Jurisdictional and Prohibited Use Areas
  - Areas where Kern County currently does not have land use authority, including lands under jurisdiction of the Federal Government, State of California, and incorporated cities. Also includes OS Zoned Land where use is prohibited

Permitting (Tier Map)

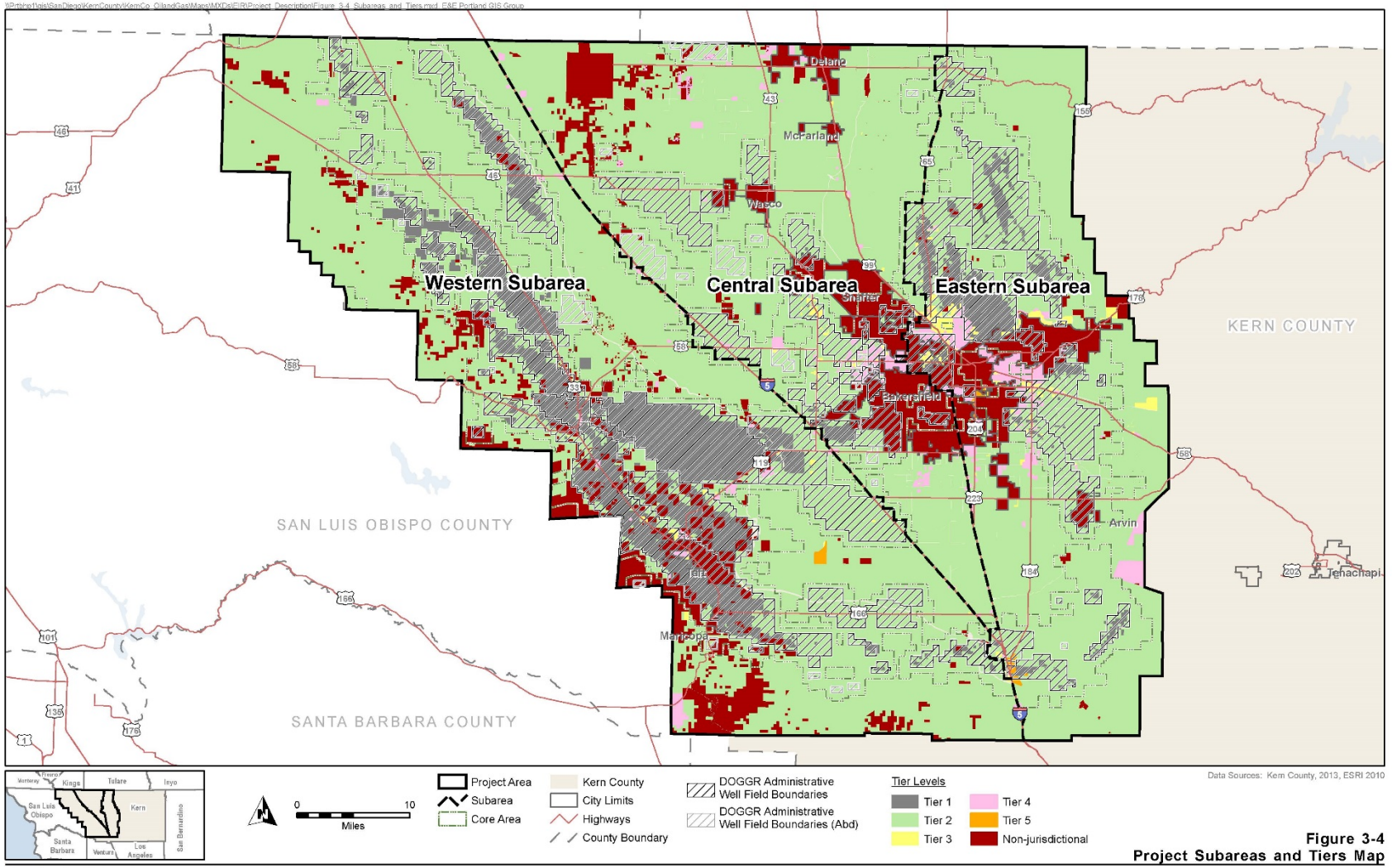


Figure 3-4
Project Subareas and Tiers Map

Admin. Draft Environmental Impact Report
Amendment to Chapter 19.98 (Oil and Gas Production) - Kern County Zoning Ordinance

June, 2015

General Over View

- Oil and Gas Conformity Review
- One Pathway – Tier 1
- Two Pathways – Split Estate – Tier 2,3,5
- Notification of Surface Owner in all pathways
- Signature of Surface Owner required on Site Plan for Tier 2, 3 and 5.

Permitting

- Oil and Gas Conformity Review Process
  - 30 days before – notify surface owner
  - 1st Review – 7 business days
  - 2nd Review - 3 business days
  - 3rd Review – mandatory in-person meeting for assistance
  - Self Certification of compliance
  - Prior to any activity covered – operator to have both Kern County permit and DOGGR permit

Permitting

- Minor Activity Review Process
  - 1st Review – 7 business days
  - 2nd Review - 3 business days
  - 3rd Review – mandatory in-person meeting for assistance
  - Self Certification of compliance
  - Prior to any activity covered – operator to have both Kern County permit and DOGGR permit [and other applicable permit(s), e.g., from Air District or Water Board]

Split Estate

- Private Land:
  - Surface owner and mineral owner different
- Private Land:
  - Surface owner owns surface down to 500 feet, or Mineral owner different but does not own surface
- Private/Federal Land:
  - Surface owner owns private surface
  - Federal government owns minerals (BLM)

Surface Owners Concerns

- Failure to contact the owner for discussions
- O&G site plans fail to accommodate surface operations
- Lack of maintenance of operations during and after construction
- Disagreement with O&G operators and DOGGR over management and definition of Idle and Abandoned wells

Industry Concerns

- Additional time and money to obtain County permits
- Giving surface owners more rights than are allowed by law that impede the mineral owners right to drill
- After full compliance with all standards allowing for more opportunities to add uncertainty to process.

Split Estate

No signature on Site Plan (Tier 2,3, 5)

- Oil and Gas Conformity Review Process
  - 30 days before – notify surface owner
    - (runs concurrently with state law Civil Code notice requirement)
  - 1st Review – 30 calendar days
    - Invitation for educational meeting with Surface Owner
  - 2nd Review - 30 calendar days

Split Estate

No signature on Site Plan (Tier 2, 3 and 5)

- Permit Issued –30 Calendar Day Waiting period
- Building inspector on site for compliance as well as expert consultants as needed – all costs paid by applicant.
- At any time – surface owner signature = 7 day permit review or self-certification
- Prior to any activity covered – operator to have both Kern County permit and DOGGR permit

- Minimum 120 Day pathway without signature
  - (90 days longer than required for compliance with state Civil Code notice requirement)

Small Producers Assistance

- 1 to 3 wells in a calendar year
  - Not a subsidiary of a larger company that drills more than 3 wells per year
- Handbook explaining all steps and include examples to use
- County Consultant – standard cost per acre for biology, cultural, drainage and even site plan prep – optional

Contacts

- Draft Zoning Ordinance available on Planning Website:
- http://pcd.kerndsa.com/planning/oil-gas-zoning-amendment
- http://pcd.kerndsa.com/planning/environmental-documents/421-oil-gas-deir

- Send Comments to:
- Planning and Community Development Department
  - ATTN: Christopher Mynk, AICP
  - 2700 M Street
  - Bakersfield, CA 93301
  - MynkC@co.kern.ca.us
  - (661) 862-8607

Revisions to the Kern County Zoning Ordinance, 2015 C

Oil and Gas Activities

Joint Briefing Workshop

Lorelei H. Oviatt, AICP
Director
Kern County Planning
And Community Development Department

July 27,2015

California Environmental Quality Act CEQA

- TO INFORM Decision makers about significant environmental effects
- TO IDENTIFY ways environmental damage can be avoided
- TO PREVENT avoidable environmental damage
- TO DISCLOSE to the public why a project is approved even if it leads to environmental damage

Process

- Notice of Preparation
  - Circulated on August 30, 2013
  - Workshops Held in:
    - Bakersfield
    - Taft
    - Lost Hills
    - Shafter

Draft EIR

- State Clearinghouse Number: 2013081079

- Review Period: July 8, 2015 – August 24, 2015
- Draft EIR available on Planning Website:
  - http://pcd.kerndsa.com/planning/oil-gas-zoning-amendment
  - http://pcd.kerndsa.com/planning/environmental-documents/421-oil-gas-deir

Ministerial Permits

- CEQA applies to any action when a project requires discretionary approval by a state or local governmental body.
- Projects may also require ministerial approvals that must comply with general plans and local ordinances such as building permits or marriage licenses.
- These ministerial permit approvals cannot be denied as long as the proponent meets the specifications detailed in the permit or license requirements, including applicable CEQA mitigation measures.
- CEQA does not apply when only ministerial approval is necessary. Under the proposed ordinance amendments, most O&G activities will require ministerial permits including compliance with County ordinance and EIR mitigation measures, and compliance with other laws

DEIR Contents

- 2 Volumes (Chapters 1-11) and Appendices
  - Project-Level Analysis
- Baseline = 2012
- Maximum New Wells per Year: 3647
- Average New Wells: 1800-2000

Agricultural Resources
Chapter 4.2

- Total Acres of Prime/Unique/Statewide Farmland in Tier 2: 828,973
- Maximum Acres of Conversion per Year: 298
- Maximum Acres of Conversion in Tier 2 (25 Years): 7,450

Agricultural Resources

Chapter 4.2

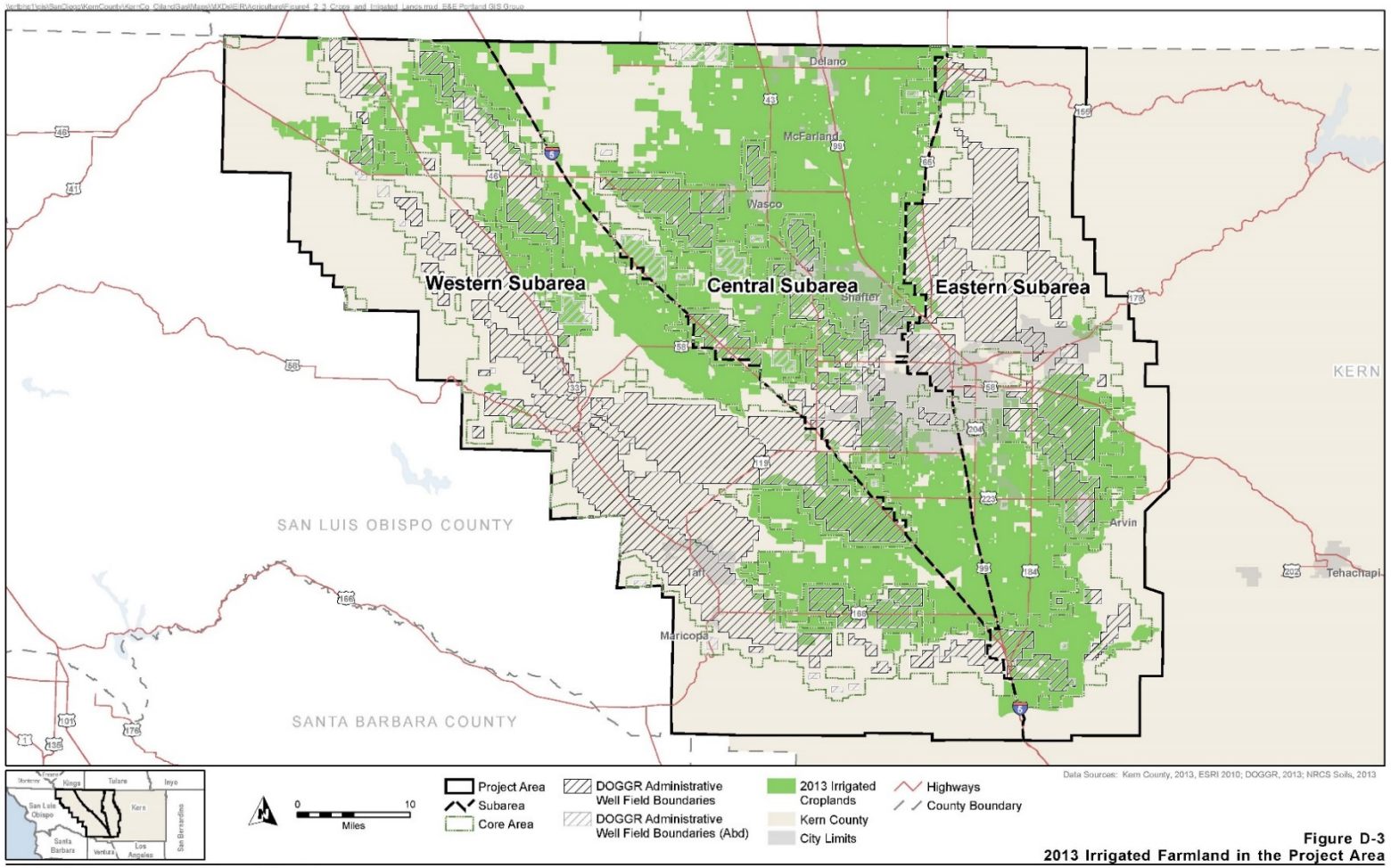


Figure D-3
2013 Irrigated Farmland in the Project Area

Agricultural Resources
Chapter 4.2

- Mitigation Measures
  - Minimize ag land disturbance (e.g., use existing roads)
  - Require Compensation of Loss of Ag Land at a Ratio of 1:1
  - Protection of Crops From:
    - Surface Water Runoff
    - Stormwater Control
    - Spill Prevention
    - Dust
- Level of Significance:
  - Project Level: Less Than Significant with Mitigation
  - Cumulative: Significant and Unavoidable

Air Quality
Chapter 4.3

- Criteria Pollutants (Tons per Year):
  - ROG – 11,551 (2016) to 14,300 (2035)
  - NOx – 22,281 (2016) to 16,658 (2035)
  - PM^{10} – 2,747 (2016) to 3,358 (2035)

- Criteria Pollutants (Tons per Well, Max 3647 Wells/per Year): 3.22 (2016) to 2.12 (2035)

Air Quality
Chapter 4.3

- Mitigation Measures
  - Reduction in criteria pollutants through:
    - Dust minimization measures
    - Payment of fees or completion of applicant initiated programs, both through an Emission Reduction Agreement (ERA)

- Level of Significance:
  - Project Level: Less Than Significant with Mitigation, Significant and Unavoidable for Odors
  - Cumulative: Significant and Unavoidable

Green House Gas Emissions

Chapter 4.7

- Project Annual GHG Emissions (CO_{2e}/Year): 25.96 Million Metric Tons
- Methane emissions will be limited by new CARB Rules expected to be adopted by end of 2015
- Project Annual GHG Emissions (Tons per Well): 6500
- Covered Emissions of 25,000 MT or more of CO_2e per data year are covered under the Cap-and-Trade Program

Green House Gas Emissions

Chapter 4.7

- Mitigation Measures
  - Oil and Gas Facilities not exceeding may voluntarily opt-in to Cap-and-Trade
  - Reduction in criteria pollutants through payment of fees or completion of applicant initiated programs, both through an Emission Reduction Agreement (ERA)

- No Net-Increase of GHG Emissions (e.g., through ERA) for emissions not subject to Cap-and-Trade)

- Level of Significance:
  - Project Level: Less Than Significant with Mitigation, Significant and Unavoidable for Conflicts with GHG policies
  - Cumulative: Significant and Unavoidable

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Management and Mitigation
- Pipelines
  - Identify All Proposed and Existing Pipelines
  - Provide Integrity Testing and future monitoring for Lines within 200 Feet of A Sensitive Receptor
- Well Stimulation
  - Comply with all New State Regulations (SB4)

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Noise
  - Identify all Sensitive Receptors (Residences, Schools, Churches, Hospitals, etc.) within 3,000 feet of Drilling pad
- Well Placement a minimum of 190 Feet from Sensitive Receptors
  - Provide Noise Analysis for Deeper Drilling Activity

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Health Risk Assessment
  - Identify all Sensitive Receptors within 3,000 feet of Drilling
  - Well Placement a minimum of 367 Feet from Sensitive Receptors for Wells over 10,000 Deep

- Fire
  - First 2000 wells drilled for industrial firefighting vehicle (not to exceed $850,000)

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Sheriff
  - Per well for funding for County Sheriff's Department for the Rural Crimes Unit
- Transportation and Traffic
  - Payment per well for roads maintenance of roads utilized by the oil and gas industry
- Level of Significance:
  - Project Level: Less Than Significant with Mitigation
  - Cumulative: Less Than Significant with Mitigation

Estimated Permitting Costs Per Well

- County Permit Fees $1190
- Sheriff Mitigation $425
- Fire equipment $150 (2- 3 years only)
- Traffic $1500

$3265 per well

Variable:

Air – Emissions reductions - $16,459 to $8,000 to ??

Biology - $3200 to $1200 to ?? a newly disturbed acre

Loss of Ag Land - $2500 to $1200 an acre

Water

Chapters 4.9, 4.17

- Cumulative Over Draft in a Single-Dry Year:
  - 750,710 AF (2015) to 817,127 AF (2035)

- Project M&I Water Demand (per Year)
  - 9,660 AF (2015) to 11,760 AF (2035)

- Produced Water Generated (per Year)
  - 125,877 AF (2012)
- Water Used for Well Stimulation: 589 AF
- Total Well Stimulations from 2011-2014:1986

Water

Chapters 4.9, 4.17

- Mitigation Measures
  - Prepare drainage Plans for Potential Run-off
  - Injection Activities subject to Underground Injection Control
  - Oil and Gas Applicants to increase re-use of Produced Water with appropriate treatment and monitoring
  - Coordination/Participation with County on formation Groundwater Sustainability Agency and Plan

- Level of Significance:
  - Project Level: Significant and Unavoidable
  - Cumulative: Significant and Unavoidable

Biological Resources
Chapter 4.4

- Estimated New Disturbance (Acres/Year): 4,856

- Mitigation
  - Reduction in potential take of a protected species through:
    - Worker Education
    - Avoidance and Minimization
    - Preconstruction surveys
    - Habitat compensation at a ratio of ½:1 to 1:1

Biological Resources

Chapter 4.4

- Tools
  - Valley floor HCP and Potential NCCP – In progress
  - DataBasin - Website displays resource information along with other special data within the Project Area. Website is a science-based mapping and analysis platform that supports learning, research, and sustainable environmental stewardship (www.databasin.org)

- Level of Significance:
  - Project Level: Less Than Significant with Mitigation
  - Cumulative: Significant and Unavoidable

Cultural Resources
Chapter 4.5

- Estimated archeological density of one site per 53 Acres within Project Area
- Native American archeological density of one site per 463 Acres within Project Area
- Mitigation
  - Reduction in destruction of potentially significant cultural remains or artifacts through:
    - Worker education
    - Preconstruction surveys
- Level of Significance:
  - Project Level: Less Than Significant with Mitigation
  - Cumulative: Significant and Unavoidable

Alternatives
Chapter 6.0

- **Alternatives Eliminated from Further Consideration**
- Eight were eliminated from further consideration found to be infeasible or failed to meet project objectives. Include:
  - Drilling Ban on Agriculturally Productive Land
  - Drilling Ban on All Lands
  - Larger Project Area
  - More Well within Project Footprint
  - Fewer Wells within the Project Footprint
  - Offsite, Renewable Energy (Wind and Solar
  - Zero Net Gain

Alternatives

Chapter 6.0

- **Alternatives Analyzed in the EIR**
  - Alternative 1: No Project Alternative
  - Alternative 2: Conditional Use Permit Required Alternative
  - Alternative 3: Reduced Ground Disturbance Alternative
  - Alternative 4: No Hydraulic Fracturing Alternative
  - Alternative 5: Low-Emission Enhanced Oil Recovery Alternative
  - Alternative 6: Recycled Water Alternative

- **Environmentally Superior Alternative**
  - Alternative 5, the Low-Emission Enhanced Oil Recovery

Findings

CEQA Sections 15091, 15093 and 15097

- Presented in Staff Reports
- 15091 – Findings of Fact
- 15093 - Statement of Overriding Considerations
- 15097 - Mitigation Monitoring and Reporting Program

Review and Public Comment

- Workshops: July 27, August 10 – Shafter, August 17 - Taft
- All Comments Accepted in Record Until Final Decision
- Planning Commission – Oct 5, 2015 (5:00 pm)
- Board of Supervisors – End of Year

Contacts

- Draft EIR available on Planning Website:
- http://pcd.kerndsa.com/planning/oil-gas-zoning-amendment
- http://pcd.kerndsa.com/planning/environmental-documents/421-oil-gas-deir

- Send Comments to:
- Planning and Community Development Department
  - ATTN: Christopher Mynk, AICP
  - 2700 M Street
  - Bakersfield, CA 93301
  - MynkC@co.kern.ca.us
  - (661) 862-8607

Revisions to the Kern County Zoning Ordinance, 2015 C

Oil and Gas Activities

Shafter Workshop

August 10,2015

Lorelei H. Oviatt, AICP

Director

Kern County Planning

And Community Development Department

Oil and Gas Activities

- San Joaquin Valley Portion
- 2.3 Million Acres – existing and potential
- Largest oil producing county in California
- 2012- 43,000 active wells – 78% of all wells in CA
- 80% of oil and natural gas produced in state.

California State Law

- Local government controls land use through zoning
- Underground and drilling activities managed by State Division of Oil, Gas and Geothermal – DOGGR
- California Environmental Quality Act – implemented by either State or local government
- State constitution and Attorney General preempt local regulation of underground oil and gas extraction activities

Local Permitting Program Elements

- Amendments to the Kern County Zoning Ordinance Text
- New Local Permit and Process
- Environmental Impact Report = Mitigation
- New GIS Gateway and Electronic Permit System
- New Staffing + Fees
- New Programs (Small Producers Assistance, Legacy Program)

California Oil Activities Coverage

- Well Drilling
- Well Plug and Abandonment
- Groundwater Protection
- Well Stimulation
- Related Land Use Impacts on Surface

Study Area

- Project Area
  - 3700 Square Miles (2.3 million acres)
  - San Joaquin Valley Floor Portion of Kern County
  - Excludes all City/State and Federal Jurisdictions
  - Includes all State and Federal Minerals under Private Surface

- Subareas
  - Project Area Split into Three Subareas
    - Western – West of I-5 Corridor
    - Central – Between SR-99 and I-5
    - Eastern – East of SR-99

Study Area

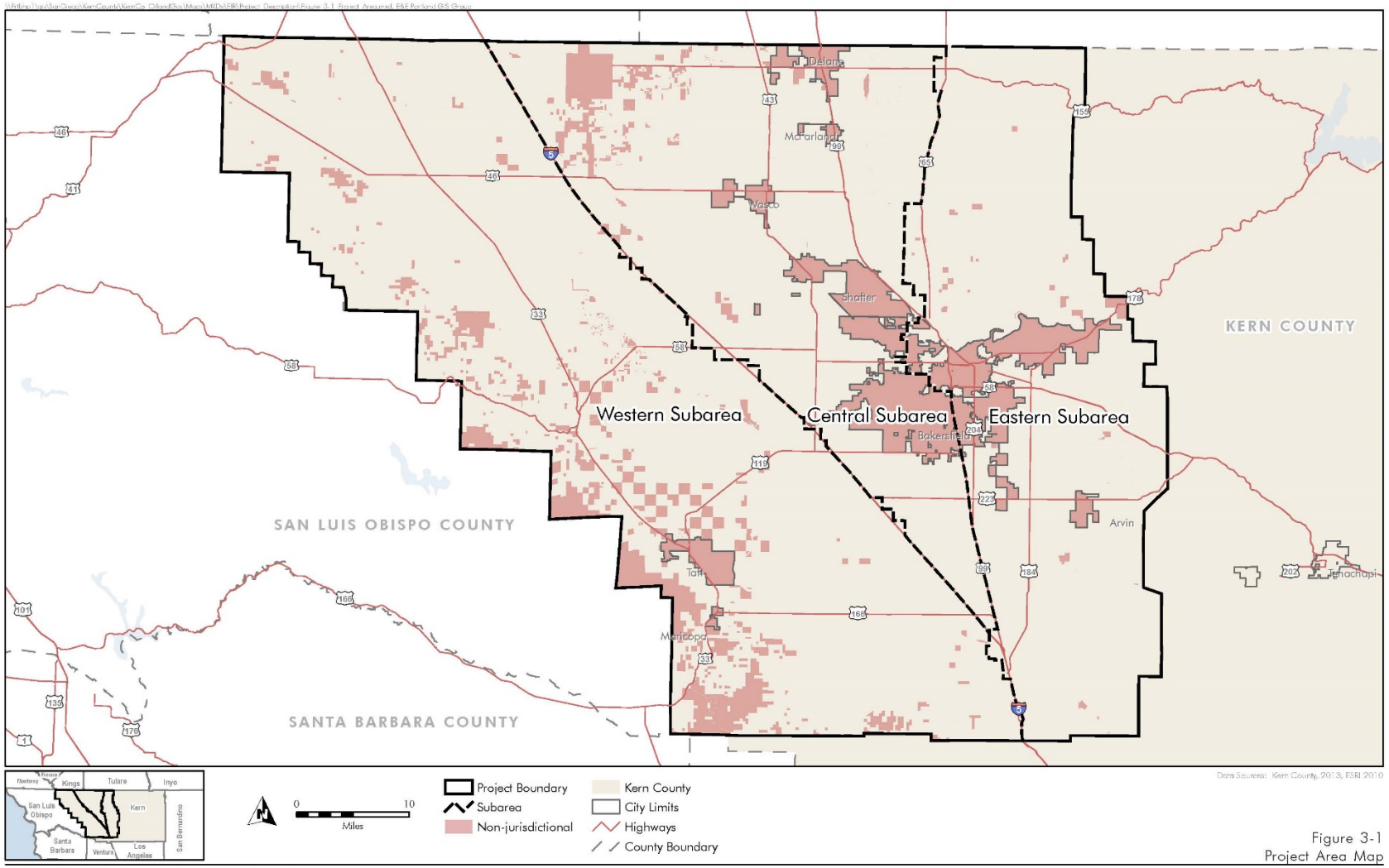


Figure 3-1
Project Area Map

Permitting

- New Tier System for Identifying Lands for Oil and Gas Activities showed as a figure in the ordinance
  - Tier 1 Area – Oil and gas primary land use
  - Tier 2 Area –mixed lands –Ag and Oil
  - Tier 3 Area – historical drilling – not in Tier 1 or 2
  - Tier 4 Area – Needs a Conditional Use Permit
  - Tier 5 Area – Specific Plan areas
  - Non-jurisdictional – Federal, State or Cities

Permitting (Tier Map)

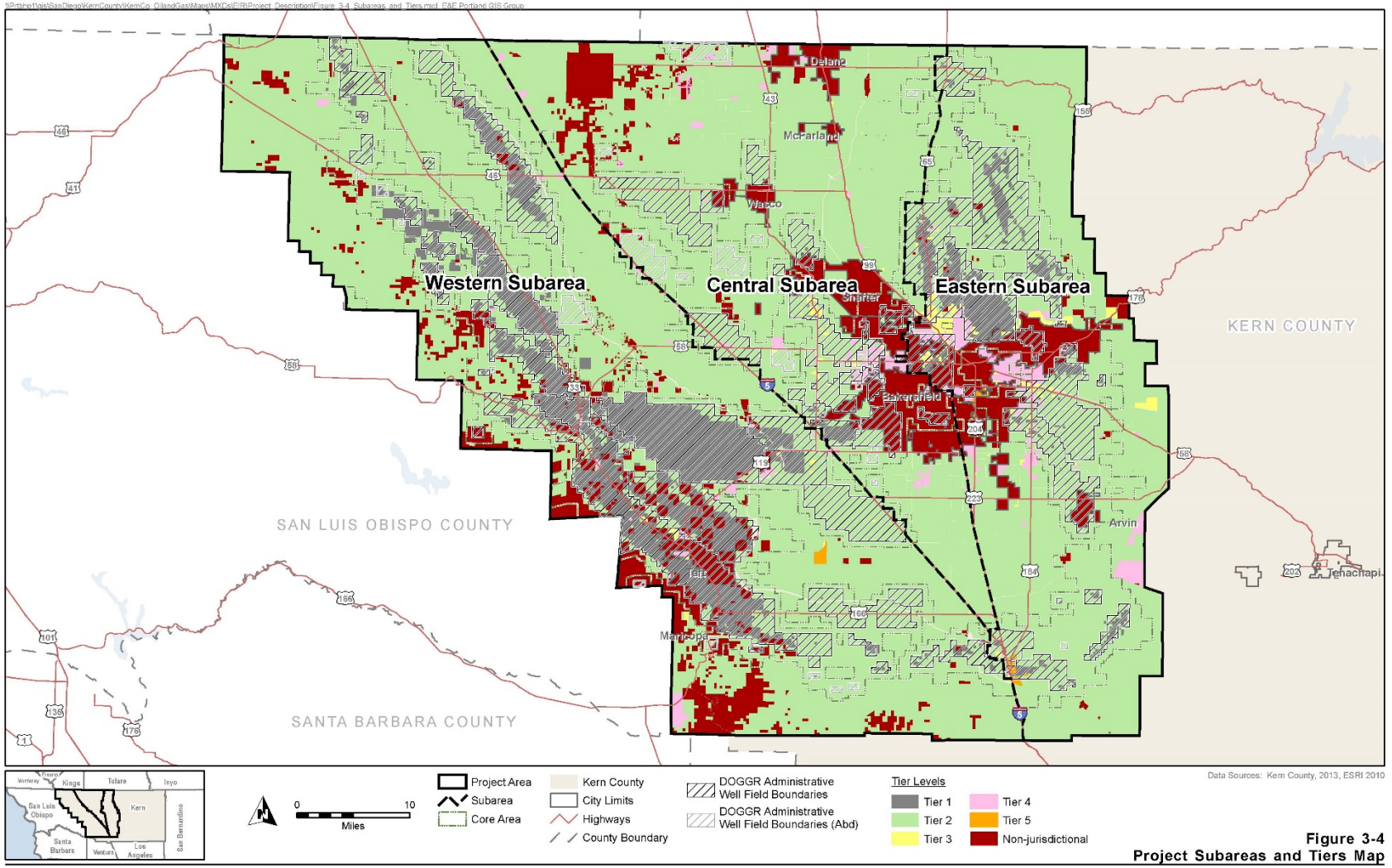


Figure 3-4
Project Subareas and Tiers Map

Admin. Draft Environmental Impact Report
Amendment to Chapter 19.98 (Oil and Gas Production) - Kern County Zoning Ordinance

June, 2015

General Over View

- Oil and Gas Conformity Review
- One Pathway – Tier 1
- Two Pathways – Split Estate – Tier 2,3,5
- Notification of Surface Owner in all pathways
- Signature of Surface Owner required on Site Plan for Tier 2, 3 and 5.

Permitting

- Oil and Gas Conformity Review Process
  - with Signature of Surface Owner (7 day + 3 day)
- Oil and Gas Conformity Review Process
  - without Signature of Surface Owner (120 days)
- Minor Activity Review
- Like a Building Permit – Checklist compliance

Split Estate

- Private Land:
  - Surface owner and mineral owner different

Private Land:

Surface owner owns surface down to 500 feet, or

Mineral owner different but does not own surface

Private/Federal Land:

Surface owner owns private surface

Federal government owns minerals (BLM)

Related Programs

- Small Producers Assistance
- Industry Education Workshops
- Surface Owners Education Workshops
- Community Education Workshops
- Legacy Oil Activity Program

California Environmental Quality Act CEQA

- TO INFORM Decision makers about significant environmental effects
- TO IDENTIFY ways environmental damage can be avoided
- TO PREVENT avoidable environmental damage
- TO DISCLOSE to the public why a project is approved even if it leads to environmental damage

Process

- Notice of Preparation
  - Circulated on August 30, 2013- Workshops

Draft Environmental Impact Report

Review Period – July 8, 2015 to Sept 11, 2015

DEIR Contents

- 2 Volumes (Chapters 1-11) and Appendicies
  - Project-Level Analysis
- Baseline = 2012
- Maximum New Wells per Year: 3647
- Average New Wells: 1800-2000

Summary Impacts

- Agricultural Resources
  - Maximum conversion per year : 298 acres = 7,450 Acres in 25 years

- Air Quality
- Criteria Pollutants (Tons per Year):
- ROG – 11,551 (2016) to 14,300 (2035)
- NOx – 22,281 (2016) to 16,658 (2035)
- PM^{10} – 2,747 (2016) to 3,358 (2035)

- Criteria Pollutants (Tons per Well, Max 3647 Wells/per Year): 3.22 (2016) to 2.12 (2035)

Oil and Gas M&I, Agricultural, and Urban M&I Average Year Demand in Study Area (AF)

	2015	2035
Oil and Gas	9,660	11,761
Agriculture	2,872,945	2,872,945
Urban M&I	237,029	301,736
Total	3,119,634	3,186,442

Summary Selected Mitigation

- AGRICULTURAL RESOURCES
- Minimize ag land disturbance (e.g., use existing roads)
- Require Compensation of Loss of Ag Land at a Ratio of 1:1
- Protection of Crops From:
  - Surface Water Runoff
  - Stormwater Control
  - Spill Prevention
  - Dust

- AIR QUALITY
  - Reduction in criteria pollutants through:
    - Dust minimization measures
    - Payment of fees or completion of applicant initiated programs, both through an Emission Reduction Agreement (ERA)

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Pipelines
  - Identify All Proposed and Existing Pipelines
  - Provide Integrity Testing and future monitoring for Lines within 200 Feet of A Sensitive Receptor
- Well Stimulation
  - Comply with all New State Regulations (SB4)

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Noise
  - Identify all Sensitive Receptors (Residences, Schools, Churches, Hospitals, etc) within 3,000 feet of Drilling pad
- Well Placement a minimum of 190 Feet from Sensitive Receptors
  - Provide Noise Analysis for Deeper Drilling Activity

Health and Safety
Chapters 4.7, 4.8, 4.12, 4.14

- Fire
  - First 2000 wells drilled for industrial firefighting vehicle (not to exceed $850,000)
- Sheriff
  - Per well for funding for County Sheriff's Department for the Rural Crimes Unit
- Transportation and Traffic
  - Payment per well for roads maintenance of roads utilized by the oil and gas industry

Water

Chapters 4.9, 4.17

- Mitigation Measures
  - Prepare drainage Plans for Potential Run-off
  - Injection Activities subject to Underground Injection Control
  - Oil and Gas Applicants to increase re-use of Produced Water with appropriate treatment and monitoring
  - Coordination/Participation with County on formation Groundwater Sustainability Agency and Plan

Alternatives
Chapter 6.0

- Alternatives Eliminated from Further Consideration
- **Alternatives Analyzed in the EIR**
  - Alternative 1: No Project Alternative
  - Alternative 2: Conditional Use Permit Required Alternative
  - Alternative 3: Reduced Ground Disturbance Alternative
  - Alternative 4: No Hydraulic Fracturing Alternative
  - Alternative 5: Low-Emission Enhanced Oil Recovery Alternative
  - Alternative 6: Recycled Water Alternative

- **Environmentally Superior Alternative**
  - Alternative 5, the Low-Emission Enhanced Oil Recovery

Review and Public Comment

- Workshops: July 27, August 10 – Shafter, August 17 - Taft
- EIR Review -60 total days – Sept 11
- Planning Commission – Oct 5, 2015 (5:00 pm)
- Board of Supervisors – End of Year

Contacts

- Draft Zoning Ordinance available on Planning Website:
- http://pcd.kerndsa.com/planning/oil-gas-zoning-amendment
- http://pcd.kerndsa.com/planning/environmental-documents/421-oil-gas-deir
- Staff Report – July 27 Workshophttp://www.co.kern.ca.us/planning/pdfs/eirs/oil_gas/oil_gas_zoning_amend_wksp_sr_072715.pdf

- Send Comments to:
- Planning and Community Development Department
  - ATTN: Christopher Mynk, AICP
  - 2700 M Street
  - Bakersfield, CA 93301
  - MynkC@co.kern.ca.us
  - (661) 862-8607

Revisions to the Kern County Zoning Ordinance, 2015 C

Oil and Gas Activities

Taft Workshop

August 17,2015

Craig M. Murphy

Division Chief

Kern County Planning & Community Development Department

Oil and Gas Activities

- San Joaquin Valley Portion
- 2.3 Million Acres – existing and potential
- Largest oil producing county in California
- 2012: 43,000 active wells – 78% of all wells in CA
- 80% of oil and natural gas produced in state.

California State Law

- Local government controls land use through zoning
- Underground and drilling activities managed by State Division of Oil, Gas and Geothermal – DOGGR
- California Environmental Quality Act – implemented by either State or local government
- State constitution and Attorney General preempt local regulation of underground oil and gas extraction activities

Local Permitting Program Elements

- Text Amendments to the Kern County Zoning Ordinance
- New Local Permit and Process
- Environmental Impact Report = Mitigation
- New GIS Gateway and Electronic Permit System
- New Staffing + Fees
- New Programs

  (Small Producers Assistance, Legacy Program)

California Oil Activities Coverage

- Well Drilling
- Well Plug and Abandonment
- Groundwater Protection
- Well Stimulation
- Related Land Use Impacts on Surface

Study Area

- Project Area
  - 3,700 Square Miles (2.3 million acres)
  - San Joaquin Valley Floor Portion of Kern County
  - Excludes all City/State and Federal Jurisdictions
  - Includes all State and Federal Minerals under Private Surface
- Subareas
  - Project Area Split into Three Subareas
    - Western – West of I-5 Corridor
    - Central – Between SR-99 and I-5
    - Eastern – East of SR-99

Study Area

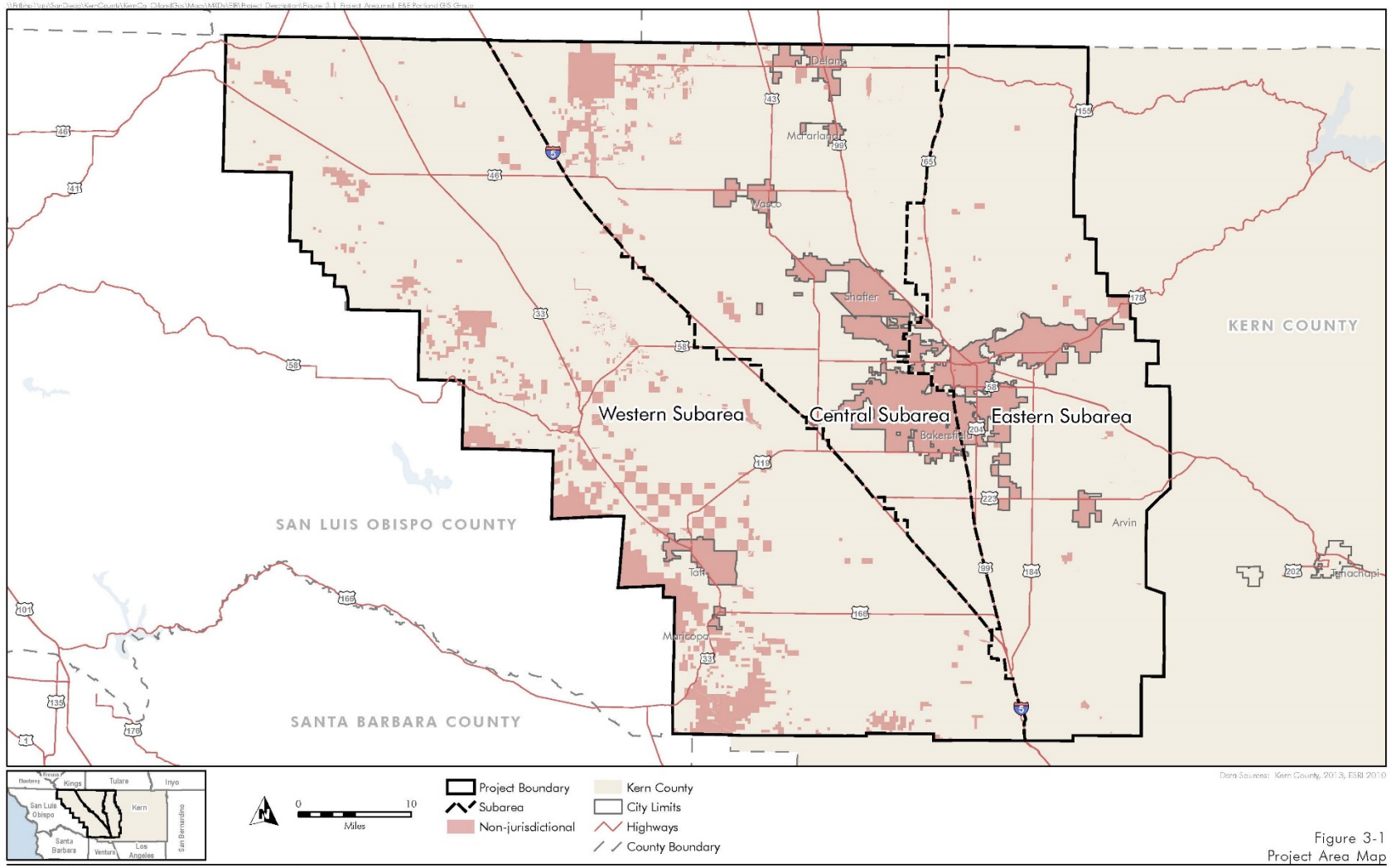


Figure 3-1
Project Area Map

Permitting

- New Tier System for Identifying Lands for Oil and Gas Activities showed as a figure in the ordinance

  - Tier 1 Area – Oil and gas primary land use
  - Tier 2 Area –mixed lands – Ag and Oil
  - Tier 3 Area – historical drilling – not in Tier 1 or 2
  - Tier 4 Area – Needs a Conditional Use Permit
  - Tier 5 Area – Specific Plan areas
  - Non-jurisdictional – Federal, State or Cities

Permitting (Tier Map)

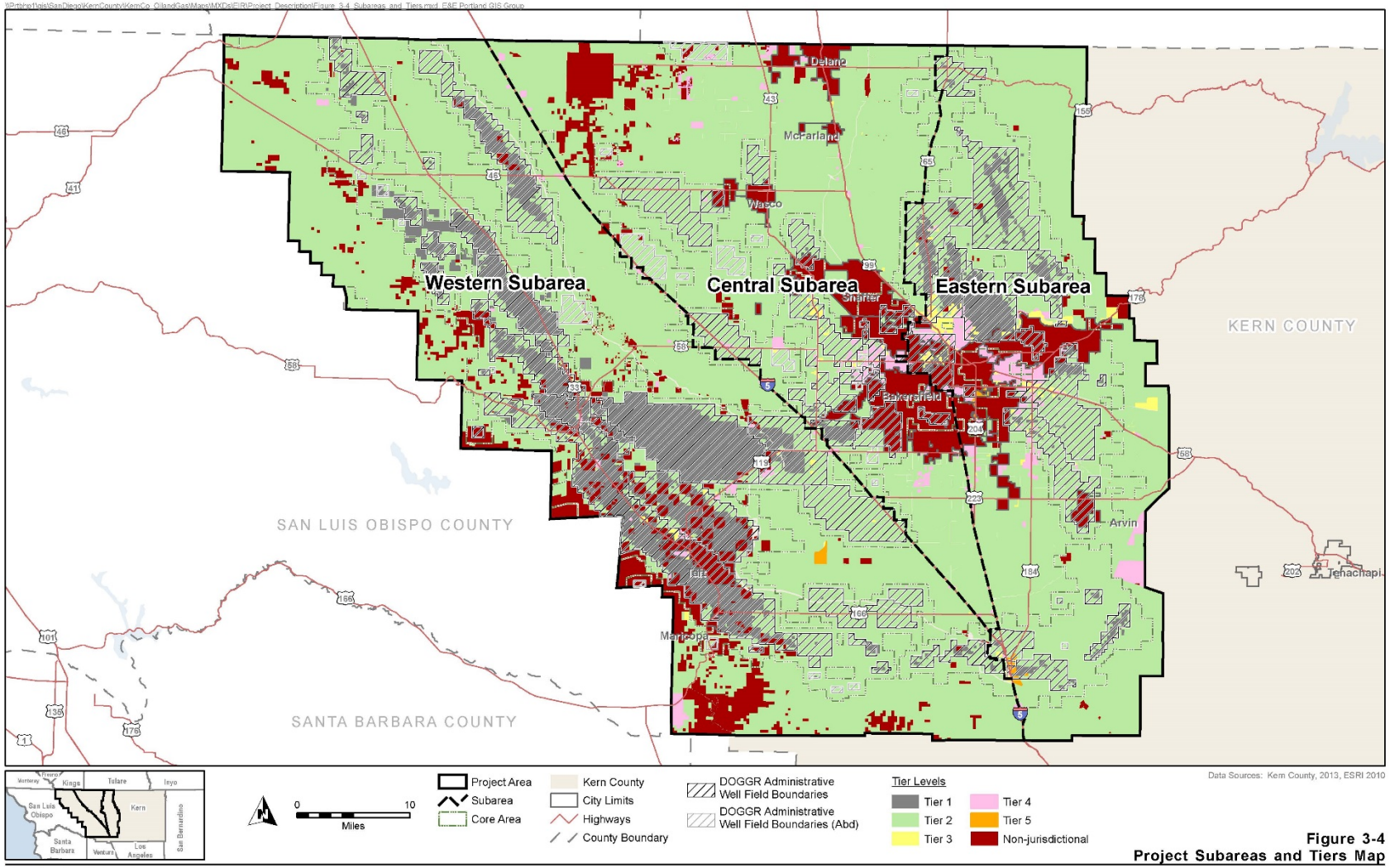


Figure 3-4
Project Subareas and Tiers Map

General Overview

- Oil and Gas Conformity Review
- One Pathway – Tier 1
- Two Pathways – Split Estate – Tier 2,3,5
- Notification of Surface Owner in all pathways
- Signature of Surface Owner required on Site Plan for Tier 2, 3 and 5

Permitting

- Oil and Gas Conformity Review Process
  - with Signature of Surface Owner (7 day + 3 day)
- Oil and Gas Conformity Review Process
  - without Signature of Surface Owner (120 days)
- Minor Activity Review
- Like a Building Permit – Checklist compliance

Split Estate

- Private Land:
  - Surface owner and mineral owner different

Private Land:

Surface owner owns surface down to 500 feet, or

Mineral owner different but does not own surface

Private/Federal Land:

Surface owner owns private surface

Federal government owns minerals (BLM)

Related Programs

- Small Producers Assistance
- Industry Education Workshops
- Surface Owners Education Workshops
- Community Education Workshops
- Legacy Oil Activity Program

California Environmental Quality Act (CEQA)

- TO INFORM Decision makers about significant environmental effects
- TO IDENTIFY ways environmental damage can be avoided
- TO PREVENT avoidable environmental damage
- TO DISCLOSE to the public why a project is approved even if it leads to environmental damage

Process

- Notice of Preparation
  - Circulated on August 30, 2013 – Workshops
- Draft Environmental Impact Report
  - Review Period – July 8, 2015 to September 11, 2015

DEIR Contents

- 2 Volumes (Chapters 1-11) and Appendicies
  - Project-Level Analysis
- Baseline = 2012
- Maximum New Wells per Year: 3,647
- Average New Wells: 1,800 - 2,000

Summary Impacts

- Agricultural Resources
  - Maximum conversion per year : 298 acres = 7,450 Acres in 25 years
- Air Quality
- Criteria Pollutants (Tons per Year):
  - ROG – 11,551 (2016) to 14,300 (2035)
  - NOx – 22,281 (2016) to 16,658 (2035)
  - PM^{10} – 2,747 (2016) to 3,358 (2035)
  - Criteria Pollutants (Tons per Well, Max 3,647 Wells/per Year): 3.22 (2016) to 2.12 (2035)

Oil and Gas M&I, Agricultural, and Urban M&I Average Year Demand in Study Area (AF)

	2015	2035
Oil and Gas	9,660	11,761
Agriculture	2,872,945	2,872,945
Urban M&I	237,029	301,736
Total	3,119,634	3,186,442

Summary Selected Mitigation

- AGRICULTURAL RESOURCES
- Minimize ag land disturbance (e.g., use existing roads)
- Require Compensation of Loss of Ag Land at a Ratio of 1:1
- Protection of Crops From:
  - Surface Water Runoff
  - Stormwater Control
  - Spill Prevention
  - Dust

Summary Selected Mitigation

- AIR QUALITY
  - Reduction in criteria pollutants through:
    - Dust minimization measures
    - Payment of fees or completion of applicant initiated programs, both through an Emission Reduction Agreement (ERA)

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Pipelines
  - Identify All Proposed and Existing Pipelines
  - Provide Integrity Testing and future monitoring for Lines within 200 Feet of A Sensitive Receptor
- Well Stimulation
  - Comply with all New State Regulations (SB4)

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Noise
  - Identify all Sensitive Receptors (Residences, Schools, Churches, Hospitals, etc) within 3,000 feet of Drilling pad
  - Well Placement a minimum of 190 Feet from Sensitive Receptors
  - Provide Noise Analysis for Deeper Drilling Activity

Health and Safety

Chapters 4.7, 4.8, 4.12, 4.14

- Fire
  - First 2000 wells drilled for industrial firefighting vehicle (not to exceed $850,000)
- Sheriff
  - Per well for funding for County Sheriff's Department for the Rural Crimes Unit
- Transportation and Traffic
  - Payment per well for roads maintenance of roads utilized by the oil and gas industry

Water

Chapters 4.9, 4.17

- Mitigation Measures
  - Prepare drainage Plans for Potential Run-off
  - Injection Activities subject to Underground Injection Control
  - Oil and Gas Applicants to increase re-use of Produced Water with appropriate treatment and monitoring
  - Coordination/Participation with County on formation Groundwater Sustainability Agency and Plan

Alternatives
Chapter 6.0

- Alternatives Eliminated from Further Consideration
- **Alternatives Analyzed in the EIR**
  - Alternative 1: No Project Alternative
  - Alternative 2: Conditional Use Permit Required Alternative
  - Alternative 3: Reduced Ground Disturbance Alternative
  - Alternative 4: No Hydraulic Fracturing Alternative
  - Alternative 5: Low-Emission Enhanced Oil Recovery Alternative
  - Alternative 6: Recycled Water Alternative
- **Environmentally Superior Alternative**
  - Alternative 5, the Low-Emission Enhanced Oil Recovery

Review and Public Comment

- Workshops: Bakersfield, Shafter & Taft
- EIR Review - 60 total days – September 11, 2015
- Planning Commission – October 5, 2015 (5:00 pm)
- Board of Supervisors – End of Year

Contacts

- Draft Zoning Ordinance available on Planning Website:
- http://pcd.kerndsa.com/planning/oil-gas-zoning-amendment
- http://pcd.kerndsa.com/planning/environmental-documents/421-oil-gas-deir
- Staff Report – July 27 Workshophttp://www.co.kern.ca.us/planning/pdfs/eirs/oil_gas/oil_gas_zoning_amend_wksp_sr_072715.pdf

- Send Comments to:
- Planning and Community Development Department
  - ATTN: Christopher Mynk, AICP
  - 2700 M Street
  - Bakersfield, CA 93301
  - MynkC@co.kern.ca.us
  - (661) 862-8607

Kern County Zoning Ordinance Amendment
Public Workshop Notes

Kern County Administrative Building (July 27, 2015)
City of Shafter Veteran's Hall (August 10, 2015)
City of Taft Veteran's Hall (August 17, 2015)

July 27, 2015

Attendance: Approximately 250

- Concerned about extension of time response
- More than 2 years of work effort to get the document out
- New costly requirements that were not previously in place to obtain a streamlined processing permit structure
- Conservative measures in EIR result in a more proactive mitigation approach as opposed to individual analysis on a case by case basis
- If we say no to hydrologic fracturing, we say no to the future
- Uncertainty in business is a killer
- Government should not make uncertainty worse
- Transparency in the DEIR is important
- Can public sign up to receive upcoming notices
- Not all surface owners have money. Can the County have a program to support these smaller land owners
- Hopefully this plan will provide for the health of the community
- Additional time needed to review the document
- Oil industry has always been responsive and consensus in addressing concerns
- Due to contributions from the oil industry the Grossman Facility was constructed - 3,000 patients
- AIS Cancer Center – Transportation fund started by oil company contributions
- This process is a leap forward in locally controlling our own future
- Measures aggressively protect the environment and the health of the public
- Please discount those who seek to destroy the oil industry
- Hydrocarbons supply everything we use daily in our life
- Industry is at a critical junction
- If oil industry is not drilling, only 20% of workforce is needed
- New fees should be a tax credit
- Industry currently replaces old equipment as part of their project processing. Oil fields are very clean. Incentive to convert to clean fuels
- Water – Important to Kern County. Solar Cycle (drought every 11 years)
- 50,000 local jobs and millions in economic benefits
- Strongest nonprofits in the State are due to the quality of the oil industry representatives who serve on local nonprofit Boards
- Companies & Employees involved in the American Red Cross support many of their programs
- General Fund is very dependent on oil industry. When Oil Industry Gets a Cold, Local Governments get pneumonia
- Kern County is facing an unprecedented challenge and economic opportunity
- 15,000 people have received training from BIA at local training facility
- 12 million private citizens own mineral reserves nation-wide
- Mineral owners can't move their minerals. They rely on leases with producers
- Competing for dollars statewide is always a challenge for Kern County

- Interested in having local monies available to address local concerns
- Legal parameters for local government to participate in the split ownership negotiations
- Permit process must remain ministerial so CEQA does not apply. Local participation could turn the process discretionary.
- County's role is to ensure due process per any adopted ordinance, including enforcement. Substantial upgrade to current process required under law.
- Self-certification should have some protection for the surface owner. Absence of comment does not mean approval and/or agreement
- Maximum cap for wells drilled. How does this document account for variable changes to this cap
- How do we deal with what the responsibilities are when the environment changes and drilling wells are not needed
- What role does our participation play in the larger scheme of things? Can other agencies still deny permits
- Regarding Air District, Millions of $$$ will be required. How do we make sure that Kern County will enjoy the benefits of those dollars and not other jurisdictions
- How will the County treat existing agreements as they relate to new wells

August 10, 2015

Attendance: Approximately 300

- This EIR if approved will provide mitigation to Ag loss, additional mitigation to noise, funding of road maintenance
- DEIR appears fair and balanced to all stakeholders, Local control over oil industry, oil industry helps contribute to Kern County's ranking as #1 to upward mobility, provides light- blue collar jobs
- Oil industry makes up 35% of Kern County's economy, 1 oil job creates up to 17 additional support jobs
- Oil and gas produces critically important hydrocarbons which support our everyday quality of life, even supporting so-called green energy industries
- This DEIR appears scientifically factual, if approved will protect local jobs, if approved will help protect local tax dollars by providing a secure operating environment to the oil industry
- If this EIR is approved this will allow both Oil and Ag industries to work together more effectively
- Oil industry has impacted families in positive ways by providing high paying, good quality jobs
- Having a productive hydrocarbon industry reduces California's dependence on foreign oil, creates tax dollars for the public benefit
- The oil industry already operates in a safe manner but if the EIR is approved it would only improve public confidence
- The changes in the zoning ordinance if approved with provide the oil industry with stability and confidence in a structured permitting process
- If the zone changes are approved would ensure local economic stability, the oil industry would be able to continue to invest in the community, by donating to education programs and job training. Support and open and transparent dialog
- If the zone changes approved it would promote capital investments in local communities, helps ensure process improvements in the oil industry, aids in streamlining the permitting process

- Hydrocarbons are impact everything in our daily live from cars, to homes, to medicine. Hydrocarbons are the foundation of our modern civilization. Without is our modern lives would cease to exist. If we curtail local production we would be more dependent on foreign entities
- The oil and gas industry is a major contributor to kern County
- Hispanic Chamber of Commerce – support Hispanic employees of the oil and gas industry. Jobs for latinos
- Oil and Gas has been a major contributor to Kern County. Board of Supervisors has always been supportive. Need ministerial permitting, Limit CUPs
- Still need unrestricted drilling in oil fields
- Use sound science for mitigation measures
- Leave noticing in Tier 1 for split estate.
- Add another tier for no potable ground water exists, with less monitoring wells. Since no water can be hurt in these areas
- Science is in and fracking is not safe. Governor Just came out with a study. So much beauty in Kern County, it's a shame that short cuts would endanger local citizens. Kern is fabulous, but need an open mind
- There was a great opportunity, but it's been squandered
- EIR makes it easier for Oil and that's a shame
- Not the same as a building permit
- Shame County is continuing this project
- Many health impacts. Example – Criteria pollutants will increase.
- Kern has never been in attainment of clean air act.
- DEIR says local jobs will be created, but most are not high paying jobs. Most Texas license plates.
- Entire EIR is based on jobs and revenue. Quote of EIR "Any link to growth and the project would be speculative"
- Should wait until the EIR is complete before developing regs
- Governor agreed fracking can be done safely and has been for 60 years
- This industry helps CA meet energy needs.
- No one supports getting oil from other countries that suppress women and gays
- Ag mitigation – to protect crops
- Traffic control has to be for county maintained only, not private roads
- EIR will provide stability to the oil companies and service industries
- Want to improve the economy of Kern County
- Oil Industry has invested millions in cleaning up air through changing out engines
- From an agricultural perspective, need a good relationship on split estate
- Not trying to stop you, but because of your size, you need to respect the surface owner
- Under severance deed, ag still has the right as they pay taxes and loss of revenue
- Real challenge of idle wells, issue for the community. 12000 idle wells in Kern County
- Cherry trees died because of an injection well
- Another farmer had to redrill a new water well due to chlorides being too high. DOGGR says it's a legacy issue
- EIR looks to the future, but we don't need to continue to perpetuate these issues
- Modifying the Williamson act is a bad idea, not farmer's choice to lose land to oil wells
- Ag has bad actors as well.
- Oxy did take out an idle well and restore soil, so it can be done
- Farmers are subsidizing oil and gas industry.

- Another farmer has wells that show production on it, but they are really idle
- 20-25 days of power curtailment each year in Shafter because there is not enough power
- Why are we trying to fix something that isn't broke
- Please don't make oil industry put up fences
- Maybe we need a process, but don't put in paved roads or gravel
- Oil and ag are two businesses that need each other
- Governor Brown said we have the most intelligent oil industry in the world
- What doesn't come from here, will come from somewhere else
- This EIR is a pretty throughout process. 2 years isn't greenlighting

August 17, 2015

Attendance: Approximately 300

- Oil prices are not what they once were, this EIR and the suggested mitigation is overreaching and will put a nail in the coffin of local oil production
- The County should produce a reasonable EIR with reasonable mitigation. The way it is currently being proposed local government is overreaching too much
- The existing oil fields should not be subject to
- The Oil Industry is a partner in the quality of life in Taft and Kern County. We should value this community partnership. If the oil industry is hurt by this EIR many County agencies and non-profits will suffer the consequences as well
- This County team has done a wonderful job putting this documents together and we appreciate the hard work.
- Hydrocarbons are the foundation of our modern civilization. Without hydrocarbons our modern lives would cease to exist. Even so called green industries and vehicles require hydrocarbons either to produce or to operate.
- Government should create a business friendly environment for all business to operate in
- This EIR should balance private development needs with stakeholder needs
- Recreation opportunities in Taft are supported by donations from the oil industry, if the oil industry is in decline so with the opportunities for Taft families
- This EIR and its mitigation measure should be able to balance both the needs of the oil industry and the needs of the agriculture industry
- Taft College is supported by the local oil industry, and provides opportunities for students in all courses of study
- The State and this EIR shouldn't try to solve global problems with restrictions focus only on the oil industry which would have a ripple effect on other business that benefits from a strong local economy

Appendix M

Health Risk Assessment Report (July 2015)

This page intentionally left blank.

Health Risk Assessment
Kern County DEIR –
Proposed Drilling and Oil and Gas Operations

Prepared by:

Environmental Compliance Solutions, Inc.

171 Pier Avenue #337
Santa Monica, CA 90405

June 5, 2015

Table of Contents

1.0 - PROJECT OVERVIEW 2
2.0 - HEALTH RISK ASSESSMENT OVERVIEW 2
3.0 - EXPOSURE ASSESSMENT 6
4.0 - DOSE-RESPONSE 9
5.0 - SIGNIFICANCE THRESHOLDS 10
6.0 - HEALTH RISK ASSESSMENT RESULTS 11
7.0 - REFERENCES 15

1.0 - PROJECT OVERVIEW

This Health Risk Assessment (HRA) was prepared to support the Draft Environmental Impact Report (DEIR) currently being prepared for the proposed Amendment to Title 19 – Kern County Zoning Ordinance – Chapter 19.98 for Oil and Gas Local Permitting.

This HRA evaluates potential calculated cancer risk and acute and chronic health risk from toxic emissions associated with well construction, drilling, and completion as well as oil and gas processing equipment.

Typical well construction phasing and equipment lists were provided as part of our scope of work; along with emission calculations from all well drilling equipment. All well construction emissions were assumed to occur simultaneously for worst case, conservative assumptions.

In March 2015, the state of California released a new HRA guidance document and software. This new program was used to complete this analysis. Use of the new methodology results in calculated risk three to six times higher (300% - 600%) than results for the same emissions profiles using the model previously required for use from 1990 – February 2015.

2.0 - HEALTH RISK ASSESSMENT OVERVIEW

This HRA was performed following the Office of Environmental Health Hazard Assessment (OEHHA), Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, March 2015).

As recommended by the guidelines, the California Air Resources Board (CARB) Hotspots Analysis and Reporting Program, Version 2 (HARP2) (CARB, 2015) was used to perform a refined health risk assessment for potential future drilling and operational emissions. HARP2 includes three modules: a dispersion model, an exposure/dose module and a risk module. The dispersion model incorporates the United States Environmental Protection Agency (USEPA's) AERMOD model and the risk model includes the latest changes made by the State of California to the Risk Assessment inputs.

In general, risk assessments involve four steps:

1) Emissions Estimations of Hazardous Air Pollutants;
2) Exposure Assessments;
3) Dose-response Assessments; and
4) Potential Health Risk Quantification.

Emissions Estimations of Hazardous Air Pollutants

Emission estimates involve identifying and quantifying emissions of potential regulated toxic substances from each source. OEHHA determines the relative toxicity of chemicals regulated by the State of California and determines whether or not they are carcinogenic or possibly

associated with short-term or long-term non-cancer health impacts. Toxic emissions from each source were quantified.

"Hazardous air pollutants" is a term used by the federal Clean Air Act (CAA) that includes a variety of pollutants generated or emitted by industrial production activities. HAPs are also referred to as Toxic Air Contaminants (TACs) under California law (pursuant to the Tanner Act of 1983, codified at Health and Safety Code Section 39650 et. seq.).

California listed diesel exhaust or diesel particulate matter (DPM) as a toxic air contaminant in 1998. The state of California determines the toxicity of each pollutant and assigns each a potency factor. Those factors are built into the HARP2 risk assessment mode.

The diesel particulate matter (DPM) toxicity number incorporates the cumulative health effects of all of the constituents of diesel exhaust into one risk number. Therefore, the only TAC associated with diesel equipment from well construction and completion is DPM. The primary TACs of concern for this project are diesel exhaust associated with construction equipment and drill rigs and benzene (associated with oil processing equipment).

DPM was the only set of toxic emissions analyzed from drilling operations as it accounts for 100 percent of the risk from drilling operations. Benzene accounts for approximately 94 percent of the risk from the oil processing equipment. Although the oil processing equipment scenarios did not result in off-site risk greater than 10 in one million, the risk is attributable to benzene, formaldehyde and polycyclic aromatic hydrocarbons (PAHs). All three are byproducts of natural gas combustion. Potential health effects from these compounds are summarized here.

Diesel Particulate Matter (DPM)

Respirable particles (particulate matter less than about 10 micrometers in diameter [PM_{10}]) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis, and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM_{10} and $PM_{2.5}$. For purposes of this study, all PM2.5 from diesel equipment associated with well drilling (including potential dust and mobile equipment) is conservatively assumed to be toxic diesel particulate matter. DPM represents 100% of the risk associated with well drilling as it is the only TAC expected emitted during construction.

Benzene

The primary risk driver from oil processing equipment is benzene. Benzene is naturally occurring in oil and gas. Approximately 84 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. Currently, the benzene content of gasoline is less than 1 percent.

Benzene is potentially carcinogenic and naturally occurs throughout California. Benzene also has noncancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness in humans. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene.

Formaldehyde

Formaldehyde is a colorless, flammable, chemical typically used in building materials and many household products such as pressed-wood, particle board, plywood; glues and adhesives. Formaldehyde is also naturally occurring in the environment. It is a by-product of natural gas combustion.

PAHs

The term polycyclic aromatic hydrocarbons (PAHs) refers to a group of several hundred chemically-related, environmentally persistent organic compounds of various structures and varied toxicity. Most of them are formed by a process of thermal decomposition (pyrolysis) and subsequent recombination (pyrosynthesis) of organic molecules. PAHs enter the environment through various routes and are usually found as a mixture containing two or more of these compounds, e.g. soot. They have been shown to cause carcinogenic and mutagenic effects and are potent immunosuppressants. Effects have been documented on immune system development. They are by-products of natural gas combustion.

Well Drilling Emissions

Seven phases of drilling were considered as detailed below. All particulate matter of 2.5 microns (PM2.5) was considered to be toxic diesel particulate matter.

Well depths of 2,000', 5,000' and 10,000' were evaluated. Using a very conservative approach, emissions from all seven phases were assumed to occur simultaneously. An initial year of 2015 was modeled and the final year of 2035 was modeled. For the 10,000' well, 2020 was also evaluated to account for a significant decrease in diesel exhaust emissions from drill rigs and off-road diesel engines as the next CARB regulatory limits become effective. CARB's OFFROAD emissions estimate model was used to calculate emissions from the primarily mobile and off-road diesel equipment. CARB has extensive regulations for diesel equipment with future compliance dates that will result in significant emission reductions of PM2.5 over time. CARB's OFFROAD model can only project emissions to 2029 based on today's available engine technologies. As a result, all emissions between 2029 – 2035 are assumed to be the same.

For this analysis, the following sources were included for evaluation:

- Well drilling (all aspects of construction, well drilling and completion) for a 2,000', 5,000' and 10,000' well.

Each well evaluation consists of the following phases:

- Land Preparation;
- Drilling Survey;
- Well Drilling;
- Well Completion;
- Well Flowline;
- Pump Unit; and
- Electrical.

Numbers and types of equipment associated with each well depth are listed below. An exact equipment list for each of the seven phases and their associated emissions is included as Appendix B.

Both drilling and operational emissions are assumed to occur along a fenceline shared by an oil producer and a private resident.

Table 1 – Equipment Associated with Well Construction, Drilling and Completion*

Depth Feet	Number of Trucks	Off-Road Construction Equip.	Drill Rig HP totals	Drilling Days
10,000	9	45	3 rigs at 1,040HP each	23
5000	9	45	3 rigs at 440HP each	8
2000	9	45	3 rigs at 440HP each	4

*As previously noted, this equipment is for the combined operation of all seven phases of construction, drilling and completion.

Table 2 – Emissions Associated with Well Construction, Drilling and Completion

Depth Feet	Year[1]	Total PM2.5[2] pounds	Annual PM2.5[3] pounds	Days[4]
10,000	2015	516.89	17.23	23
10,000	2018	444.00	14.8	23
10,000	2035	151.83	5.06	23
5000	2015	171.18	5.71	8
5000	2035	35.86	1.20	8
2000	2015	97.12	3.24	4
2000	2035	20.42	0.68	4

[1]2029-2035 emissions are the same.
[2]From Vector Environmental Spreadsheet titled "DRL_EMISSIONS.xlsx", worksheet "EMF".

[3]Total emissions divided by 30 years per OEHHA's HARP2 exposure duration requirements.
[4]From Vector Spreadsheet titled "DRL_EMISSIONS.xlsx", worksheet "MUD".

Operational Equipment Emissions

Maximum daily and annual emissions were also quantified from an oil processing facility and a natural gas combustion facility. The equipment list and parameters was provided as part of our Scope of Work.

Oil Processing Equipment

Emissions from the following equipment were analyzed in the oil processing scenario:

- Two – 1,000 Bbl above-ground tanks;
- One – 3,000 Bbl above-ground tank;
- One 10 MMBtu/hour Flare;
- Truck loading rack;
- Fugitive emissions from valves, flanges, and one underground sump; and
- Thermally enhanced oil recovery (TEOR) equipment.

Natural Gas Combustion Equipment

Emissions from the following natural gas combustion equipment were analyzed in the natural gas scenario:

- One new 100 MMBtu/hour flare;
- One – 8 MMBtu/hour Process Heater;
- One – 10 MMBtu/hour Boiler;
- One – 85 MMBtu/hour Steam Generator; and
- One – 33 MW Cogeneration Plant.

Potential toxic emissions from each of these sources are summarized in Appendix A.

3.0 - EXPOSURE ASSESSMENT

Exposure assessment includes air dispersion modeling, identification of emission exposure routes and estimation of exposure levels. The modeling estimates ground level concentrations based on an emission rate of one gram per second. This rate is then multiplied by the worst case potential emission rate for each substance to obtain ground level concentrations. In addition to inhalation, potential pathways of exposure to offsite receptors include dermal exposure and ingestion.

HARP2 incorporates the USEPA AERMOD (v14134) model. AERMOD predicts resulting cumulative concentrations from various emission sources. The rural setting was selected in AERMOD for this analysis. AERMOD's terrain processor, AERMAP, was used to incorporate

actual terrain elevations for sources and receptors. Five years of meteorological data required for AERMOD was obtained from the San Joaquin Valley Air Pollution Control District (SJVAPCD). Bakersfield station 23155 was used for this analysis.

Three different locations within Kern County were assessed in order to capture various terrain characteristics within Kern County.

These areas were previously determined as being representative of various aspects of the county and were included as part of our Scope of Work: Western, Central and Eastern Kern County.

- Western Subarea – Midway Sunset Oilfield
- Central Subarea – No. Shafter Oilfield
- Eastern Subarea – Kern River Oilfield

Terrain in the Central Subarea is relatively flat, and modeling results would best represent dispersion characteristics with minimal terrain disturbances. More site location and terrain specific influences were observed in the Western Subarea and even more in the Eastern Subarea. Sufficient analysis of different factors that affect dispersion and other modeling inputs were covered by modeling three separate areas within Kern County. The rural setting in AERMOD was selected and the model selects the terrain variability based on real-world conditions.

Table 3 shows the UTM location of the project centers for each selected Subarea.

Table 3 - Modeled Kern County Project Locations[1]

Subarea	Easterly	Northerly
Western	255,000	3918,100
Central	293,650	3934,400
Eastern	319,800	3925,150

[1]Based on Subarea modeling locations provided by Vector dated 2/15/2015 and rounded to the nearest 164 feet. (UTM NAD83, Zone 11)

Source Modeling Parameters

Potential sources were modeled as described in the table below. Both drilling and operational emissions are assumed to occur along a fenceline shared by an oil producer and a private residence.

Table 4 - Modeling Source Characteristics and Release Parameters

Point Sources				
Source Name	Height, ft	Temp, ºF	Velocity, fps	Diameter, ft
10 MMBtu/hr Flare[1]	49.3	1831.7	65.6	1.82
100 MMBtu/hr Flare[1]	68.0	1831.7	65.6	5.76
85 MMBtu/hr Steam Generator[2]	20	200	32.0	2.5
33 MW Cogen	30	991	67.8	10.0
8 mm Btu/hour process heater[2]	15	600	29.9	1.5
1000 bhp Natural Gas Engine[2]	20	850	30	2
10 mm Btu/hour boiler[2]	20	400	23.9	1.5

Area Sources			
Source Name	Release Height, feet	X, feet	Y, feet
Fugitive leaks	3.28	65.5	65.6
Sump	0	30	30
Drilling Mud Sump	0	32.8	32.8
TEOR	0	16.5	16.5

Circular Area Sources		
Source Name	Height, ft	Radius, ft
1000 Bbl Tank	16.0	10.8
1000 Bbl Tank	16.0	10.8
3000 Bbl Tank	24.1	14.9

Volume Sources			
Source Name	Release Height, feet	Initial Lateral Dimension, feet	Initial Vertical Dimension, feet
Drilling	30	16.5	16.5
Vacuum Truck Loading	13.1	1.97	3.05

[1]Adjusted per Ohio EPA methodology.
[2]Per Scope of Work amendment 2-15-2015.
[3]Tank dimensions from tank vendor website.

4.0 - DOSE-RESPONSE

The dose-response assessment describes the quantitative relationship between a human's exposure to a substance (the dose) and the incidence or occurrence of an adverse health impact (the response). For carcinogens, OEHHA has developed cancer potency factors. A cancer potency factor represents the upper bound probability of developing cancer based on a continuous lifetime exposure. The cancer potency factor does not represent a threshold under which a person would not develop cancer, but instead is used to estimate the probability of developing cancer.

For non-carcinogenic chemicals, OEHHA has developed Recommended Exposure Limits (RELs) for acute and chronic impacts. RELS represent concentration thresholds at which no adverse noncancer health effects are anticipated. For chemicals that are not deemed by the State of California as possible carcinogens, but which may pose either short-term (acute) or other non-cancer long-term (chronic) health effects, a Hazard Index (HI) calculation of potential risk is also required by the air district and the state as part of a Health Risk Assessment.

Exposure Pathways

A receptor can be hypothetically exposed to a substance through several different pathways. Typically, the primary environmental exposure pathway in a health risk assessment is direct inhalation of gaseous and particulate air pollutants. However, there is the potential for exposure via non-inhalation pathways due to the deposition of particulate pollutants (diesel particulate matter) in the environment. For this analysis, HARP2 requires assumptions that diesel particulate matter could also be ingested via dermal (skin) absorption, soil ingestion and mother's milk ingestion. PAHs were the only pollutants analyzed for which there is a non-inhalation pathway.

Relative Toxicity

The following table represents the relative toxicity of the compounds which contributed to most of the calculated risk. For example, diesel particulate matter (DPM) (with an inhalation potency factor of 1.1) is approximately 10 times more toxic than benzene (inhalation potency factor of 0.10) and PAHs are almost four times more toxic than DPM.

Table 5 - Chemical Cancer Risk Factors[1]

Chemical	Inhalation Unit Risk[2]	Inhalation Potency Factor[2]	Non-Inhalation Oral Slope Factor
	$(\mu g/m^3)^{-1}$	$(mg/kg\text{-}d)^{-1}$	$(mg/kg\text{-}d)^{-1}$
Diesel Particulate Matter	0.0003	1.1	NA (inhalation only)
Total PAHs[3]	0.001	3.9	12.0
Formaldehyde	0.000006	0.02	NA (inhalation only)
Benzene	0.029	0.10	NA (inhalation only)

[1] May 13, 2015.

[2] Inhalation cancer potency factor: The "unit risk factor" has been replaced in the new risk assessment algorithms by a factor called the "inhalation cancer potency factor". Inhalation cancer potency factors are expressed as units of inverse dose [i.e., (mg/kg-day)-1]. They were derived from unit risk factors [units = (ug/m3)-1] by assuming that a receptor weighs 70 kilograms and breathes 20 cubic meters of air per day. The inhalation potency factor is used to calculate a potential inhalation cancer risk using the new risk assessment algorithms defined in the OEHHA, *Air Toxics Hot Spots Program; Technical Support Document for Exposure Assessment and Stochastic Analysis (August 2012)*.

[3] Polycyclic Aromatic Hydrocarbons (PAHs): (Not including naphthalene.) These substances are PAH or PAH-derivatives that have OEHHA-developed Potency Equivalency Factors (PEFs) which were approved by the Scientific Review Panel in April 1994 (see ARB document entitled *Benzo[a]pyrene as a Toxic Air Contaminant*). PAH inhalation slope factors listed here have been adjusted by the PEFs. See OEHHA's Technical Support Document: Methodologies for Derivation, Listing of Available Values, and Adjustments to Allow for Early Life Exposures (2009) for more information about the scheme. Section 8.2.3 and Appendix G of OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (2003)* also contains information on PAHs.

5.0 - SIGNIFICANCE THRESHOLDS

SJVAPCD publishes CEQA significance thresholds for potential health risk from proposed projects. Currently, risks from a project that are less than the following regulatory thresholds are considered not to be significant and are, therefore, acceptable:

- Cancer risk equal to or less than 10 in one million
- Chronic hazard index equal to or less than 1
- Acute hazard index equal to or less than 1

These metrics are generally applied to the maximally exposed individual (MEI). There are separate MEIs for residential exposure (i.e., residential areas) and for worker exposure (i.e., offsite work places).

Note: SJAPCD is currently planning to increase the risk standard to 20 in one million theoretical excess cancer cases. However, this study is based on the current standard of 10 in one million theoretical excess cancer cases.

6.0 - HEALTH RISK ASSESSMENT RESULTS

A refined health risk assessment was performed using the HARP2 model. As shown, calculated cancer risk from drilling a 10,000' well exceeds a threshold of 10 cases in one million (Table 6). The maximum distances from the shared property boundary (oil company and private resident) are illustrated in Figure 1 below.

The 5,000' well scenario also exceeds 10 in one million in 2015 only. Therefore, after 2015, any well drilled shallower than 5,000' would not result in a risk greater than 10 in one million. (Table 6)

None of the gas fired equipment exceeds a risk of 10 in one million (Table 7).

The scenario in which all of the oil processing equipment operates full time and is located in the exact same location with a shared fenceline to private property results in a 10 in one million risk level from 478 – 701 feet depending on the subarea of Kern County (Table 7).

None of the noncancer hazards for either an oil processing facility or a gas processing facility exceed the regulatory threshold of 1.0 (Tables 9 and 10).

Figure 1 -

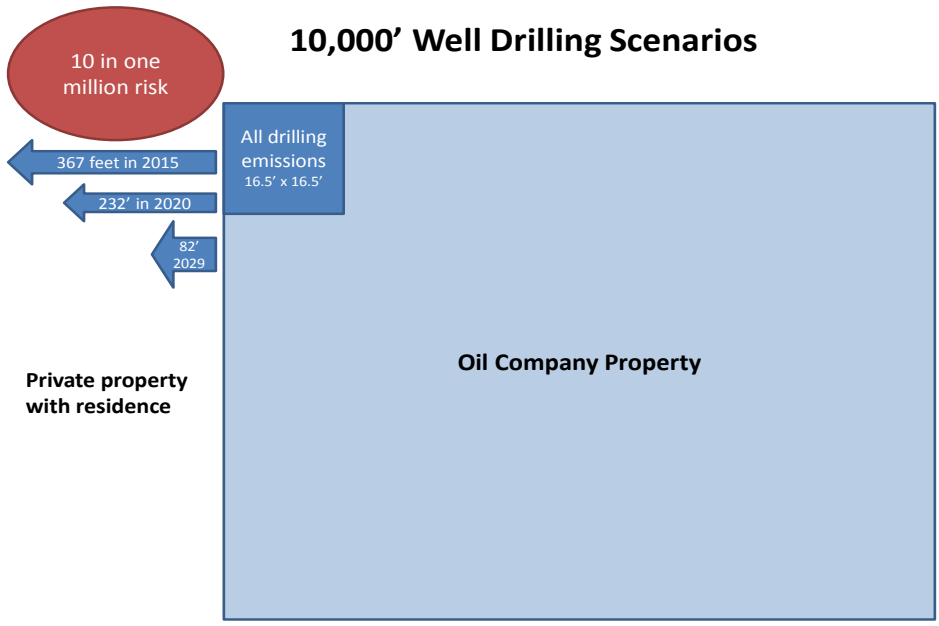


Table 6 –

Potential health risk from well construction, drilling and completion emissions

Well Depth (feet)	Year	Maximum distance from well site and project boundary to 10 in one million calculated risk
Western Subarea		
10,000	2015	367 feet
10,000	2020	232 feet
10,000	2029	82 feet
5000	2015	116 feet
5000	2029	NA*
2000	2015	NA
2000	2029/2035	NA
Central Subarea		
10,000	2015	367 feet
10,000	2020	232 feet
10,000	2029	82 feet
5000	2015	116 feet
5000	2029	NA
2000	2015	NA
2000	2029/2035	NA
Eastern Subarea		
10,000	2015	296 feet
10,000	2019	183 feet
10,000	2029	NA
5000	2015	NA
5000	2029	NA
2000	2015	NA
2000	2029/2035	NA

*NA = no offsite risk greater than 10 in one million.

CONFIDENTIAL DRAFT

Table 7 -

Potential health risks from gas processing equipment

Equipment	Risk greater than 10 in one million?
1000 bhp natural gas ICE	No
100 mmbtu/hr flare	No
85 mmbtu/hour steam generator	No
8 mm btu/hour boiler	No
33 MW cogen	No
TEOR Equipment	No

Table 8 –

Potential health risks from all oil processing equipment

Equipment	Western Subregion Cancer Risk Distance to 10 in one million*	Central Subregion Cancer Risk Distance to 10 in one million*	Eastern Subregion Cancer Risk Distance to 10 in one million*
1,000 bbl oil tank			
1,000 bbl oil tank			
3,000 bbl oil tank			
truck loading rack			
30'x30' sump			
10,000 btu/hour flare			
Fugitive VOCs			
TOTAL CUMULATIVE RISK Distances	701'	625'	478'

*Risk distances assume that all equipment is placed along a shared fence line between the oil site and a private residence.

NOTE: All of this equipment would require SVAPCD air permits. As such, the risk threshold must be complied with or permits cannot be issued. So, in this scenario either less equipment could be used and/or the receptors cannot share a fence line in order for this scenario to be viable.

CONFIDENTIAL DRAFT

Table 9
Potential Acute Impacts

Equipment	Western Subregion Acute Risk	Central Subregion Acute Risk	Eastern Subregion Acute Risk	Hazard Index Standard	Significant Risk?
Drilling Emissions 10,000' well	0.0098	0.0098	0.0090	1.0	No
Oil Processing Emissions	0.43	0.41	0.40	1.0	No
Gas Processing Emissions	0.88	0.88	0.89	1.0	No

Table 10
Potential Chronic (Non Cancer Impacts)

Equipment	Western Subregion Chronic Risk	Central Subregion Chronic Risk	Eastern Subregion Chronic Risk	Hazard Index Standard	Significant Risk?
Drilling Emissions 10,000' well	0.0009	0.0009	0.0008	1.0	No
Oil Processing Emissions	0.063	0.63	0.60	1.0	No
Gas Processing Emissions	0.034	0.034	0.030	1.0	No

CONFIDENTIAL DRAFT

7.0 - REFERENCES

California Code of Regulations, Title 22, Division 2, Chapter 3, Section 12000 "Safe Drinking Water and Toxic Enforcement Act of 1986." California regulations can be downloaded at the following link: http://www.oal.ca.gov/.

CARB. 2015. "HARP User Guide." The document can be downloaded at the following link: http://www.arb.ca.gov/toxics/harp/harpug.htm

SCAQMD. 2007. "General Instruction Book for the 2006-2007 Annual Emission Reporting Program." The document can be downloaded at the following link: http://www.ecotek.com/aqmd/2006/forms_and_instructions_pdf/0607_GuideBook.pdf

SCAQMD. 2005. "Risk Assessment Procedures for Rules 1401 and 212". The document can be downloaded at the following links: http://www.aqmd.gov/prdas/pdf/riskassessmentprocedures-v7.pdf and http://www.aqmd.gov/prdas/pdf/attachmentpkg-I.pdf.

SCAQMD. 2005. "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). The document can be downloaded at the following link: http://www.aqmd.gov/prdas/AB2588/pdf/AB2588_Guidelines.pdf.

United States Environmental Protection Agency (U.S. EPA) 2004. User's Guide for the AMS/EPA Regulatory Model – AERMOD, EPA-454/B-03-001.

Meteorological data used by AERMOD was obtained by SJVAPCD for Bakersfield Station 23155.

OEHHA. 2003. "The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments." The document can be downloaded at the following link:http://www.oehha.ca.gov/air/hot_spots/HRSguide.html.

Vector Environmental: Emissions from Offroad Mobile Sources and Portable Equipment Required for the Construction of Wells. 2015. Criteria pollutant emission data by activity, phase and task for years 2012-2029.

Vector Environmental: MS Excel spreadsheet entitled: "DRL_EMISSIONS.xlsx".

CONFIDENTIAL DRAFT

Appendix A

Toxic Air Contaminants by Device

Source Name	Source ID	CAS #	Chemical Name	Pounds/year	Pounds/hour
Fugitive VOCs	FHC01	95636	"1,2,4 Trimethylbenzene"	0.01	0.00
Fugitive VOCs	FHC01	71432	Benzene	0.32	0.00
Fugitive VOCs	FHC01	110827	Cyclohexane	0.02	0.00
Fugitive VOCs	FHC01	100414	Ethylbenzene	0.10	0.00
Fugitive VOCs	FHC01	110543	n-Hexane	2.38	0.00
Fugitive VOCs	FHC01	108883	Toluene	0.36	0.00
Fugitive VOCs	FHC01	1330207	Xylenes	0.19	0.00
Fugitive VOCs	FHC01	7783064	Hydrogen sulfide	2.02	0.00
10 MMBtu/hr Flare	FLR01	75070	Acetaldehyde	3.77	0.00
10 MMBtu/hr Flare	FLR01	107028	Acrolein	0.88	0.00
10 MMBtu/hr Flare	FLR01	71432	Benzene	13.93	0.00
10 MMBtu/hr Flare	FLR01	110827	Cyclohexane	0.00	0.00
10 MMBtu/hr Flare	FLR01	100414	Ethylbenzene	126.49	0.01
10 MMBtu/hr Flare	FLR01	50000	Formaldehyde	102.40	0.01
10 MMBtu/hr Flare	FLR01	110543	n-Hexane	2.54	0.00
10 MMBtu/hr Flare	FLR01	7783064	Hydrogen sulfide	15.70	0.00
10 MMBtu/hr Flare	FLR01	91203	Naphthalene	0.96	0.00
10 MMBtu/hr Flare	FLR01	1151	PAH's	1.23	0.00
10 MMBtu/hr Flare	FLR01	115071	Propylene	213.74	0.02
10 MMBtu/hr Flare	FLR01	108883	Toluene	5.08	0.00
10 MMBtu/hr Flare	FLR01	1330207	Xylenes	2.54	0.00

CONFIDENTIAL DRAFT

Sump	SMP01	95636	"1,2,4 Trimethylbenzene"	0.23	0.00
Sump	SMP01	71432	Benzene	6.78	0.00
Sump	SMP01	110827	Cyclohexane	0.33	0.00
Sump	SMP01	100414	Ethylbenzene	2.16	0.00
Sump	SMP01	110543	n-Hexane	50.00	0.01
Sump	SMP01	108883	Toluene	7.60	0.00
Sump	SMP01	1330207	Xylenes	4.01	0.00
Sump	SMP01	7783064	Hydrogen sulfide	0.49	0.00
Truck Loading Rack	LDR01	95636	"1,2,4 Trimethylbenzene"	0.63	0.00
Truck Loading Rack	LDR01	71432	Benzene	18.92	0.00
Truck Loading Rack	LDR01	110827	Cyclohexane	0.92	0.00
Truck Loading Rack	LDR01	100414	Ethylbenzene	6.02	0.00
Truck Loading Rack	LDR01	110543	n-Hexane	139.46	0.02
Truck Loading Rack	LDR01	108883	Toluene	21.20	0.00
Truck Loading Rack	LDR01	1330207	Xylenes	11.18	0.00
Truck Loading Rack	LDR01	7783064	Hydrogen sulfide	1.36	0.00
Oil Storage Tank (1,000 bbls)	TNK03	95636	"1,2,4 Trimethylbenzene"	0.75	0.00
Oil Storage Tank (1,000 bbls)	TNK03	71432	Benzene	22.45	0.00
Oil Storage Tank (1,000 bbls)	TNK03	110827	Cyclohexane	1.10	0.00
Oil Storage Tank (1,000 bbls)	TNK03	100414	Ethylbenzene	7.15	0.00
Oil Storage Tank (1,000 bbls)	TNK03	110543	n-Hexane	165.48	0.02

CONFIDENTIAL DRAFT

Oil Storage Tank (1,000 bbls)	TNK03	108883	Toluene	25.16	0.00
Oil Storage Tank (1,000 bbls)	TNK03	1330207	Xylenes	13.26	0.00
Oil Storage Tank (1,000 bbls)	TNK03	7783064	Hydrogen sulfide	1.62	0.00
Oil Storage Tank (1,000 bbls)	TNK02	95636	"1,2,4 Trimethylbenzene"	0.75	0.00
Oil Storage Tank (1,000 bbls)	TNK02	71432	Benzene	22.45	0.00
Oil Storage Tank (1,000 bbls)	TNK02	110827	Cyclohexane	1.10	0.00
Oil Storage Tank (1,000 bbls)	TNK02	100414	Ethylbenzene	7.15	0.00
Oil Storage Tank (1,000 bbls)	TNK02	110543	n-Hexane	165.48	0.02
Oil Storage Tank (1,000 bbls)	TNK02	108883	Toluene	25.16	0.00
Oil Storage Tank (1,000 bbls)	TNK02	1330207	Xylenes	13.26	0.00
Oil Storage Tank (1,000 bbls)	TNK02	7783064	Hydrogen sulfide	1.62	0.00
Oil Storage Tank (3,000 bbls)	TNK01	95636	"1,2,4 Trimethylbenzene"	0.60	0.00
Oil Storage Tank (3,000 bbls)	TNK01	71432	Benzene	17.73	0.00
Oil Storage Tank (3,000 bbls)	TNK01	110827	Cyclohexane	0.87	0.00
Oil Storage Tank (3,000 bbls)	TNK01	100414	Ethylbenzene	5.64	0.00
Oil Storage Tank	TNK01	110543	n-Hexane	130.72	0.02

CONFIDENTIAL DRAFT

(3,000 bbls)					
Oil Storage Tank (3,000 bbls)	TNK01	108883	Toluene	19.87	0.00
Oil Storage Tank (3,000 bbls)	TNK01	1330207	Xylenes	10.48	0.00
Oil Storage Tank (3,000 bbls)	TNK01	7783064	Hydrogen sulfide	1.28	0.00
Process Heater	PHT01	83329	Acenaphthene	0.00	0.00
Process Heater	PHT01	208968	Acenaphthylene	0.01	0.00
Process Heater	PHT01	75070	Acetaldehyde	1.17	0.00
Process Heater	PHT01	107028	Acrolein	0.20	0.00
Process Heater	PHT01	120127	Anthracene	0.00	0.00
Process Heater	PHT01	56553	Benz(a)anthracene	0.00	0.00
Process Heater	PHT01	71432	Benzene	1.71	0.00
Process Heater	PHT01	50328	Benzo(a)pyrene	0.00	0.00
Process Heater	PHT01	205992	Benzo(b)fluoranthene	0.00	0.00
Process Heater	PHT01	191242	"Benzo(g,h,i)perylene"	0.00	0.00
Process Heater	PHT01	207089	Benzo(k)fluoranthene	0.00	0.00
Process Heater	PHT01	218019	Chrysene	0.00	0.00
Process Heater	PHT01	53703	"Dibenz(a,h)anthracene"	0.00	0.00
Process Heater	PHT01	206440	Fluoranthene	0.00	0.00
Process Heater	PHT01	86737	Fluorene	0.12	0.00
Process Heater	PHT01	50000	Formaldehyde	6.23	0.00
Process Heater	PHT01	7783064	Hydrogen sulfide	12.56	0.00
Process Heater	PHT01	193395	"Indeno(1,2,3-cd)pyrene"	0.00	0.00
Process Heater	PHT01	91203	Naphthalene	0.43	0.00

CONFIDENTIAL DRAFT

Process Heater	PHT01	85018	Phenanthrene	0.03	0.00
Process Heater	PHT01	108952	Phenol	0.15	0.00
Process Heater	PHT01	115071	Propylene	0.97	0.00
Process Heater	PHT01	129000	Pyrene	0.00	0.00
Process Heater	PHT01	108883	Toluene	2.12	0.00
Process Heater	PHT01	1330207	Xylenes	2.45	0.00
Steam Generator	SGR01	83329	Acenaphthene	0.00	0.00
Steam Generator	SGR01	208968	Acenaphthylene	0.01	0.00
Steam Generator	SGR01	75070	Acetaldehyde	19.88	0.00
Steam Generator	SGR01	107028	Acrolein	13.55	0.00
Steam Generator	SGR01	120127	Anthracene	0.00	0.00
Steam Generator	SGR01	56553	Benz(a)anthracene	0.00	0.00
Steam Generator	SGR01	71432	Benzene	4.62	0.00
Steam Generator	SGR01	50328	Benzo(a)pyrene	0.00	0.00
Steam Generator	SGR01	205992	Benzo(b)fluoranthene	0.00	0.00
Steam Generator	SGR01	191242	"Benzo(g,h,i)perylene"	0.00	0.00
Steam Generator	SGR01	207089	Benzo(k)fluoranthene	0.00	0.00
Steam Generator	SGR01	218019	Chrysene	0.00	0.00
Steam Generator	SGR01	53703	"Dibenz(a,h)anthracene"	0.00	0.00
Steam Generator	SGR01	100414	Ethylbenzene	13.85	0.00
Steam Generator	SGR01	206440	Fluoranthene	0.01	0.00
Steam Generator	SGR01	86737	Fluorene	0.01	0.00
Steam Generator	SGR01	50000	Formaldehyde	52.20	0.01
Steam Generator	SGR01	7783064	Hydrogen sulfide	133.42	0.02

CONFIDENTIAL DRAFT

Steam Generator	SGR01	193395	"Indeno(1,2,3-cd)pyrene"	0.00	0.00
Steam Generator	SGR01	91203	Naphthalene	0.41	0.00
Steam Generator	SGR01	85018	Phenanthrene	0.02	0.00
Steam Generator	SGR01	115071	Propylene	469.10	0.05
Steam Generator	SGR01	129000	Pyrene	0.01	0.00
Steam Generator	SGR01	108883	Toluene	22.93	0.00
Steam Generator	SGR01	1330207	Xylenes	30.01	0.00
1,000 hp ICE	ICE01	71432	Benzene	126.21	0.01
1,000 hp ICE	ICE01	50000	Formaldehyde	3118.12	0.36
1,000 hp ICE	ICE01	115071	Propylene	1187.86	0.14
1,000 hp ICE	ICE01	108883	Toluene	57.17	0.01
1,000 hp ICE	ICE01	1330207	Xylenes	28.95	0.00
1,000 hp ICE	ICE01	7783064	Hydrogen sulfide	13.30	0.00
Drilling Emissions	DRL01	9901.00	Diesel Particulate Matter	17.23	1
33 MW Cogen	COG01	71432	Benzene	36.07	0.00
33 MW Cogen	COG01	7783064	Hydrogen sulfide	442.64	0.05
33 MW Cogen	COG01	91203	Naphthalene	14.30	0.00
33 MW Cogen	COG01	1151	PAH's	0.63	0.00
33 MW Cogen	COG01	50000	Formaldehyde	454.54	0.05
Drilling Mud Sump	SMP02	95636	"1,2,4 Trimethylbenzene"	0.01	0.00
Drilling Mud Sump	SMP02	71432	Benzene	0.28	0.00
Drilling Mud Sump	SMP02	110827	Cyclohexane	0.01	0.00
Drilling Mud Sump	SMP02	100414	Ethylbenzene	0.09	0.00
Drilling Mud Sump	SMP02	110543	n-Hexane	2.10	0.00

CONFIDENTIAL DRAFT

Drilling Mud Sump	SMP02	108883	Toluene	0.32	0.00
Drilling Mud Sump	SMP02	1330207	Xylenes	0.17	0.00
Drilling Mud Sump	SMP02	7783064	Hydrogen sulfide	0.02	0.00
Boiler	BLR01	83329	Acenaphthene	0.00	0.00
Boiler	BLR01	208968	Acenaphthylene	0.00	0.00
Boiler	BLR01	75070	Acetaldehyde	2.34	0.00
Boiler	BLR01	107028	Acrolein	1.59	0.00
Boiler	BLR01	120127	Anthracene	0.00	0.00
Boiler	BLR01	56553	Benz(a)anthracene	0.00	0.00
Boiler	BLR01	71432	Benzene	0.54	0.00
Boiler	BLR01	50328	Benzo(a)pyrene	0.00	0.00
Boiler	BLR01	205992	Benzo(b)fluoranthene	0.00	0.00
Boiler	BLR01	191242	"Benzo(g,h,i)perylene"	0.00	0.00
Boiler	BLR01	207089	Benzo(k)fluoranthene	0.00	0.00
Boiler	BLR01	218019	Chrysene	0.00	0.00
Boiler	BLR01	53703	"Dibenz(a,h)anthracene"	0.00	0.00
Boiler	BLR01	100414	Ethylbenzene	1.63	0.00
Boiler	BLR01	206440	Fluoranthene	0.00	0.00
Boiler	BLR01	86737	Fluorene	0.00	0.00
Boiler	BLR01	50000	Formaldehyde	6.14	0.00
Boiler	BLR01	7783064	Hydrogen sulfide	15.70	0.00
Boiler	BLR01	193395	"Indeno(1,2,3-cd)pyrene"	0.00	0.00
Boiler	BLR01	91203	Naphthalene	0.05	0.00
Boiler	BLR01	85018	Phenanthrene	0.00	0.00

CONFIDENTIAL DRAFT

Boiler	BLR01	115071	Propylene	55.19	0.01
Boiler	BLR01	129000	Pyrene	0.00	0.00
Boiler	BLR01	108883	Toluene	2.70	0.00
Boiler	BLR01	1330207	Xylenes	3.53	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	95636	"1,2,4 Trimethylbenzene"	0.03	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	71432	Benzene	0.95	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	110827	Cyclohexane	0.05	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	100414	Ethylbenzene	0.30	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	110543	n-Hexane	6.98	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	108883	Toluene	1.06	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	1330207	Xylenes	0.56	0.00
Thermally Enhanced Oil	TEOR	7783064	Hydrogen sulfide	0.07	0.00

CONFIDENTIAL DRAFT

Recovery Equipment					
100 MMBtu/hr Flare	FLR02	75070	Acetaldehyde	37.67	0.00
100 MMBtu/hr Flare	FLR02	107028	Acrolein	8.76	0.00
100 MMBtu/hr Flare	FLR02	71432	Benzene	139.28	0.02
100 MMBtu/hr Flare	FLR02	110827	Cyclohexane	0.00	0.00
100 MMBtu/hr Flare	FLR02	100414	Ethylbenzene	1264.94	0.14
100 MMBtu/hr Flare	FLR02	50000	Formaldehyde	1024.04	0.12
100 MMBtu/hr Flare	FLR02	110543	n-Hexane	25.40	0.00
100 MMBtu/hr Flare	FLR02	7783064	Hydrogen sulfide	15.70	0.00
100 MMBtu/hr Flare	FLR02	91203	Naphthalene	9.64	0.00
100 MMBtu/hr Flare	FLR02	1151	PAH's	12.26	0.00
100 MMBtu/hr Flare	FLR02	115071	Propylene	2137.44	0.24
100 MMBtu/hr Flare	FLR02	108883	Toluene	50.81	0.01
100 MMBtu/hr Flare	FLR02	1330207	Xylenes	25.40	0.00

CONFIDENTIAL DRAFT

Appendix B –

Equipment and Emissions for Well Depths

2015 Emissions from a 2000 ft. Well

Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	3.46
Loader	1.0	4.0	2.5	100	.34
35 Yard Dump Truck	1.0	2 .0	1.00	400	.12
Grader	1.0	4.0	2.5	175	.77
Skip & Scrap (Backhoe)	1.0	1.0	1.0	100	.03
Big Scrapper	1.0	2.0	2.5	362	.47
Dozer (D9R)	1.0	1.0	1.0	255	.08
Low Bed Truck/Trailer	1.0	2.0	.5	400	.06
Dump Truck 10 Wheels	1.0	1.0	.5	400	.03
Backhoe	1.0	2.0	.54	100	.04
Loader	1.0	3.0	2.5	100	.26
Loader	1.0	2.0	1.0	100	.07
Escavator (Backoe/tracks)	1.0	1.0	1.0	163	.03
Dozer (D8T)	1.0	1.0	1.0	255	.08
End Dump Truck & Trailer	1.0	1.0	.50	400	.03
Grader	1.0	1.0	.50	175	.04
Annual Emissions From Offroad Source Activity					5.91

2015 Emissions from a 2000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	.58
Cement Truck	1.0	4.0	12.00	400	.70
Annual Emissions From Offroad Source Activity					1.28

2015 Emission from a 2000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.81
Port Light Stands	5.0	5.0	12.00	20	2.41
Portable Gen. Hydraulic Power	1.0	5.0	22.00	80	3.66
Portable Gen. DSM/Trailers	2.0	5.0	24.00	100	9.99
Portable Gen. Mud Separator	1.0	4.0	22.00	420	4.65
Rotary Table or Top Drive	1.0	4.0	22.00	135	5.63
Diesel Engine For Hoist	1.0	4.0	22.00	455	6.74
Diesel Engine For Hoist	1.0	4.0	22.0	442	6.55
Diesel Engine for Mud Pump	1.0	4.0	22.00	424	6.28
Annual Emissions From Offroad Source Activity					46.72

2015 Emissions from a 2000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	4.0	24.00	100	4.0
Filter Skid (Pump)	1.0	2.0	3.00	90	.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	4.0	22.00	765	2.17
Generator for Doghouse for WO Rig	1.0	4.0	24.00	70	2.8
3 Light Plants for WO Rig	3.0	4.0	12.00	20	1.15
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	4.0	22.00	420	4.65
Rotary Table or Top Drive	1.0	4.0	22.00	135	5.63
Diesel Engine for Hoist	1.0	4.0	22.00	455	6.74
Diesel Engine for Hoist	1.0	3.0	22.00	442	6.55
Diesel Engine for Mud Pump	1.0	4.0	22.00	424	6.28
Annual Emissions From Offroad Source Activity (Lb/Year)					42.71

2015 Emissions from a 2000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.92
Backhoe	1.0	3.0	10.00	95	.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	.48
Hydrotest Pump	1.0	1.0	1.00	.08	.01
Forklift	1.0	3.0	10.00	125	.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity					4.07

2015 Emissions from a 2000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.06
Backhoe	1.0	2.0	4.00	80	.22
Welder	1.0	2.0	8.00	25	.16
Annual Emissions From Offroad Source Activity					.44

2015 Emissions from a 2000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	.15
Power Generators	1.0	4.0	1.00	10	.02
Back-Hoe	1.0	1.0	10.00	650	.80
Annual Emissions From Offroad Source Activity					4.43

2015 Emissions from a 5000 ft. Well

Construction Activity: A1. Land Preparation

2015 Emissions from a 5000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	.58
Cement Truck	1.0	1.0	12.00	400	.70
Annual Emissions From Offroad Source Activity (Lb/Year					1.28

2015 Emission from a 5000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.81
Port Light Stands	5.0	9.0	12.00	20	4.33
Portable Gen. Hydraulic Power	1.0	9.0	22.00	80	6.60
Portable Gen. DSM/Trailers	2.0	9.0	24.00	100	17.99
Portable Gen. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine For Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine For Hoist	1.0	8.0	22.0	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity					89.42

2015 Emissions from a 5000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	8.0	24.00	100	8.00
Filter Skid (Pump)	1.0	2.0	3.00	90	.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	2.17
Generator for Doghouse for WO Rig	1.0	8.0	24.00	70	5.60
3 Light Plants for WO Rig	3.0	8.0	12.00	20	2.31
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine for Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine for Hoist	1.0	8.0	22.00	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity (Lb/Year)					80.51

2015 Emissions from a 5000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.92
Backhoe	1.0	3.0	10.00	95	.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	.48
Hydrotest Pump	1.0	1.0	1.00	.08	.01
Forklift	1.0	3.0	10.00	125	.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity					4.07

2015 Emissions from a 5000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.06
Backhoe	1.0	2.0	4.00	80	.22
Welder	1.0	2.0	8.00	25	.16
Annual Emissions From Offroad Source Activity					.44

2015 Emissions from a 5000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	.15
Power Generators	1.0	4.0	1.00	10	.02
Back-Hoe	1.0	1.0	10.00	650	.80
Annual Emissions From Offroad Source Activity					4.43

2015 Emissions from a 5000 ft. Well

Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	3.46
Loader	1.0	4.0	2.5	100	.34
35 Yard Dump Truck	1.0	2 .0	1.00	400	.12
Grader	1.0	4.0	2.5	175	.77
Skip & Scrap (Backhoe)	1.0	1.0	1.0	100	.03
Big Scrapper	1.0	2.0	2.5	362	.47
Dozer (D9R)	1.0	1.0	1.0	255	.08
Low Bed Truck/Trailer	1.0	2.0	.5	400	.06
Dump Truck 10 Wheels	1.0	1.0	.5	400	.03
Backhoe	1.0	2.0	.54	100	.04
Loader	1.0	3.0	2.5	100	.26
Loader	1.0	2.0	1.0	100	.07
Escavator (Backoe/tracks)	1.0	1.0	1.0	163	.03
Dozer (D8T)	1.0	1.0	1.0	255	.08
End Dump Truck & Trailer	1.0	1.0	.50	400	.03
Grader	1.0	1.0	.50	175	.04
Annual Emissions From Offroad Source Activity (Lb/Year)					5.91

2015 Emissions from a 5000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	.58
Cement Truck	1.0	1.0	12.00	400	.70
Annual Emissions From Offroad Source Activity (Lb/Year					1.28

2015 Emission from a 5000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.81
Port Light Stands	5.0	9.0	12.00	20	4.33
Portable Gen. Hydraulic Power	1.0	9.0	22.00	80	6.60
Portable Gen. DSM/Trailers	2.0	9.0	24.00	100	17.99
Portable Gen. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine For Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine For Hoist	1.0	8.0	22.0	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity					89.42

2015 Emissions from a 5000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	8.0	24.00	100	8.00
Filter Skid (Pump)	1.0	2.0	3.00	90	.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	2.17
Generator for Doghouse for WO Rig	1.0	8.0	24.00	70	5.60
3 Light Plants for WO Rig	3.0	8.0	12.00	20	2.31
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine for Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine for Hoist	1.0	8.0	22.00	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity (Lb/Year)					80.51

2015 Emissions from a 5000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.92
Backhoe	1.0	3.0	10.00	95	.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	.48
Hydrotest Pump	1.0	1.0	1.00	.08	.01
Forklift	1.0	3.0	10.00	125	.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity					4.07

2015 Emissions from a 5000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.06
Backhoe	1.0	2.0	4.00	80	.22
Welder	1.0	2.0	8.00	25	.16
Annual Emissions From Offroad Source Activity					.44

2015 Emissions from a 5000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	.15
Power Generators	1.0	4.0	1.00	10	.02
Back-Hoe	1.0	1.0	10.00	650	.80
Annual Emissions From Offroad Source Activity					4.43

2029/2035 Emissions from a 5000 ft. Well

Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	.58
Loader	1.0	4.0	2.5	100	.04
35 Yard Dump Truck	1.0	2 .0	1.00	400	.02
Grader	1.0	4.0	2.5	175	.15
Skip & Scrap (Backhoe)	1.0	1.0	1.0	100	.00
Big Scrapper	1.0	2.0	2.5	362	.11
Dozer (D9R)	1.0	1.0	1.0	255	.03
Low Bed Truck/Trailer	1.0	2.0	.5	400	.01
Dump Truck 10 Wheels	1.0	1.0	.5	400	.00
Backhoe	1.0	2.0	.54	100	.00
Loader	1.0	3.0	2.5	100	.03
Loader	1.0	2.0	1.0	100	.01
Escavator (Backoe/tracks)	1.0	1.0	1.0	163	.01
Dozer (D8T)	1.0	1.0	1.0	255	.03
End Dump Truck & Trailer	1.0	1.0	.50	400	.00
Grader	1.0	1.0	.50	175	.01
Annual Emissions From Offroad Source Activity (Lb/Year)					1.03

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig-Truck Mounted	1.0	1.0	12.00	100	.58
Cement Truck-Cement Mousehole	1.0	1.0	12.00	400	.12
Annual Emissions From Offroad Source Activity (Lb/Year)					.70

2029/2035 Emission from a 5000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.19
Port Light Stands	5.0	9.0	12.00	20	.60
Portable Gen. Hydraulic Power	1.0	9.0	22.00	80	.86
Portable Gen. DSM/Trailers	2.0	9.0	24.00	100	2.35
Portable Gen. Mud Separator	1.0	8.0	22.00	420	1.37
Rotary Table or Top Drive	1.0	8.0	22.00	135	.74
Diesel Engine For Hoist	1.0	8.0	22.00	455	4.11
Diesel Engine For Hoist	1.0	8.0	22.00	442	3.99
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	3.83
Annual Emissions From Offroad Source Activity (Lb/Year)					18.04

2029/2035 Emissions from a 5000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	8.0	24.00	100	1.04
Filter Skid (Pump)	1.0	2.0	3.00	90	.03
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.12
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	1.01
Generator for Doghouse for WO Rig	1.0	8.0	24.00	70	.73
3 Light Plants for WO Rig	3.0	8.0	12.00	20	.32
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	.51
Portable Den. Mud Separator	1.0	8.0	22.00	420	1.37
Rotary Table or Top Drive	1.0	8.0	22.00	135	.74
Diesel Engine for Hoist	1.0	8.0	22.00	455	4.11
Diesel Engine for Hoist	1.0	8.0	22.00	442	3.99
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	3.83
Annual Emissions From Offroad Source Activity (Lb/Year)					17.80

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.15
Backhoe	1.0	3.0	10.00	95	.12
Pipe Fitting or Welders	1.0	3.0	10.00	40	.07
Hydrotest Pump	1.0	1.0	1.00	.08	.00
Forklift	1.0	3.0	10.00	125	.08
Other Equipment/Bending Machine	1.0	3.0	10.00	80	.31
Annual Emissions From Offroad Source Activity					.73

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.01
Backhoe	1.0	2.0	4.00	80	.03
Welder	1.0	2.0	8.00	25	.02
Annual Emissions From Offroad Source Activity					.06

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	\1.0	4.0	10.00	250	.20
Bucket Truck	1.0	4.0	10.00	250	.20
Electrical Service Truck	1.0	4.0	1.00	300	.02
Power Generators	1.0	4.0	1.00	10	.00
Back-Hoe	1.0	1.0	10.00	650	.19
Annual Emissions From Offroad Source Activity					.61

2015 Emissions from a 10,000' Well
Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	3.46
Loader	1.0	4.0	2.50	100	0.34
35 Yard Dump Truck	1.0	2.0	1.00	400	0.12
Grader	1.0	4.0	2.50	175	0.77
Skip & Scrap (Backhoe)	1.0	1.0	1.00	100	0.03
Big Scrapper	1.0	2.0	2.50	362	0.47
Dozer (D9R)	1.0	1.0	1.00	255	0.08
Low Bed Truck/Trailer	1.0	2.0	0.50	400	0.06
Dump Truck 10 Wheels	1.0	1.0	0.50	400	0.03
Backhoe	1.0	2.0	0.54	100	0.04
Loader	1.0	3.0	2.50	100	0.26
Loader	1.0	2.0	1.00	100	0.07
Escavator (Backoe/tracks)	1.0	1.0	1.00	163	0.03
Dozer (D8T)	1.0	1.0	1.00	255	0.08
End Dump Truck & Trailer	1.0	1.0	0.50	400	0.03
Grader	1.0	1.0	0.50	175	0.04
Annual Emissions From Offroad Source Activity (Lb/Year)					5.91

2015 Emissions from a 10,000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	0.58
Cement Truck	1.0	1.0	12.00	400	0.70
Annual Emissions From Offroad Source Activity (Lb/Year)					1.28

2010 Emission from a 10,000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	0.81
Port Light Stands	5.0	24.0	12.00	20	11.55
Portable Gen. Hydraulic Power	1.0	24.0	22.00	80	17.59
Portable Gen. DSM/Trailers	2.0	24.0	24.00	100	47.97
Portable Gen. Mud Separator	1.0	23.0	22.00	420	26.75
Rotary Table or Top Drive	1.0	23.0	22.00	144	34.52
Diesel Engine For Hoist	1.0	23.0	22.00	996	88.93
Diesel Engine For Hoist	1.0	23.0	22.00	981	87.59
Diesel Engine for Mud Pump	1.0	23.0	22.00	1145	102.23
Annual Emissions From Offroad Source Activity (Lb/Year)					417.94

2015 Emissions from a 10,000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	13.0	24.00	100	12.99
Filter Skid (Pump)	1.0	2.0	3.00	90	0.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	0.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	2.017
Generator for Doghouse for WO Rig	1.0	13.0	24.00	70	9.10
3 Light Plants for WO Rig	3.0	13.0	12.00	20	3.75
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	13.0	22.00	420	15.12
Rotary Table or Top Drive	1.0	13.0	22.00	135	18.29
Diesel Engine for Hoist	1.0	13.0	22.00	455	21.90
Diesel Engine for Hoist	1.0	13.0	22.00	442	21.28
Diesel Engine for Mud Pump	1.0	13.0	22.00	424	20.41
Annual Emissions From Offroad Source Activity (Lb/Year)					127.75

2015 Emissions from a 10,000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	0.92
Backhoe	1.0	3.0	10.00	95	0.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	0.48
Hydrotest Pump	1.0	1.0	1.00	20	0.01
Forklift	1.0	3.0	10.00	125	0.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity (Lb/Year)					4.07

2015 Emissions from a 10,000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	0.06
Backhoe	1.0	2.0	4.00	80	0.22
Welder	1.0	2.0	8.00	25	0.16
Annual Emissions From Offroad Source Activity (Lb/Year)					0.44

2015 Emissions from a 10,000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	0.15
Power Generators	1.0	4.0	1.00	10	0.02
Back-Hoe	1.0	1.0	10.00	650	0.80
Annual Emissions From Offroad Source Activity (Lb/Year)					4.43

2029/2035 Emissions from a 10,000 Ft. Well					
Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	0.58
Loader	1.0	4.0	2.50	100	0.04
35 Yard Dump Truck	1.0	2.0	1.00	400	0.02
Grader	1.0	4.0	2.50	175	0.15
Skip & Scrap (Backhoe)	1.0	1.0	1.00	100	0.00
Big Scrapper	1.0	2.0	2.50	362	0.11
Dozer (D9R)	1.0	1.0	1.00	255	0.03
Low Bed Truck/Trailer	1.0	2.0	0.50	400	0.01
Dump Truck 10 Wheels	1.0	1.0	0.50	400	0.00
Backhoe	1.0	2.0	0.54	100	0.00
Loader	1.0	3.0	2.50	100	0.03
Loader	1.0	2.0	1.00	100	0.01
Escavator (Backoe/tracks)	1.0	1.0	1.00	163	0.01
Dozer (D8T)	1.0	1.0	1.00	255	0.03
End Dump Truck & Trailer	1.0	1.0	0.50	400	0.00
Grader	1.0	1.0	0.50	175	0.01
Annual Emissions From Offroad Source Activity (Lb/Year)					1.03
Construction Activity: A.1 Land Preparation					

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	0.58
Cement Truck	1.0	1.0	12.00	400	0.12
Annual Emissions From Offroad Source Activity (Lb/Year)					0.70

2029/2035 Emission from a 10,000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.00	8.00	230	0.19
Port Light Stands	5.0	24.0	12.00	20	1.61
Portable Gen. Hydraulic Power	1.0	24.0	22.00	80	2.30
Portable Gen. DSM/Trailers	2.0	24.0	24.00	100	6.27
Portable Gen. Mud Separator	1.0	23.0	22.00	420	3.94
Rotary Table or Top Drive	1.0	23.0	22.00	144	2.28
Diesel Engine For Hoist	1.0	23.0	22.00	996	37.47
Diesel Engine For Hoist	1.0	23.0	22.00	981	36.90
Diesel Engine for Mud Pump	1.0	23.0	22.00	1145	43.07
Annual Emissions From Offroad Source Activity (Lb/Year)					134.03

2029/2035 Emissions from a 10,000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	13.0	24.00	100	1.70
Filter Skid (Pump)	1.0	2.0	3.00	90	0.03
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	0.12
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	1.01
Generator for Doghouse for WO Rig	1.0	13.0	24.00	70	1.19
3 Light Plants for WO Rig	3.0	13.0	12.00	20	0.52
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	0.51
Portable Den. Mud Separator	1.0	13.0	22.00	420	2.22
Rotary Table or Top Drive	1.0	13.0	22.00	135	1.21
Diesel Engine for Hoist	1.0	13.0	22.00	455	6.67
Diesel Engine for Hoist	1.0	13.0	22.00	442	6.48
Diesel Engine for Mud Pump	1.0	13.0	22.00	424	6.22
Annual Emissions From Offroad Source Activity (Lb/Year)					27.88

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	0.15
Backhoe	1.0	3.0	10.00	95	0.12
Pipe Fitting or Welders	1.0	3.0	10.00	40	0.07
Hydrotest Pump	1.0	1.0	1.00	20	0.00
Forklift	1.0	3.0	10.00	125	0.08
Other Equipment/Bending Machine	1.0	3.0	10.00	80	0.31
Annual Emissions From Offroad Source Activity (Lb/Year)					0.73

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	0.01
Backhoe	1.0	2.0	4.00	80	0.03
Welder	1.0	2.0	8.00	25	0.02
Annual Emissions From Offroad Source Activity (Lb/Year)					0.06

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	0.20
Bucket Truck	1.0	4.0	10.00	250	0.20
Electrical Service Truck	1.0	4.0	1.00	300	0.02
Power Generators	1.0	4.0	1.00	10	0.00
Back-Hoe	1.0	1.0	10.00	650	0.19
Annual Emissions From Offroad Source Activity (Lb/Year)					0.61

Appendix M-1

Revised Health Risk Assessment

This page intentionally left blank.

Appendix M-1

Updated Health Risk Assessment
Kern County DEIR –
Proposed Drilling and Oil and Gas Operations

Prepared by:

Environmental Compliance Solutions, Inc.

171 Pier Avenue #337
Santa Monica, CA 90405

September 2015

Table of Contents

1.0 - PROJECT OVERVIEW 2
2.0 - HEALTH RISK ASSESSMENT OVERVIEW 3
3.0 - EXPOSURE ASSESSMENT 8
4.0 - DOSE-RESPONSE 11
5.0 - SIGNIFICANCE THRESHOLDS 12
6.0 - HEALTH RISK ASSESSMENT RESULTS 12
7.0 - REFERENCES 18

APPENDICES

A-Toxic Air Contaminants Modeled by Equipment Type

B - Drilling Equipment Assumptions and Emissions

C - Operational Emission Estimates

D- AERMOD Modeling Files (CD Rom files to County)

E - HARP2 - Health Risk Assessment Output Files (CD Rom files to County)

1.0 - PROJECT OVERVIEW

This Health Risk Assessment (HRA) has been updated to incorporate comments received on the Draft Environmental Impact Report (DEIR) prepared for the proposed Amendment to Title 19 – Kern County Zoning Ordinance – Chapter 19.98 for Oil and Gas Local Permitting.

The HRA completed for the DEIR and this FEIR was based on very conservative assumptions; **one of which was to assume that all receptor locations contain sensitive receptors.**

Sensitive Receptors are defined as people that have an increased sensitivity to air pollution or environmental contaminants are considered to be sensitive receptors. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s). Within each sensitive receptor, it was assumed that children were residing or located at the site. The location of the nearest sensitive receptors to a project site is needed to assess toxic impacts on public health.

California's Office of Environmental Health Hazard Assessment (OEHHA) is tasked with determining the relative toxicity of numerous chemicals and compounds and is also in charge of determining how California's regulatory HRAs will be conducted. HRAs determine the probability that a sensitive receptor may get cancer from a predetermined exposure to certain chemicals, substances or environments.

OEHHA, in conjunction with the California Air Resources Board (ARB), is also responsible for developing guidelines for how an HRA must be conducted. The HRA conducted for the proposed program followed the OEHHA Guidelines as amended in March 2015. The latest version of the Guidance Manual updates the previous version (OEHHA, 2003), and reflects advances in the field of risk assessment along with new more conservative consideration given to infants and children and their associated inhalation rates. The new guidelines are significantly more stringent than the 2003 predecessor and this is the document that was used for the DEIR and FEIR.

The San Joaquin Valley Air Pollution Control District (SJVAPCD) submitted a comment letter on September 11, 2015 regarding the HRA for the DEIR. They requested changes to ensure that the HRA is consistent with their regulatory risk policy which was recently updated. All of the SJVAPCD's recommended changes were incorporated into this revised HRA and are summarized herein:

1) The air district requested that diesel exhaust be modeled as particulate matter of 10 microns or less (PM10) rather than PM2.5 which was previously modeled. This overstates emissions and risk as PM10 includes dust which is not considered to be toxic by OEHHA. This more conservative analysis is included with this revised HRA.
2) The receptor grid spacing has been adjusted per the SJVAPCD's request.
3) Additional meteorological station data were incorporated.
4) One additional modeling location and modeling study was selected in the Western Subarea by the SJVAPCD.
5) They also revised the location of the Eastern subarea location.

6) SJVAPCD suggested referring to the previous Western subarea as Midway Sunset, the new Western subarea location as Derby Acres, the Central subarea as Shafter and the relocated Eastern Subarea as Kern River.
7) Drilling rigs were requested to be modeled as point sources rather than volume sources.
8) Flare emission factor updates were provided by the SJVAPCD and were used in these calculations.
9) The exhaust parameters for the 1,000 horsepower (hp) natural gas-fired internal combustion engine (ICE) were modified by SJVAPCD.
10) SJAPCD utilizes a 70-year residential exposure assumption in HRAs as compared to OEHHA's HARP2 guidelines which require a 30-year residential exposure.
11) The air district requested that the possibility of home-grown food exposure be included in the analysis. This is not part of the State of California guidelines however it has been included in this revised analysis.
12) Finally, SJVAPCD requested that the results be compared against the SJVAPCD CEQA significance threshold for Toxic Air Contaminants of 20 in one million (20×10^{-6}).

This revised HRA evaluates potential calculated cancer risk and acute and chronic health risk from toxic emissions associated with well construction, drilling, and completion as well as oil and gas processing equipment.

None of the equipment assumptions for well drilling or operational activities have changed. Typical well construction phasing and equipment lists were provided as part of our scope of work; along with emission calculations from all well drilling equipment. All well construction emissions were assumed to occur simultaneously for worst case, conservative assumptions.

As stated above, OEHHA released a new HRA guidance document and software in March 2015. This new program was used to complete this analysis. Use of the new methodology results in calculated risk three to six times higher (300% - 600%) than results for the same emissions profiles using the model previously required for use from 1990 through February 2015.

SJVAPCD released its updated risk assessment guidance on May 28, 2015. The Hot Spots Analysis and Reporting Program, Release Version 2 (HARP2) software was revised on June 29, 2015 (Version 15180), and again on July 16, 2015 (Version 15197). Version 15197 was used for this HRA.

2.0 - HEALTH RISK ASSESSMENT OVERVIEW

As recommended by the OEHHA guidelines, HARP2 (CARB, 2015) was used to perform a refined HRA for potential future drilling and operational emissions. HARP2 includes the following three modules: a dispersion model, an exposure/dose module and a risk module. The dispersion model incorporates the United States Environmental Protection Agency (USEPA's) AERMOD model and the risk model includes the latest changes made by OEHHA to the Risk Assessment inputs.

In general, risk assessments involve four steps:

1) Emissions Estimations of Hazardous Air Pollutants;
2) Exposure Assessments;
3) Dose-response Assessments; and
4) Potential Health Risk Quantification.

Emissions Estimations of Hazardous Air Pollutants

Emission estimates involve identifying and quantifying emissions of potential regulated toxic substances from each source. OEHHA guidance regarding whether the pollutants are carcinogenic or possibly associated with short-term or long-term non-cancer health impacts was followed. Toxic emissions from each source were quantified.

"Hazardous air pollutants" is a term used by the federal Clean Air Act (CAA) that includes a variety of pollutants generated or emitted by industrial production activities. HAPs are also referred to as Toxic Air Contaminants (TACs) under the California Clean Air Act of 1988 (CCAA). California listed diesel exhaust or diesel particulate matter (DPM) as a toxic air contaminant in 1998. The state of California determines the toxicity of each pollutant and assigns each a potency factor. Those factors are built into the HARP2 risk assessment mode.

The DPM toxicity number incorporates the cumulative health effects of all of the constituents of diesel exhaust into one risk number. Therefore, the only TAC associated with diesel equipment from well construction and completion is DPM. The primary TACs of concern for this project are diesel exhaust associated with construction equipment and drill rigs and benzene (associated with oil processing equipment).

DPM was analyzed from drilling operations. Drilling operations also include an assumption that a drilling mud sump will be required for each well drilled. Potential fugitive emissions of hydrocarbons (VOCs) can be emitted from drilling mud sumps. Those emissions were also included in both the original HRA and this revised HRA. . Potential health effects from both are summarized here. Although the oil processing equipment scenarios did not result in off-site risk greater than 10 in one million, the risk measured was attributed to benzene, formaldehyde and polycyclic aromatic hydrocarbons (PAHs). All three are byproducts of natural gas combustion.

Diesel Particulate Matter

Respirable particles (particulate matter less than about 10 micrometers in diameter [PM_{10}]) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis, and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM_{10} and $PM_{2.5}$. For purposes of this study, all PM2.5 from diesel equipment associated with well drilling (including

potential dust and mobile equipment) is conservatively assumed to be toxic diesel particulate matter. DPM represents 100% of the risk number associated with well drilling risk as it is the only compound expected to be emitted.

Benzene

The primary risk driver from oil processing equipment is benzene. Benzene is naturally occurring in oil and gas. Approximately 84 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. Currently, the benzene content of gasoline is less than 1 percent.

Benzene is potentially carcinogenic and naturally occurs throughout California. Benzene also has noncancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness in humans. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene.

Formaldehyde

Formaldehyde is a colorless, flammable, chemical typically used in building materials and many household products such as pressed-wood, particle board, plywood; glues and adhesives. Formaldehyde is also naturally occurring in the environment. It is a by-product of natural gas combustion.

PAHs

The term polycyclic aromatic hydrocarbons (PAHs) refers to a group of several hundred chemically-related, environmentally persistent organic compounds of various structures and varied toxicity. Most of them are formed by a process of thermal decomposition (pyrolysis) and subsequent recombination (pyrosynthesis) of organic molecules. PAHs enter the environment through various routes and are usually found as a mixture containing two or more of these compounds, e.g. soot. They have been shown to cause carcinogenic and mutagenic effects and are potent immunosuppressants. Effects have been documented on immune system development. They are by-products of natural gas combustion.

Well Drilling Emissions

Seven phases of drilling were considered as detailed below. All particulate matter 10 microns (PM10) was considered to be toxic DPM. This significantly overstates true emissions a portion of the PM10 calculated included road dust and other sources of fugitive dust associated with well pad construction, well drilling and completion.

Well depths of 2,000', 5,000', 10,000' and 15,000' were evaluated. Using a very conservative approach, emissions from all seven phases were assumed to occur simultaneously. An initial year of 2015 was modeled and the final year of 2029/2035 was modeled. CARB's OFFROAD emissions estimate model was used to calculate emissions from the primarily mobile and off-road diesel equipment. CARB has extensive regulations for diesel equipment with future compliance dates that will result in significant emission reductions of PM10 over time.

NOTE: CARB's model includes currently adopted diesel regulations designed to reduce emissions from various off-road and on-road engines. No emission reductions are included in future year calculations for potential reductions from proposed or potential additional regulations that may be required in the future.

CARB's OFFROAD model can only project emissions to 2029 based on today's available engine technologies. As a result, all emissions between 2029 – 2035 are calculated to be the same maximum daily amount.

For this analysis, the following sources were included for evaluation:

- Well drilling (all aspects of construction, well drilling and completion) for a 2,000', 5,000', 10,000', and a 15,000' well.

Each well evaluation consists of the following phases:

- Land Preparation;
- Drilling Survey;
- Well Drilling;
- Well Completion;
- Well Flowline;
- Pump Unit; and
- Electrical.

Numbers and types of equipment associated with each well depth are listed below. An exact equipment list for each of the seven phases and their associated emissions is included as Appendix B.

Both drilling and operational emissions are assumed to occur along a fenceline shared by an oil producer and a private resident (i.e., sensitive receptors).

Table 1 – Equipment Associated with Well Construction, Drilling and Completion*

Depth Feet	Number of Trucks	Off-Road Construction Equip.	Drill Rig HP totals	Drilling Days
15,000	10	54	3 rigs at 1,040 HP each	65
10,000	9	45	3 rigs at 1,040 HP each	23
5000	9	45	3 rigs at 440 HP each	8
2000	9	45	3 rigs at 440 HP each	4

*As previously noted, this equipment is for the combined operation of all seven phases of construction, drilling and completion.

Table 2 – Emissions Associated with Well Constriction, Drilling and Completion

Depth Feet	Year[1]	Total PM10[2] pounds	Annual PM10[3] pounds	Days[4]
15,000	2015	1,626.80	23.24	65
10,000	2015	516.89	17.23	23
10,000	2018	444.00	14.8	23
10,000	2035	151.83	5.06	23
5000[5]	2015	171.18	5.71	8
5000	2035	35.86	1.20	8
2000	2015	97.12	3.24	4
2000	2035	20.42	0.68	4

[1]2029-2035 emissions are the same.
[2]From Vector Environmental Spreadsheet titled "DRL_EMISSIONS.xlsx", worksheet "EMF".
[3]Total emissions divided by 30 years per OEHHA's HARP2 exposure duration requirements.
[4]From Vector Spreadsheet titled "DRL_EMISSIONS.xlsx", worksheet "MUD".
[5]Note: 5,000' wells were not re-modeled as part of the revised HRA since previous results were less than 10 in one million.

Operational Equipment Emissions

Maximum daily and annual emissions were also quantified from an oil processing facility and a natural gas combustion facility. The equipment list and parameters was provided as part of our Scope of Work.

Oil and Gas Processing Equipment

Emissions from the following equipment were analyzed in the oil and gas processing HRA scenario:

- Two – 1,000 Bbl above-ground tanks;
- One – 3,000 Bbl above-ground tank;
- One - 10 MMBtu/hour Flare;
- One - Truck loading rack;
- Fugitive emissions from valves, flanges, and one underground sump;
- Thermally enhanced oil recovery (TEOR) equipment;
- One - 100 MMBtu/hour flare;
- One – 8 MMBtu/hour Process Heater;
- One – 10 MMBtu/hour Boiler;
- One – 85 MMBtu/hour Steam Generator; and
- One – 33 MW Cogeneration Plant.

Potential toxic emissions from each of these devices are summarized in Appendix A.

3.0 - EXPOSURE ASSESSMENT

Exposure assessment includes air dispersion modeling, identification of emission exposure routes and estimation of exposure levels. The modeling estimates ground level concentrations based on an emission rate of one gram per second. This rate is then multiplied by the worst case potential emission rate for each substance to obtain ground level concentrations. In addition to inhalation, potential pathways of exposure to offsite receptors include dermal exposure and ingestion.

HARP2 incorporates the USEPA AERMOD (v14134) model. AERMOD predicts resulting cumulative concentrations from various emission sources. The rural setting was selected in AERMOD for this analysis. AERMOD's terrain processor, AERMAP, was used to incorporate actual terrain elevations for sources and receptors. Five years of meteorological data required for AERMOD was obtained from the SJVAPCD. Data from the Bakersfield (Kern River), Fellows (Derby Acres), Missouri Triangle (Midway Sunset) and Wasco (Shafter) Stations were utilized. The USTAR option, a non-regulatory option, was requested by SJVAPCD.

Four different locations within Kern County were assessed in order to capture various terrain characteristics within the County. Two of the four areas: Derby Acres and Kern River were

selected by the air district and two were assessed as being representative of the remaining area of the county.

These areas were previously determined as being representative of various aspects of the county and were included as part of the Scope of Work in the DEIR: Western, Central and Eastern Kern County.

- Western Subarea – Midway Sunset Oilfield
- Central Subarea – No. Shafter Oilfield
- Eastern Subarea – Kern River Oilfield

SJVAPCD added an additional Western Area of complex terrain known as Derby Acres and asked that this area also be modeled. They moved the Midway Sunset previous location over about a mile and they moved the Kern River location to another Kern River location about 8 miles away. The Central Subarea is the exact same location in the original HRA and the revised HRA.

Terrain in the Central Subarea is relatively flat and modeling results would best represent dispersion characteristics with minimal terrain disturbances. More site location and terrain specific influences were observed in the Western Subarea and even more in the Eastern Subarea. Sufficient analysis of different factors that affect dispersion and other modeling inputs were covered by modeling three separate areas within Kern County. The Derby Acres location is a "bowl-type" setting which allows for minimal air dispersion in the immediate vicinity of the selected location.

The rural setting in AERMOD was selected and the model selects the terrain variability based on real-world conditions.

Table 3 shows the UTM location of the project centers for each selected Subarea.

Table 3 - Modeled Kern County Project Locations

Subarea	Easterly	Northerly
Western – Midway Sunset[1]	255,000	3918,100
Central – Shafter[1]	293,650	3934,400
Western – Derby Acres[2]	264,075	3904,580
Eastern – Kern River[2]	320,540	3922,785

[1]Based on Subarea modeling locations provided by Vector dated 2/15/2015 and rounded to the nearest 164 feet. (UTM NAD83, Zone 11)
[2]Provided by SJVAPCD

Source Modeling Parameters

Potential sources were modeled as described in the table below. Both drilling and operational emissions are assumed to occur along a fenceline shared by an oil producer and a private residence (i.e., sensitive receptor).

Table 4 - Modeling Source Characteristics and Release Parameters

Point Sources				
Source Name	Height, meters	Temp, ºK	Velocity, mps	Diameter, meters
Drilling	2.85	761.9	71.2	0.18
10 MMBtu/hr Flare[1]	10.79	1088.7	56.3	0.64
100 MMBtu/hr Flare[1]	13.85	1088.7	56.3	2.03
85 MMBtu/hr Steam Generator[2]	6.10	366.5	21.4	0.76
33 MW Cogen	9.14	806.0	20.7	3.05
8 mm Btu/hour process heater[2]	4.57	588.7	9.11	0.46
1000 bhp Natural Gas Engine[2]	6.78	745.2	3063.9	0.35
10 mm Btu/hour boiler[2]	6.10	477.6	7.3	0.46

Area Sources			
Source Name	Release Height, meters	X, meters	Y, meters
Fugitive leaks	1.00	10.00	10.00
Sump	0	9.14	9.14
Drilling Mud Sump	0	10.00	10.00
TEOR	0	5.00	5.00

Circular Area Sources		
Source Name	Height, meters	Radius, meters
1000 Bbl Tank	4.88	3.28
1000 Bbl Tank	4.88	3.28
3000 Bbl Tank	7.35	4.53

Volume Sources			
Source Name	Release Height, meters	Initial Lateral Dimension, meters	Initial Vertical Dimension, meters
Vacuum Truck Loading	4	0.60	0.93

[1]Adjusted per SJVAPCD EPA methodology.
[2]Per Scope of Work amendment 2-15-2015.
[3]Tank dimensions from tank vendor website.

4.0 - DOSE-RESPONSE

The dose-response assessment describes the quantitative relationship between a human's exposure to a substance (the dose) and the incidence or occurrence of an adverse health impact (the response). For carcinogens, OEHHA has developed cancer potency factors. A cancer potency factor represents the upper bound probability of developing cancer based on a continuous lifetime exposure. The cancer potency factor does not represent a threshold under which a person would not develop cancer, but instead is used to estimate the probability of developing cancer.

For non-carcinogenic chemicals, OEHHA has developed Recommended Exposure Limits (RELs) for acute and chronic impacts. RELS represent concentration thresholds at which no adverse noncancer health effects are anticipated. For chemicals that are not deemed by OEHHA as possible carcinogens but which may pose either short-term (acute) or other non-cancer long-term (chronic) health effects, a Hazard Index (HI) calculation of potential risk is also required by the air district and OEHHA an HRA.

Exposure Pathways

A receptor can be hypothetically exposed to a substance through several different pathways. Typically, the primary environmental exposure pathway in an HRA is direct inhalation of gaseous and particulate air pollutants. However, there is the potential for exposure via non-inhalation pathways due to the deposition of particulate pollutants (diesel particulate matter) in the environment.

For this analysis, HARP2 requires assumptions that diesel particulate matter could also be ingested via dermal (skin) absorption, soil ingestion and mother's milk ingestion. PAHs were the only pollutants analyzed for which there is a non-inhalation pathway.

The following table represents the relative toxicity of the compounds which contributed to most of the calculated risk. For example, DPM (with an inhalation potency factor of 1.1) is approximately 10 times more toxic than benzene (inhalation potency factor of 0.10) and PAHs are almost four times more toxic than DPM.

Table 5 - Chemical Cancer Risk Factors[1]

Chemical	Inhalation Unit Risk[2]	Inhalation Potency Factor[2]	Non-Inhalation Oral Slope Factor
	$(\mu g/m^3)^{-1}$	$(mg/kg\text{-}d)^{-1}$	$(mg/kg\text{-}d)^{-1}$
Diesel Particulate Matter	0.0003	1.1	NA (inhalation only)
Total PAHs[3]	0.001	3.9	12.0
Formaldehyde	0.000006	0.02	NA (inhalation only)
Benzene	0.029	0.10	NA (inhalation only)

[1]May 13, 2015.

[2]Inhalation cancer potency factor: The "unit risk factor" has been replaced in the new risk assessment algorithms by a factor called the "inhalation cancer potency factor". Inhalation cancer potency factors are expressed as units of inverse dose [i.e., (mg/kg-day)-1]. They were derived from unit risk factors [units = (ug/m3)-1] by assuming that a receptor weighs 70 kilograms and breathes 20 cubic meters of air per day. The inhalation potency factor is used to calculate a potential inhalation cancer risk using the new risk assessment algorithms defined in the OEHHA, *Air Toxics Hot Spots Program; Technical Support Document for Exposure Assessment and Stochastic Analysis (August 2012)*.

[3]Polycyclic Aromatic Hydrocarbons (PAHs): (Not including naphthalene.) These substances are PAH or PAH-derivatives that have OEHHA-developed Potency Equivalency Factors (PEFs) which were approved by the Scientific Review Panel in April 1994 (see ARB document entitled *Benzo[a]pyrene as a Toxic Air Contaminant*). PAH inhalation slope factors listed here have been adjusted by the PEFs. See OEHHA's Technical Support Document: Methodologies for Derivation, Listing of Available Values, and Adjustments to Allow for Early Life Exposures (2009) for more information about the scheme. Section 8.2.3 and Appendix G of OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (2003)* also contains information on PAHs.

5.0 - SIGNIFICANCE THRESHOLDS

SJVAPCD publishes CEQA significance thresholds for potential health risk from proposed projects. Currently, risks from a project that are less than the following regulatory thresholds are considered not to be significant and are, therefore, acceptable:

- Cancer risk equal to or less than 20 in one million
- Chronic hazard index equal to or less than 1
- Acute hazard index equal to or less than 1

These metrics are generally applied to the maximally exposed individual (MEI). There are separate MEIs for residential exposure (i.e., residential areas) and for worker exposure (i.e., offsite work places).

6.0 - HEALTH RISK ASSESSMENT RESULTS

None of the modeling scenarios exceed a 20 in one million risk.

A revised refined HRA was performed again using the HARP2 model. As shown, calculated cancer risk from drilling a 15,000' well exceeds a threshold of 10 cases in one million (Table 6) at only one location – the Western Derby Acres site. At a distance of 182 feet, risk is below 10 in one million.

None of the other drilling scenarios exceed a 10 in one million risk.

The scenario in which all of the oil and gas processing equipment operates full time and is located in the exact same location with a shared fenceline to private property results in 20 in one million risk level from 164 – 295 feet depending on the subarea of Kern County (Table 8).

None of the noncancer hazards for either an oil processing facility or a gas processing facility exceed the regulatory threshold of 1.0 (Tables 9 and 10).

Table 6 –

Potential health risk from well construction, drilling and completion emissions

Well Depth (feet)	Year	Maximum distance from well site and project boundary to 10 in one million calculated risk	Maximum distance from well site and project boundary to 20 in one million calculated risk
Western Subarea – Midway Sunset			
15,000	2017	NA*	NA
10,000	2015	NA	NA
10,000	2020	NA	NA
10,000	2029	NA	NA
5000	2015	NA	NA
5000	2029	NA	NA
2000	2015	NA	NA
2000	2029/2035	NA	NA
Central Subarea - Shafter			
15,000	2017	NA	NA
10,000	2015	NA	NA
10,000	2020	NA	NA
10,000	2029	NA	NA
5000	2015	NA	NA
5000	2029	NA	NA
2000	2015	NA	NA
2000	2029/2035	NA	NA
Eastern Subarea – Kern River			
15,000	2017	NA	NA
10,000	2015	NA	NA
10,000	2029	NA	NA
5000	2015	NA	NA
5000	2029	NA	NA
2000	2015	NA	NA
2000	2029/2035	NA	NA
Western Subarea – Derby Acres			
15,000	2017	182 feet	NA

*NA = no offsite risk greater than 10 in one million.

Table 7 –

Potential health risks from all oil processing equipment

Equipment	Western Subregion – Derby Acres Cancer Risk Distances	Western Subregion – Midway Sunset Cancer Risk Distances	Central Subregion Cancer Risk Distances	Eastern Subregion Cancer Risk Distances
1,000 bbl oil tank				
1,000 bbl oil tank				
3,000 bbl oil tank				
truck loading rack				
30'x30' sump				
10,000 btu/hour flare				
Fugitive VOCs				
1,000 bhp natural gas engine				
100 mmbtu/flare				
35 mm btu/hour steam generator				
8 mm btu/hour boiler				
33 mw cogen				
TEOR equipment				
TOTAL CUMULATIVE RISK Distances to 10 in one million	518'	296'	366'	295'
TOTAL CUMULATIVE RISK Distances to 20 in one million	246'	295'	164'	259'

*Risk distances assume that all equipment is placed along a shared fence line between the oil site
and a private residence.

NOTE: All of this equipment would require SJVAPCD air permits. As such, the risk threshold must be complied with or permits cannot be issued. Under this scenario, either less equipment could be used and/or the receptors cannot share a fence line in order to obtain permits.

Table 9
Potential Acute Impacts

Equipment	**Western Subregion *Midway Sunset* Acute Risk**	**Western Subregion *Derby Acres* Acute Risk**	**Central Subregion Acute Risk**	**Eastern Subregion Acute Risk**	**Hazard Index Standard**	**Significant?**
Drilling Emissions 10,000' well	0.0039	0.0018	0.0098	0.0090	1.0	No
Oil and Gas Processing Emissions	0.008	0.23	0.01	0.14	1.0	No

Table 10
Potential Chronic (Non Cancer Impacts)

Equipment	**Western Subregion *Midway Sunset* Chronic Risk**	**Western Subregion *Derby Acres* Chronic Risk**	**Central Subregion Chronic Risk**	**Eastern Subregion Chronic Risk**	**Hazard Index Standard**	**Significant**
Drilling Emissions 10,000' well	0.003	0.0018	0.006	0.002	1.0	No
Oil and Gas Processing Emissions	0.30	0.3	0.46	0.18	1.0	No

7.0 - REFERENCES

California Code of Regulations, Title 22, Division 2, Chapter 3, Section 12000 "Safe Drinking Water and Toxic Enforcement Act of 1986." California regulations can be downloaded at the following link: http://www.oal.ca.gov/.

CARB. 2015. "HARP User Guide." The document can be downloaded at the following link: http://www.arb.ca.gov/toxics/harp/harpug.htm

SCAQMD. 2007. "General Instruction Book for the 2006-2007 Annual Emission Reporting Program." The document can be downloaded at the following link: http://www.ecotek.com/aqmd/2006/forms_and_instructions_pdf/0607_GuideBook.pdf

SCAQMD. 2005. "Risk Assessment Procedures for Rules 1401 and 212". The document can be downloaded at the following links: http://www.aqmd.gov/prdas/pdf/riskassessmentprocedures-v7.pdf and http://www.aqmd.gov/prdas/pdf/attachmentpkg-l.pdf.

SCAQMD. 2005. "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). The document can be downloaded at the following link: http://www.aqmd.gov/prdas/AB2588/pdf/AB2588_Guidelines.pdf.

United States Environmental Protection Agency (U.S. EPA) 2004. User's Guide for the AMS/EPA Regulatory Model – AERMOD, EPA-454/B-03-001.

Meteorological data used by AERMOD was obtained by SJVAPCD for Bakersfield Station 23155.

OEHHA. 2003. "The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments." The document can be downloaded at the following link:http://www.oehha.ca.gov/air/hot_spots/HRSguide.html.

Vector Environmental: Emissions from Offroad Mobile Sources and Portable Equipment Required for the Construction of Wells. 2015. Criteria pollutant emission data by activity, phase and task for years 2012-2029.

Vector Environmental: MS Excel spreadsheet entitled: "DRL_EMISSIONS.xlsx".

Appendix A

Toxic Air Contaminants by Device

Source Name	Source ID	CAS #	Chemical Name	Pounds/year	Pounds/hour
Fugitive VOCs	FHC01	95636	"1,2,4 Trimethylbenzene"	0.01	0.00
Fugitive VOCs	FHC01	71432	Benzene	0.32	0.00
Fugitive VOCs	FHC01	110827	Cyclohexane	0.02	0.00
Fugitive VOCs	FHC01	100414	Ethylbenzene	0.10	0.00
Fugitive VOCs	FHC01	110543	n-Hexane	2.38	0.00
Fugitive VOCs	FHC01	108883	Toluene	0.36	0.00
Fugitive VOCs	FHC01	1330207	Xylenes	0.19	0.00
Fugitive VOCs	FHC01	7783064	Hydrogen sulfide	2.02	0.00
10 MMBtu/hr Flare	FLR01	75070	Acetaldehyde	3.77	0.00
10 MMBtu/hr Flare	FLR01	107028	Acrolein	0.88	0.00
10 MMBtu/hr Flare	FLR01	71432	Benzene	13.93	0.00
10 MMBtu/hr	FLR01	110827	Cyclohexane	0.00	0.00

Flare					
10 MMBtu/hr Flare	FLR01	100414	Ethylbenzene	126.49	0.01
10 MMBtu/hr Flare	FLR01	50000	Formaldehyde	102.40	0.01
10 MMBtu/hr Flare	FLR01	110543	n-Hexane	2.54	0.00
10 MMBtu/hr Flare	FLR01	7783064	Hydrogen sulfide	15.70	0.00
10 MMBtu/hr Flare	FLR01	91203	Naphthalene	0.96	0.00
10 MMBtu/hr Flare	FLR01	1151	PAH's	1.23	0.00
10 MMBtu/hr Flare	FLR01	115071	Propylene	213.74	0.02
10 MMBtu/hr Flare	FLR01	108883	Toluene	5.08	0.00
10 MMBtu/hr Flare	FLR01	1330207	Xylenes	2.54	0.00
Sump	SMP01	95636	"1,2,4 Trimethylbenzene"	0.23	0.00
Sump	SMP01	71432	Benzene	6.78	0.00
Sump	SMP01	110827	Cyclohexane	0.33	0.00

Sump	SMP01	100414	Ethylbenzene	2.16	0.00
Sump	SMP01	110543	n-Hexane	50.00	0.01
Sump	SMP01	108883	Toluene	7.60	0.00
Sump	SMP01	1330207	Xylenes	4.01	0.00
Sump	SMP01	7783064	Hydrogen sulfide	0.49	0.00
Truck Loading Rack	LDR01	95636	"1,2,4 Trimethylbenzene"	0.63	0.00
Truck Loading Rack	LDR01	71432	Benzene	18.92	0.00
Truck Loading Rack	LDR01	110827	Cyclohexane	0.92	0.00
Truck Loading Rack	LDR01	100414	Ethylbenzene	6.02	0.00
Truck Loading Rack	LDR01	110543	n-Hexane	139.46	0.02
Truck Loading Rack	LDR01	108883	Toluene	21.20	0.00
Truck Loading Rack	LDR01	1330207	Xylenes	11.18	0.00
Truck Loading Rack	LDR01	7783064	Hydrogen sulfide	1.36	0.00
Oil Storage Tank (1,000 bbls)	TNK03	95636	"1,2,4 Trimethylbenzene"	0.75	0.00

Oil Storage Tank (1,000 bbls)	TNK03	71432	Benzene	22.45	0.00
Oil Storage Tank (1,000 bbls)	TNK03	110827	Cyclohexane	1.10	0.00
Oil Storage Tank (1,000 bbls)	TNK03	100414	Ethylbenzene	7.15	0.00
Oil Storage Tank (1,000 bbls)	TNK03	110543	n-Hexane	165.48	0.02
Oil Storage Tank (1,000 bbls)	TNK03	108883	Toluene	25.16	0.00
Oil Storage Tank (1,000 bbls)	TNK03	1330207	Xylenes	13.26	0.00
Oil Storage Tank (1,000 bbls)	TNK03	7783064	Hydrogen sulfide	1.62	0.00
Oil Storage Tank (1,000 bbls)	TNK02	95636	"1,2,4 Trimethylbenzene"	0.75	0.00
Oil Storage Tank (1,000 bbls)	TNK02	71432	Benzene	22.45	0.00
Oil Storage Tank (1,000 bbls)	TNK02	110827	Cyclohexane	1.10	0.00
Oil Storage Tank (1,000 bbls)	TNK02	100414	Ethylbenzene	7.15	0.00

Oil Storage Tank (1,000 bbls)	TNK02	110543	n-Hexane	165.48	0.02
Oil Storage Tank (1,000 bbls)	TNK02	108883	Toluene	25.16	0.00
Oil Storage Tank (1,000 bbls)	TNK02	1330207	Xylenes	13.26	0.00
Oil Storage Tank (1,000 bbls)	TNK02	7783064	Hydrogen sulfide	1.62	0.00
Oil Storage Tank (3,000 bbls)	TNK01	95636	"1,2,4 Trimethylbenzene"	0.60	0.00
Oil Storage Tank (3,000 bbls)	TNK01	71432	Benzene	17.73	0.00
Oil Storage Tank (3,000 bbls)	TNK01	110827	Cyclohexane	0.87	0.00
Oil Storage Tank (3,000 bbls)	TNK01	100414	Ethylbenzene	5.64	0.00
Oil Storage Tank (3,000 bbls)	TNK01	110543	n-Hexane	130.72	0.02
Oil Storage Tank (3,000 bbls)	TNK01	108883	Toluene	19.87	0.00
Oil Storage Tank (3,000 bbls)	TNK01	1330207	Xylenes	10.48	0.00

Oil Storage Tank (3,000 bbls)	TNK01	7783064	Hydrogen sulfide	1.28	0.00
Process Heater	PHT01	83329	Acenaphthene	0.00	0.00
Process Heater	PHT01	208968	Acenaphthylene	0.01	0.00
Process Heater	PHT01	75070	Acetaldehyde	1.17	0.00
Process Heater	PHT01	107028	Acrolein	0.20	0.00
Process Heater	PHT01	120127	Anthracene	0.00	0.00
Process Heater	PHT01	56553	Benz(a)anthracene	0.00	0.00
Process Heater	PHT01	71432	Benzene	1.71	0.00
Process Heater	PHT01	50328	Benzo(a)pyrene	0.00	0.00
Process Heater	PHT01	205992	Benzo(b)fluoranthene	0.00	0.00
Process Heater	PHT01	191242	"Benzo(g,h,i)perylene"	0.00	0.00
Process Heater	PHT01	207089	Benzo(k)fluoranthene	0.00	0.00
Process Heater	PHT01	218019	Chrysene	0.00	0.00
Process Heater	PHT01	53703	"Dibenz(a,h)anthracene"	0.00	0.00
Process Heater	PHT01	206440	Fluoranthene	0.00	0.00

Process Heater	PHT01	86737	Fluorene	0.12	0.00
Process Heater	PHT01	50000	Formaldehyde	6.23	0.00
Process Heater	PHT01	7783064	Hydrogen sulfide	12.56	0.00
Process Heater	PHT01	193395	"Indeno(1,2,3-cd)pyrene"	0.00	0.00
Process Heater	PHT01	91203	Naphthalene	0.43	0.00
Process Heater	PHT01	85018	Phenanthrene	0.03	0.00
Process Heater	PHT01	108952	Phenol	0.15	0.00
Process Heater	PHT01	115071	Propylene	0.97	0.00
Process Heater	PHT01	129000	Pyrene	0.00	0.00
Process Heater	PHT01	108883	Toluene	2.12	0.00
Process Heater	PHT01	1330207	Xylenes	2.45	0.00
Steam Generator	SGR01	83329	Acenaphthene	0.00	0.00
Steam Generator	SGR01	208968	Acenaphthylene	0.01	0.00
Steam Generator	SGR01	75070	Acetaldehyde	19.88	0.00
Steam Generator	SGR01	107028	Acrolein	13.55	0.00
Steam	SGR01	120127	Anthracene	0.00	0.00

Generator					
Steam Generator	SGR01	56553	Benz(a)anthracene	0.00	0.00
Steam Generator	SGR01	71432	Benzene	4.62	0.00
Steam Generator	SGR01	50328	Benzo(a)pyrene	0.00	0.00
Steam Generator	SGR01	205992	Benzo(b)fluoranthene	0.00	0.00
Steam Generator	SGR01	191242	"Benzo(g,h,i)perylene"	0.00	0.00
Steam Generator	SGR01	207089	Benzo(k)fluoranthene	0.00	0.00
Steam Generator	SGR01	218019	Chrysene	0.00	0.00
Steam Generator	SGR01	53703	"Dibenz(a,h)anthracene"	0.00	0.00
Steam Generator	SGR01	100414	Ethylbenzene	13.85	0.00
Steam Generator	SGR01	206440	Fluoranthene	0.01	0.00
Steam Generator	SGR01	86737	Fluorene	0.01	0.00
Steam Generator	SGR01	50000	Formaldehyde	52.20	0.01
Steam Generator	SGR01	7783064	Hydrogen sulfide	133.42	0.02
Steam Generator	SGR01	193395	"Indeno(1,2,3-cd)pyrene"	0.00	0.00
Steam Generator	SGR01	91203	Naphthalene	0.41	0.00

Steam Generator	SGR01	85018	Phenanthrene	0.02	0.00
Steam Generator	SGR01	115071	Propylene	469.10	0.05
Steam Generator	SGR01	129000	Pyrene	0.01	0.00
Steam Generator	SGR01	108883	Toluene	22.93	0.00
Steam Generator	SGR01	1330207	Xylenes	30.01	0.00
1,000 hp ICE	ICE01	71432	Benzene	126.21	0.01
1,000 hp ICE	ICE01	50000	Formaldehyde	3118.12	0.36
1,000 hp ICE	ICE01	115071	Propylene	1187.86	0.14
1,000 hp ICE	ICE01	108883	Toluene	57.17	0.01
1,000 hp ICE	ICE01	1330207	Xylenes	28.95	0.00
1,000 hp ICE	ICE01	7783064	Hydrogen sulfide	13.30	0.00
Drilling Emissions	DRL01	9901.00	Diesel Particulate Matter	17.23	1
33 MW Cogen	COG01	71432	Benzene	36.07	0.00
33 MW Cogen	COG01	7783064	Hydrogen sulfide	442.64	0.05
33 MW Cogen	COG01	91203	Naphthalene	14.30	0.00
33 MW	COG01	1151	PAH's	0.63	0.00

Cogen					
33 MW Cogen	COG01	50000	Formaldehyde	454.54	0.05
Drilling Mud Sump	SMP02	95636	"1,2,4 Trimethylbenzene"	0.01	0.00
Drilling Mud Sump	SMP02	71432	Benzene	0.28	0.00
Drilling Mud Sump	SMP02	110827	Cyclohexane	0.01	0.00
Drilling Mud Sump	SMP02	100414	Ethylbenzene	0.09	0.00
Drilling Mud Sump	SMP02	110543	n-Hexane	2.10	0.00
Drilling Mud Sump	SMP02	108883	Toluene	0.32	0.00
Drilling Mud Sump	SMP02	1330207	Xylenes	0.17	0.00
Drilling Mud Sump	SMP02	7783064	Hydrogen sulfide	0.02	0.00
Boiler	BLR01	83329	Acenaphthene	0.00	0.00
Boiler	BLR01	208968	Acenaphthylene	0.00	0.00
Boiler	BLR01	75070	Acetaldehyde	2.34	0.00
Boiler	BLR01	107028	Acrolein	1.59	0.00
Boiler	BLR01	120127	Anthracene	0.00	0.00
Boiler	BLR01	56553	Benz(a)anthracene	0.00	0.00
Boiler	BLR01	71432	Benzene	0.54	0.00
Boiler	BLR01	50328	Benzo(a)pyrene	0.00	0.00
Boiler	BLR01	205992	Benzo(b)fluoranthene	0.00	0.00

Boiler	BLR01	191242	"Benzo(g,h,i)perylene"	0.00	0.00
Boiler	BLR01	207089	Benzo(k)fluoranthene	0.00	0.00
Boiler	BLR01	218019	Chrysene	0.00	0.00
Boiler	BLR01	53703	"Dibenz(a,h)anthracene"	0.00	0.00
Boiler	BLR01	100414	Ethylbenzene	1.63	0.00
Boiler	BLR01	206440	Fluoranthene	0.00	0.00
Boiler	BLR01	86737	Fluorene	0.00	0.00
Boiler	BLR01	50000	Formaldehyde	6.14	0.00
Boiler	BLR01	7783064	Hydrogen sulfide	15.70	0.00
Boiler	BLR01	193395	"Indeno(1,2,3-cd)pyrene"	0.00	0.00
Boiler	BLR01	91203	Naphthalene	0.05	0.00
Boiler	BLR01	85018	Phenanthrene	0.00	0.00
Boiler	BLR01	115071	Propylene	55.19	0.01
Boiler	BLR01	129000	Pyrene	0.00	0.00
Boiler	BLR01	108883	Toluene	2.70	0.00
Boiler	BLR01	1330207	Xylenes	3.53	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	95636	"1,2,4 Trimethylbenzene"	0.03	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	71432	Benzene	0.95	0.00
Thermally Enhanced	TEOR	110827	Cyclohexane	0.05	0.00

Oil Recovery Equipment					
Thermally Enhanced Oil Recovery Equipment	TEOR	100414	Ethylbenzene	0.30	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	110543	n-Hexane	6.98	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	108883	Toluene	1.06	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	1330207	Xylenes	0.56	0.00
Thermally Enhanced Oil Recovery Equipment	TEOR	7783064	Hydrogen sulfide	0.07	0.00
100 MMBtu/hr Flare	FLR02	75070	Acetaldehyde	37.67	0.00
100 MMBtu/hr Flare	FLR02	107028	Acrolein	8.76	0.00
100 MMBtu/hr	FLR02	71432	Benzene	139.28	0.02

Flare					
100 MMBtu/hr Flare	FLR02	110827	Cyclohexane	0.00	0.00
100 MMBtu/hr Flare	FLR02	100414	Ethylbenzene	1264.94	0.14
100 MMBtu/hr Flare	FLR02	50000	Formaldehyde	1024.04	0.12
100 MMBtu/hr Flare	FLR02	110543	n-Hexane	25.40	0.00
100 MMBtu/hr Flare	FLR02	7783064	Hydrogen sulfide	15.70	0.00
100 MMBtu/hr Flare	FLR02	91203	Naphthalene	9.64	0.00
100 MMBtu/hr Flare	FLR02	1151	PAH's	12.26	0.00
100 MMBtu/hr Flare	FLR02	115071	Propylene	2137.44	0.24
100 MMBtu/hr Flare	FLR02	108883	Toluene	50.81	0.01
100 MMBtu/hr Flare	FLR02	1330207	Xylenes	25.40	0.00

Appendix B –

Equipment and Emissions for Well Depths

2015 Emissions from a 2000 ft. Well

Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	3.46
Loader	1.0	4.0	2.5	100	.34
35 Yard Dump Truck	1.0	2 .0	1.00	400	.12
Grader	1.0	4.0	2.5	175	.77
Skip & Scrap (Backhoe)	1.0	1.0	1.0	100	.03
Big Scrapper	1.0	2.0	2.5	362	.47
Dozer (D9R)	1.0	1.0	1.0	255	.08
Low Bed Truck/Trailer	1.0	2.0	.5	400	.06
Dump Truck 10 Wheels	1.0	1.0	.5	400	.03
Backhoe	1.0	2.0	.54	100	.04
Loader	1.0	3.0	2.5	100	.26
Loader	1.0	2.0	1.0	100	.07
Escavator (Backoe/tracks)	1.0	1.0	1.0	163	.03
Dozer (D8T)	1.0	1.0	1.0	255	.08
End Dump Truck & Trailer	1.0	1.0	.50	400	.03
Grader	1.0	1.0	.50	175	.04
Annual Emissions From Offroad Source Activity					5.91

2015 Emissions from a 2000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	.58
Cement Truck	1.0	4.0	12.00	400	.70
Annual Emissions From Offroad Source Activity					1.28

2015 Emission from a 2000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.81
Port Light Stands	5.0	5.0	12.00	20	2.41
Portable Gen. Hydraulic Power	1.0	5.0	22.00	80	3.66
Portable Gen. DSM/Trailers	2.0	5.0	24.00	100	9.99
Portable Gen. Mud Separator	1.0	4.0	22.00	420	4.65
Rotary Table or Top Drive	1.0	4.0	22.00	135	5.63
Diesel Engine For Hoist	1.0	4.0	22.00	455	6.74
Diesel Engine For Hoist	1.0	4.0	22.0	442	6.55
Diesel Engine for Mud Pump	1.0	4.0	22.00	424	6.28
Annual Emissions From Offroad Source Activity					46.72

2015 Emissions from a 2000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	4.0	24.00	100	4.0
Filter Skid (Pump)	1.0	2.0	3.00	90	.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	4.0	22.00	765	2.17
Generator for Doghouse for WO Rig	1.0	4.0	24.00	70	2.8
3 Light Plants for WO Rig	3.0	4.0	12.00	20	1.15
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	4.0	22.00	420	4.65
Rotary Table or Top Drive	1.0	4.0	22.00	135	5.63
Diesel Engine for Hoist	1.0	4.0	22.00	455	6.74
Diesel Engine for Hoist	1.0	3.0	22.00	442	6.55
Diesel Engine for Mud Pump	1.0	4.0	22.00	424	6.28
Annual Emissions From Offroad Source Activity (Lb/Year)					42.71

2015 Emissions from a 2000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.92
Backhoe	1.0	3.0	10.00	95	.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	.48
Hydrotest Pump	1.0	1.0	1.00	.08	.01
Forklift	1.0	3.0	10.00	125	.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity					4.07

2015 Emissions from a 2000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.06
Backhoe	1.0	2.0	4.00	80	.22
Welder	1.0	2.0	8.00	25	.16
Annual Emissions From Offroad Source Activity					.44

2015 Emissions from a 2000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	.15
Power Generators	1.0	4.0	1.00	10	.02
Back-Hoe	1.0	1.0	10.00	650	.80
Annual Emissions From Offroad Source Activity					4.43

2015 Emissions from a 5000 ft. Well

Construction Activity: A1. Land Preparation

2015 Emissions from a 5000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	.58
Cement Truck	1.0	1.0	12.00	400	.70
Annual Emissions From Offroad Source Activity (Lb/Year					1.28

2015 Emission from a 5000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.81
Port Light Stands	5.0	9.0	12.00	20	4.33
Portable Gen. Hydraulic Power	1.0	9.0	22.00	80	6.60
Portable Gen. DSM/Trailers	2.0	9.0	24.00	100	17.99
Portable Gen. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine For Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine For Hoist	1.0	8.0	22.0	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity					89.42

2015 Emissions from a 5000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	8.0	24.00	100	8.00
Filter Skid (Pump)	1.0	2.0	3.00	90	.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	2.17
Generator for Doghouse for WO Rig	1.0	8.0	24.00	70	5.60
3 Light Plants for WO Rig	3.0	8.0	12.00	20	2.31
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine for Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine for Hoist	1.0	8.0	22.00	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity (Lb/Year)					80.51

2015 Emissions from a 5000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.92
Backhoe	1.0	3.0	10.00	95	.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	.48
Hydrotest Pump	1.0	1.0	1.00	.08	.01
Forklift	1.0	3.0	10.00	125	.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity					4.07

2015 Emissions from a 5000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.06
Backhoe	1.0	2.0	4.00	80	.22
Welder	1.0	2.0	8.00	25	.16
Annual Emissions From Offroad Source Activity					.44

2015 Emissions from a 5000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	.15
Power Generators	1.0	4.0	1.00	10	.02
Back-Hoe	1.0	1.0	10.00	650	.80
Annual Emissions From Offroad Source Activity					4.43

2015 Emissions from a 5000 ft. Well

Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	3.46
Loader	1.0	4.0	2.5	100	.34
35 Yard Dump Truck	1.0	2 .0	1.00	400	.12
Grader	1.0	4.0	2.5	175	.77
Skip & Scrap (Backhoe)	1.0	1.0	1.0	100	.03
Big Scrapper	1.0	2.0	2.5	362	.47
Dozer (D9R)	1.0	1.0	1.0	255	.08
Low Bed Truck/Trailer	1.0	2.0	.5	400	.06
Dump Truck 10 Wheels	1.0	1.0	.5	400	.03
Backhoe	1.0	2.0	.54	100	.04
Loader	1.0	3.0	2.5	100	.26
Loader	1.0	2.0	1.0	100	.07
Escavator (Backoe/tracks)	1.0	1.0	1.0	163	.03
Dozer (D8T)	1.0	1.0	1.0	255	.08
End Dump Truck & Trailer	1.0	1.0	.50	400	.03
Grader	1.0	1.0	.50	175	.04
Annual Emissions From Offroad Source Activity (Lb/Year)					5.91

2015 Emissions from a 5000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	.58
Cement Truck	1.0	1.0	12.00	400	.70
Annual Emissions From Offroad Source Activity (Lb/Year					1.28

2015 Emission from a 5000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.81
Port Light Stands	5.0	9.0	12.00	20	4.33
Portable Gen. Hydraulic Power	1.0	9.0	22.00	80	6.60
Portable Gen. DSM/Trailers	2.0	9.0	24.00	100	17.99
Portable Gen. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine For Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine For Hoist	1.0	8.0	22.0	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity					89.42

2015 Emissions from a 5000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	8.0	24.00	100	8.00
Filter Skid (Pump)	1.0	2.0	3.00	90	.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	2.17
Generator for Doghouse for WO Rig	1.0	8.0	24.00	70	5.60
3 Light Plants for WO Rig	3.0	8.0	12.00	20	2.31
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	8.0	22.00	420	9.30
Rotary Table or Top Drive	1.0	8.0	22.00	135	11.26
Diesel Engine for Hoist	1.0	8.0	22.00	455	13.48
Diesel Engine for Hoist	1.0	8.0	22.00	442	13.09
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	12.56
Annual Emissions From Offroad Source Activity (Lb/Year)					80.51

2015 Emissions from a 5000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.92
Backhoe	1.0	3.0	10.00	95	.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	.48
Hydrotest Pump	1.0	1.0	1.00	.08	.01
Forklift	1.0	3.0	10.00	125	.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity					4.07

2015 Emissions from a 5000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.06
Backhoe	1.0	2.0	4.00	80	.22
Welder	1.0	2.0	8.00	25	.16
Annual Emissions From Offroad Source Activity					.44

2015 Emissions from a 5000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	.15
Power Generators	1.0	4.0	1.00	10	.02
Back-Hoe	1.0	1.0	10.00	650	.80
Annual Emissions From Offroad Source Activity					4.43

2029/2035 Emissions from a 5000 ft. Well

Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	.58
Loader	1.0	4.0	2.5	100	.04
35 Yard Dump Truck	1.0	2 .0	1.00	400	.02
Grader	1.0	4.0	2.5	175	.15
Skip & Scrap (Backhoe)	1.0	1.0	1.0	100	.00
Big Scrapper	1.0	2.0	2.5	362	.11
Dozer (D9R)	1.0	1.0	1.0	255	.03
Low Bed Truck/Trailer	1.0	2.0	.5	400	.01
Dump Truck 10 Wheels	1.0	1.0	.5	400	.00
Backhoe	1.0	2.0	.54	100	.00
Loader	1.0	3.0	2.5	100	.03
Loader	1.0	2.0	1.0	100	.01
Escavator (Backoe/tracks)	1.0	1.0	1.0	163	.01
Dozer (D8T)	1.0	1.0	1.0	255	.03
End Dump Truck & Trailer	1.0	1.0	.50	400	.00
Grader	1.0	1.0	.50	175	.01
Annual Emissions From Offroad Source Activity (Lb/Year)					1.03

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig-Truck Mounted	1.0	1.0	12.00	100	.58
Cement Truck-Cement Mousehole	1.0	1.0	12.00	400	.12
Annual Emissions From Offroad Source Activity (Lb/Year)					.70

2029/2035 Emission from a 5000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	.19
Port Light Stands	5.0	9.0	12.00	20	.60
Portable Gen. Hydraulic Power	1.0	9.0	22.00	80	.86
Portable Gen. DSM/Trailers	2.0	9.0	24.00	100	2.35
Portable Gen. Mud Separator	1.0	8.0	22.00	420	1.37
Rotary Table or Top Drive	1.0	8.0	22.00	135	.74
Diesel Engine For Hoist	1.0	8.0	22.00	455	4.11
Diesel Engine For Hoist	1.0	8.0	22.00	442	3.99
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	3.83
Annual Emissions From Offroad Source Activity (Lb/Year)					18.04

2029/2035 Emissions from a 5000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	8.0	24.00	100	1.04
Filter Skid (Pump)	1.0	2.0	3.00	90	.03
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	.12
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	1.01
Generator for Doghouse for WO Rig	1.0	8.0	24.00	70	.73
3 Light Plants for WO Rig	3.0	8.0	12.00	20	.32
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	.51
Portable Den. Mud Separator	1.0	8.0	22.00	420	1.37
Rotary Table or Top Drive	1.0	8.0	22.00	135	.74
Diesel Engine for Hoist	1.0	8.0	22.00	455	4.11
Diesel Engine for Hoist	1.0	8.0	22.00	442	3.99
Diesel Engine for Mud Pump	1.0	8.0	22.00	424	3.83
Annual Emissions From Offroad Source Activity (Lb/Year)					17.80

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	.15
Backhoe	1.0	3.0	10.00	95	.12
Pipe Fitting or Welders	1.0	3.0	10.00	40	.07
Hydrotest Pump	1.0	1.0	1.00	.08	.00
Forklift	1.0	3.0	10.00	125	.08
Other Equipment/Bending Machine	1.0	3.0	10.00	80	.31
Annual Emissions From Offroad Source Activity					.73

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	.01
Backhoe	1.0	2.0	4.00	80	.03
Welder	1.0	2.0	8.00	25	.02
Annual Emissions From Offroad Source Activity					.06

2029/2035 Emissions from a 5000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	\1.0	4.0	10.00	250	.20
Bucket Truck	1.0	4.0	10.00	250	.20
Electrical Service Truck	1.0	4.0	1.00	300	.02
Power Generators	1.0	4.0	1.00	10	.00
Back-Hoe	1.0	1.0	10.00	650	.19
Annual Emissions From Offroad Source Activity					.61

2015 Emissions from a 10,000' Well
Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	3.46
Loader	1.0	4.0	2.50	100	0.34
35 Yard Dump Truck	1.0	2.0	1.00	400	0.12
Grader	1.0	4.0	2.50	175	0.77
Skip & Scrap (Backhoe)	1.0	1.0	1.00	100	0.03
Big Scrapper	1.0	2.0	2.50	362	0.47
Dozer (D9R)	1.0	1.0	1.00	255	0.08
Low Bed Truck/Trailer	1.0	2.0	0.50	400	0.06
Dump Truck 10 Wheels	1.0	1.0	0.50	400	0.03
Backhoe	1.0	2.0	0.54	100	0.04
Loader	1.0	3.0	2.50	100	0.26
Loader	1.0	2.0	1.00	100	0.07
Escavator (Backoe/tracks)	1.0	1.0	1.00	163	0.03
Dozer (D8T)	1.0	1.0	1.00	255	0.08
End Dump Truck & Trailer	1.0	1.0	0.50	400	0.03
Grader	1.0	1.0	0.50	175	0.04
Annual Emissions From Offroad Source Activity (Lb/Year)					5.91

2015 Emissions from a 10,000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	0.58
Cement Truck	1.0	1.0	12.00	400	0.70
Annual Emissions From Offroad Source Activity (Lb/Year)					1.28

2010 Emission from a 10,000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	0.81
Port Light Stands	5.0	24.0	12.00	20	11.55
Portable Gen. Hydraulic Power	1.0	24.0	22.00	80	17.59
Portable Gen. DSM/Trailers	2.0	24.0	24.00	100	47.97
Portable Gen. Mud Separator	1.0	23.0	22.00	420	26.75
Rotary Table or Top Drive	1.0	23.0	22.00	144	34.52
Diesel Engine For Hoist	1.0	23.0	22.00	996	88.93
Diesel Engine For Hoist	1.0	23.0	22.00	981	87.59
Diesel Engine for Mud Pump	1.0	23.0	22.00	1145	102.23
Annual Emissions From Offroad Source Activity (Lb/Year)					417.94

2015 Emissions from a 10,000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	13.0	24.00	100	12.99
Filter Skid (Pump)	1.0	2.0	3.00	90	0.22
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	0.85
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	2.017
Generator for Doghouse for WO Rig	1.0	13.0	24.00	70	9.10
3 Light Plants for WO Rig	3.0	13.0	12.00	20	3.75
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.67
Portable Den. Mud Separator	1.0	13.0	22.00	420	15.12
Rotary Table or Top Drive	1.0	13.0	22.00	135	18.29
Diesel Engine for Hoist	1.0	13.0	22.00	455	21.90
Diesel Engine for Hoist	1.0	13.0	22.00	442	21.28
Diesel Engine for Mud Pump	1.0	13.0	22.00	424	20.41
Annual Emissions From Offroad Source Activity (Lb/Year)					127.75

2015 Emissions from a 10,000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	0.92
Backhoe	1.0	3.0	10.00	95	0.98
Pipe Fitting or Welders	1.0	3.0	10.00	40	0.48
Hydrotest Pump	1.0	1.0	1.00	20	0.01
Forklift	1.0	3.0	10.00	125	0.56
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.12
Annual Emissions From Offroad Source Activity (Lb/Year)					4.07

2015 Emissions from a 10,000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	0.06
Backhoe	1.0	2.0	4.00	80	0.22
Welder	1.0	2.0	8.00	25	0.16
Annual Emissions From Offroad Source Activity (Lb/Year)					0.44

2015 Emissions from a 10,000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.73
Bucket Truck	1.0	4.0	10.00	250	1.73
Electrical Service Truck	1.0	4.0	1.00	300	0.15
Power Generators	1.0	4.0	1.00	10	0.02
Back-Hoe	1.0	1.0	10.00	650	0.80
Annual Emissions From Offroad Source Activity (Lb/Year)					4.43

2029/2035 Emissions from a 10,000 Ft. Well					
Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	0.58
Loader	1.0	4.0	2.50	100	0.04
35 Yard Dump Truck	1.0	2.0	1.00	400	0.02
Grader	1.0	4.0	2.50	175	0.15
Skip & Scrap (Backhoe)	1.0	1.0	1.00	100	0.00
Big Scrapper	1.0	2.0	2.50	362	0.11
Dozer (D9R)	1.0	1.0	1.00	255	0.03
Low Bed Truck/Trailer	1.0	2.0	0.50	400	0.01
Dump Truck 10 Wheels	1.0	1.0	0.50	400	0.00
Backhoe	1.0	2.0	0.54	100	0.00
Loader	1.0	3.0	2.50	100	0.03
Loader	1.0	2.0	1.00	100	0.01
Escavator (Backoe/tracks)	1.0	1.0	1.00	163	0.01
Dozer (D8T)	1.0	1.0	1.00	255	0.03
End Dump Truck & Trailer	1.0	1.0	0.50	400	0.00
Grader	1.0	1.0	0.50	175	0.01
Annual Emissions From Offroad Source Activity (Lb/Year)					1.03
Construction Activity: A.1 Land Preparation					

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: B.1 Drilling Survey

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	0.58
Cement Truck	1.0	1.0	12.00	400	0.12
Annual Emissions From Offroad Source Activity (Lb/Year)					0.70

2029/2035 Emission from a 10,000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.00	8.00	230	0.19
Port Light Stands	5.0	24.0	12.00	20	1.61
Portable Gen. Hydraulic Power	1.0	24.0	22.00	80	2.30
Portable Gen. DSM/Trailers	2.0	24.0	24.00	100	6.27
Portable Gen. Mud Separator	1.0	23.0	22.00	420	3.94
Rotary Table or Top Drive	1.0	23.0	22.00	144	2.28
Diesel Engine For Hoist	1.0	23.0	22.00	996	37.47
Diesel Engine For Hoist	1.0	23.0	22.00	981	36.90
Diesel Engine for Mud Pump	1.0	23.0	22.00	1145	43.07
Annual Emissions From Offroad Source Activity (Lb/Year)					134.03

2029/2035 Emissions from a 10,000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	13.0	24.00	100	1.70
Filter Skid (Pump)	1.0	2.0	3.00	90	0.03
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	0.12
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	1.01
Generator for Doghouse for WO Rig	1.0	13.0	24.00	70	1.19
3 Light Plants for WO Rig	3.0	13.0	12.00	20	0.52
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	0.51
Portable Den. Mud Separator	1.0	13.0	22.00	420	2.22
Rotary Table or Top Drive	1.0	13.0	22.00	135	1.21
Diesel Engine for Hoist	1.0	13.0	22.00	455	6.67
Diesel Engine for Hoist	1.0	13.0	22.00	442	6.48
Diesel Engine for Mud Pump	1.0	13.0	22.00	424	6.22
Annual Emissions From Offroad Source Activity (Lb/Year)					27.88

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	0.15
Backhoe	1.0	3.0	10.00	95	0.12
Pipe Fitting or Welders	1.0	3.0	10.00	40	0.07
Hydrotest Pump	1.0	1.0	1.00	20	0.00
Forklift	1.0	3.0	10.00	125	0.08
Other Equipment/Bending Machine	1.0	3.0	10.00	80	0.31
Annual Emissions From Offroad Source Activity (Lb/Year)					0.73

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	0.01
Backhoe	1.0	2.0	4.00	80	0.03
Welder	1.0	2.0	8.00	25	0.02
Annual Emissions From Offroad Source Activity (Lb/Year)					0.06

2029/2035 Emissions from a 10,000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	0.20
Bucket Truck	1.0	4.0	10.00	250	0.20
Electrical Service Truck	1.0	4.0	1.00	300	0.02
Power Generators	1.0	4.0	1.00	10	0.00
Back-Hoe	1.0	1.0	10.00	650	0.19
Annual Emissions From Offroad Source Activity (Lb/Year)					0.61

2017 Emissions from a 15,000 ft. Well

Construction Activity: A1. Land Preparation

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Water Truck	1.0	7.0	8.48	400	2.72
Loader	1.0	4.0	2.50	100	0.29
35 Yard Dump Truck	1.0	2.0	1.00	400	0.09
Grader	1.0	4.0	2.5	175	0.68
Skip & Scrap (Backhoe)	1.0	1.0	1.0	100	0.03
Big Scrapper	1.0	2.0	2.5	362	0.41
Dozer (D9R)	1.0	1.0	1.0	255	0.08
Low Bed Truck/Trailer	1.0	2.0	.50	400	0.05
Dump Truck 10 Wheels	1.0	1.0	.50	400	0.02
Backhoe	1.0	2.0	.54	100	0.03
Loader	1.0	3.0	2.50	100	0.22
Loader	1.0	2.0	1.00	100	0.06
Escavator (Backoe/tracks)	1.0	1.0	1.00	163	0.02
Dozer (D8T)	1.0	1.0	1.00	255	0.08
End Dump Truck & Trailer	1.0	1.0	.50	400	0.02
Grader	1.0	1.0	.50	175	0.03
Annual Emissions From Offroad Source Activity (Lb/Year)					4.83

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Rig	1.0	1.0	12.00	100	0.58
Cement Truck	1.0	1.0	12.00	400	0.55
Annual Emissions From Offroad Source Activity (Lb/Year)					1.13

2017 Emission from a 15,000 Ft. Well

Construction Activity: C.1 Well Drilling

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Portable Crane	1.0	2.0	8.00	230	0.69
Port Light Stands	5.0	66.0	12.00	20	28.59
Portable Gen. Hydraulic Power	1.0	66.0	22.00	80	41.17
Portable Gen. DSM/Trailers	2.0	66.0	24.00	100	112.28
Portable Gen. Mud Separator	1.0	65.0	22.00	420	68.79
Rotary Table or Top Drive	1.0	65.0	22.00	158	86.28
Diesel Engine For Hoist	1.0	65.0	22.00	1094	276.05
Diesel Engine For Hoist	1.0	65.0	22.00	962	242.74
Diesel Engine for Mud Pump	1.0	65.0	22.00	1898	478.93
Annual Emissions From Offroad Source Activity (Lb/Year)					1335.52

2017 Emissions from a 15,000 Ft Well

Construction Activity: D.1 Well Completion

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Accumulator Generator	1.0	17.0	24.00	100	14.46
Filter Skid (Pump)	1.0	2.0	3.00	90	0.19
Acid Pump #1 (Hydraulic Oil Pump)	1.0	1.0	22.00	175	0.72
Acid Pump #2 (Acid Fluid Pumping)	1.0	1.0	22.00	765	1.45
Generator for Doghouse for WO Rig	1.0	17.0	24.00	70	10.12
3 Light Plants for WO Rig	3.0	17.0	12.00	20	4.42
Diesel Engine for COROD or Other	1.0	1.0	22.00	450	1.49
Portable Den. Mud Separator	1.0	17.0	22.00	420	17.99
Rotary Table or Top Drive	1.0	17.0	22.00	144	20.57
Diesel Engine for Hoist	1.0	17.0	22.00	996	65.73
Diesel Engine for Hoist	1.0	17.0	22.00	981	64.74
Diesel Engine for Mud Pump	1.0	17.0	22.00	1145	75.56
Annual Emissions From Offroad Source Activity (Lb/Year)					277.44

2017 Emissions from a 15,000 Ft. Well

Construction Activity: E.1 Well Flowline

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Side Boom D4/Crawler	1.0	3.0	10.00	520	0.79
Backhoe	1.0	3.0	10.00	95	0.84
Pipe Fitting or Welders	1.0	3.0	10.00	40	0.43
Hydrotest Pump	1.0	1.0	1.00	20	0.01
Forklift	1.0	3.0	10.00	125	0.49
Other Equipment/Bending Machine	1.0	3.0	10.00	80	1.04
Annual Emissions From Offroad Source Activity (Lb/Year)					3.60

2017 Emissions from a 15,000 Ft. Well

Construction Activity: F.1 Pump Unit

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Power Generator	1.0	2.0	8.00	10	0.06
Backhoe	1.0	2.0	4.00	80	0.19
Welder	1.0	2.0	8.00	25	0.14
Annual Emissions From Offroad Source Activity (Lb/Year)					0.39

2017 Emissions from a 15,000 Ft. Well

Construction Activity: G.1 Electrical

Vehicle Category and Use	Equipment		Engine		Emissions from Offroad Mobile Source Equipment (Lb/Well)
Description of Offroad Equipment	Count	Op Days	Hr/Day	HP	PM10
Line Truck	1.0	4.0	10.00	250	1.50
Bucket Truck	1.0	4.0	10.00	250	1.50
Electrical Service Truck	1.0	4.0	1.00	300	0.14
Power Generators	1.0	4.0	1.00	10	0.01
Back-Hoe	1.0	1.0	10.00	650	0.74
Annual Emissions From Offroad Source Activity (Lb/Year)					3.89

Appendix C
Emission Calculations

KERN EIR
CRITERIA POLLUTANTS
Updated May 7, 2015

100	PPMV H2S
1000	Btu/ft3

SRC ID			NOx	VOC	CO	SO2	PM10	PM2.5	H2S
FHC01	1-Hour	lb/hr		0.013					2.66E-06
FHC01	Daily	lb/day		0.300					6.38E-05
FHC01	Annual	tpy		0.055					1.16E-05
FLR01	1-Hour	lb/hr	1.330	0.027	0.680	0.165	0.076	0.076	1.79E-03
FLR01	Daily	lb/day	31.920	0.648	16.320	3.966	1.824	1.824	4.30E-02
FLR01	Annual	tpy	5.825	0.118	2.978	0.724	0.333	0.333	7.85E-03
SMP01	1-Hour	lb/hr		0.263					5.58E-05
SMP01	Daily	lb/day		6.300					1.34E-03
SMP01	Annual	tpy		1.150					2.44E-04
LDR01	1-Hour	lb/hr		0.732					1.56E-04
LDR01	Daily	lb/day		17.571					3.73E-03
LDR01	Annual	tpy		3.207					6.81E-04
TNK03	1-Hour	lb/hr		0.869					1.85E-04
TNK03	Daily	lb/day		20.850					4.43E-03
TNK03	Annual	tpy		3.805					8.09E-04
TNK02	1-Hour	lb/hr		0.869					1.85E-04
TNK02	Daily	lb/day		20.850					4.43E-03
TNK02	Annual	tpy		3.805					8.09E-04
TNK01	1-Hour	lb/hr		0.686					1.46E-04
TNK01	Daily	lb/day		16.470					3.50E-03
TNK01	Annual	tpy		3.006					6.39E-04
PHT01	1-Hour	lb/hr	0.088	0.044	0.672	0.132	0.061	0.061	1.43E-03
PHT01	Daily	lb/day	2.112	1.056	16.128	3.173	1.459	1.459	3.44E-02
PHT01	Annual	tpy	0.385	0.193	2.943	0.579	0.266	0.266	6.28E-03
SGR01	1-Hour	lb/hr	0.595	0.468	7.140	1.405	0.646	0.646	1.52E-02
SGR01	Daily	lb/day	14.280	11.220	171.360	33.715	15.504	15.504	3.66E-01
SGR01	Annual	tpy	2.606	2.048	31.273	6.153	2.829	2.829	6.67E-02
ICE01	1-Hour	lb/hr	0.259	0.322	1.126	0.140	0.044	0.044	1.52E-03
ICE01	Daily	lb/day	6.217	7.724	27.032	3.362	1.058	1.058	3.64E-02
ICE01	Annual	tpy	1.135	1.410	4.933	0.613	0.193	0.193	6.65E-03
DRL01	1-Hour	lb/hr					2.033	2.033	
DRL01	Daily	lb/day					24.391	24.391	
DRL01	Annual	tpy					0.009	0.009	
COG01	1-Hour	lb/hr	1.692	0.592	23.123	4.660	1.861	1.861	5.05E-02
COG01	Daily	lb/day	40.606	14.212	554.946	111.849	44.666	44.666	1.21E+00
COG01	Annual	tpy	7.411	2.594	101.278	20.412	8.152	8.152	2.21E-01
SMP02	1-Hour	lb/hr		0.011					2.34E-06
SMP02	Daily	lb/day		0.265					5.62E-05
SMP02	Annual	tpy		0.048					1.03E-05
BLR01	1-Hour	lb/hr	0.110	0.055	0.840	0.165	0.076	0.076	1.79E-03
BLR01	Daily	lb/day	2.640	1.320	20.160	3.966	1.824	1.824	4.30E-02
BLR01	Annual	tpy	0.482	0.241	3.679	0.724	0.333	0.333	7.85E-03
TEOR	1-Hour	lb/hr		0.037					7.79E-06
TEOR	Daily	lb/day		0.880					1.87E-04
TEOR	Annual	tpy		0.161					3.41E-05
FLR02	1-Hour	lb/hr	13.300	0.270	6.800	1.653	0.760	0.760	1.79E-02
FLR02	Daily	lb/day	319.200	6.480	163.200	39.665	18.240	18.240	4.30E-01
FLR02	Annual	tpy	58.254	1.183	29.784	7.239	3.329	3.329	7.85E-02

Notes
1. Only change yellow highlighted cells
2. Do not change toxic summary or toxic source sheets

KERN EIR

SRC ID	0	0	CAS	NAME	lb/yr		lb/hr	
FHC01	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.01	0.00	1
FHC01	0	0	71432	Benzene	1	0.32	0.00	1
FHC01	0	0	110827	Cyclohexane	1	0.02	0.00	1
FHC01	0	0	100414	Ethylbenzene	1	0.10	0.00	1
FHC01	0	0	110543	n-Hexane	1	2.38	0.00	1
FHC01	0	0	108883	Toluene	1	0.36	0.00	1
FHC01	0	0	1330207	Xylenes	1	0.19	0.00	1
FHC01	0	0	7783064	Hydrogen sulfide	1	0.02	0.00	1
FLR01	0	0	75070	Acetaldehyde	1	3.77	0.00	1
FLR01	0	0	107028	Acrolein	1	0.88	0.00	1
FLR01	0	0	71432	Benzene	1	13.93	0.00	1
FLR01	0	0	110827	Cyclohexane	1	0.00	0.00	1
FLR01	0	0	100414	Ethylbenzene	1	126.49	0.01	1
FLR01	0	0	50000	Formaldehyde	1	102.40	0.01	1
FLR01	0	0	110543	n-Hexane	1	2.54	0.00	1
FLR01	0	0	7783064	Hydrogen sulfide	1	15.70	0.00	1
FLR01	0	0	91203	Naphthalene	1	0.96	0.00	1
FLR01	0	0	1151	PAH's	1	1.23	0.00	1
FLR01	0	0	115071	Propylene	1	213.74	0.02	1
FLR01	0	0	108883	Toluene	1	5.08	0.00	1
FLR01	0	0	1330207	Xylenes	1	2.54	0.00	1
SMP01	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.23	0.00	1
SMP01	0	0	71432	Benzene	1	6.78	0.00	1
SMP01	0	0	110827	Cyclohexane	1	0.33	0.00	1
SMP01	0	0	100414	Ethylbenzene	1	2.16	0.00	1
SMP01	0	0	110543	n-Hexane	1	50.00	0.01	1
SMP01	0	0	108883	Toluene	1	7.60	0.00	1
SMP01	0	0	1330207	Xylenes	1	4.01	0.00	1
SMP01	0	0	7783064	Hydrogen sulfide	1	0.49	0.00	1
LDR01	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.63	0.00	1
LDR01	0	0	71432	Benzene	1	18.92	0.00	1
LDR01	0	0	110827	Cyclohexane	1	0.92	0.00	1
LDR01	0	0	100414	Ethylbenzene	1	6.02	0.00	1
LDR01	0	0	110543	n-Hexane	1	139.46	0.02	1
LDR01	0	0	108883	Toluene	1	21.20	0.00	1
LDR01	0	0	1330207	Xylenes	1	11.18	0.00	1
LDR01	0	0	7783064	Hydrogen sulfide	1	1.36	0.00	1
TNK03	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.75	0.00	1
TNK03	0	0	71432	Benzene	1	22.45	0.00	1
TNK03	0	0	110827	Cyclohexane	1	1.10	0.00	1
TNK03	0	0	100414	Ethylbenzene	1	7.15	0.00	1
TNK03	0	0	110543	n-Hexane	1	165.48	0.02	1
TNK03	0	0	108883	Toluene	1	25.16	0.00	1
TNK03	0	0	1330207	Xylenes	1	13.26	0.00	1
TNK03	0	0	7783064	Hydrogen sulfide	1	1.62	0.00	1
TNK02	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.75	0.00	1
TNK02	0	0	71432	Benzene	1	22.45	0.00	1
TNK02	0	0	110827	Cyclohexane	1	1.10	0.00	1
TNK02	0	0	100414	Ethylbenzene	1	7.15	0.00	1
TNK02	0	0	110543	n-Hexane	1	165.48	0.02	1
TNK02	0	0	108883	Toluene	1	25.16	0.00	1
TNK02	0	0	1330207	Xylenes	1	13.26	0.00	1
TNK02	0	0	7783064	Hydrogen sulfide	1	1.62	0.00	1
TNK01	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.60	0.00	1
TNK01	0	0	71432	Benzene	1	17.73	0.00	1
TNK01	0	0	110827	Cyclohexane	1	0.87	0.00	1
TNK01	0	0	100414	Ethylbenzene	1	5.64	0.00	1
TNK01	0	0	110543	n-Hexane	1	130.72	0.02	1
TNK01	0	0	108883	Toluene	1	19.87	0.00	1
TNK01	0	0	1330207	Xylenes	1	10.48	0.00	1
TNK01	0	0	7783064	Hydrogen sulfide	1	1.28	0.00	1
PHT01	0	0	83329	Acenaphthene	1	0.00	0.00	1
PHT01	0	0	208968	Acenaphthylene	1	0.01	0.00	1

PHT01	0	0	75070	Acetaldehyde	1	1.17	0.00	1
PHT01	0	0	107028	Acrolein	1	0.20	0.00	1
PHT01	0	0	120127	Anthracene	1	0.00	0.00	1
PHT01	0	0	56553	Benz(a)anthracene	1	0.00	0.00	1
PHT01	0	0	71432	Benzene	1	1.71	0.00	1
PHT01	0	0	50328	Benzo(a)pyrene	1	0.00	0.00	1
PHT01	0	0	205992	Benzo(b)fluoranthene	1	0.00	0.00	1
PHT01	0	0	191242	"Benzo(g,h,i)perylene"	1	0.00	0.00	1
PHT01	0	0	207089	Benzo(k)fluoranthene	1	0.00	0.00	1
PHT01	0	0	218019	Chrysene	1	0.00	0.00	1
PHT01	0	0	53703	"Dibenz(a,h)anthracene"	1	0.00	0.00	1
PHT01	0	0	206440	Fluoranthene	1	0.00	0.00	1
PHT01	0	0	86737	Fluorene	1	0.12	0.00	1
PHT01	0	0	50000	Formaldehyde	1	6.23	0.00	1
PHT01	0	0	7783064	Hydrogen sulfide	1	12.56	0.00	1
PHT01	0	0	193395	"Indeno(1,2,3-cd)pyrene"	1	0.00	0.00	1
PHT01	0	0	91203	Naphthalene	1	0.43	0.00	1
PHT01	0	0	85018	Phenanthrene	1	0.03	0.00	1
PHT01	0	0	108952	Phenol	1	0.15	0.00	1
PHT01	0	0	115071	Propylene	1	0.97	0.00	1
PHT01	0	0	129000	Pyrene	1	0.00	0.00	1
PHT01	0	0	108883	Toluene	1	2.12	0.00	1
PHT01	0	0	1330207	Xylenes	1	2.45	0.00	1
SGR01	0	0	83329	Acenaphthene	1	0.00	0.00	1
SGR01	0	0	208968	Acenaphthylene	1	0.01	0.00	1
SGR01	0	0	75070	Acetaldehyde	1	19.88	0.00	1
SGR01	0	0	107028	Acrolein	1	13.55	0.00	1
SGR01	0	0	120127	Anthracene	1	0.00	0.00	1
SGR01	0	0	56553	Benz(a)anthracene	1	0.00	0.00	1
SGR01	0	0	71432	Benzene	1	4.62	0.00	1
SGR01	0	0	50328	Benzo(a)pyrene	1	0.00	0.00	1
SGR01	0	0	205992	Benzo(b)fluoranthene	1	0.00	0.00	1
SGR01	0	0	191242	"Benzo(g,h,i)perylene"	1	0.00	0.00	1
SGR01	0	0	207089	Benzo(k)fluoranthene	1	0.00	0.00	1
SGR01	0	0	218019	Chrysene	1	0.00	0.00	1
SGR01	0	0	53703	"Dibenz(a,h)anthracene"	1	0.00	0.00	1
SGR01	0	0	100414	Ethylbenzene	1	13.85	0.00	1
SGR01	0	0	206440	Fluoranthene	1	0.01	0.00	1
SGR01	0	0	86737	Fluorene	1	0.01	0.00	1
SGR01	0	0	50000	Formaldehyde	1	52.20	0.01	1
SGR01	0	0	7783064	Hydrogen sulfide	1	133.42	0.02	1
SGR01	0	0	193395	"Indeno(1,2,3-cd)pyrene"	1	0.00	0.00	1
SGR01	0	0	91203	Naphthalene	1	0.41	0.00	1
SGR01	0	0	85018	Phenanthrene	1	0.02	0.00	1
SGR01	0	0	115071	Propylene	1	469.10	0.05	1
SGR01	0	0	129000	Pyrene	1	0.01	0.00	1
SGR01	0	0	108883	Toluene	1	22.93	0.00	1
SGR01	0	0	1330207	Xylenes	1	30.01	0.00	1
ICE01	0	0	71432	Benzene	1	126.21	0.01	1
ICE01	0	0	50000	Formaldehyde	1	3118.12	0.36	1
ICE01	0	0	115071	Propylene	1	1187.86	0.14	1
ICE01	0	0	108883	Toluene	1	57.17	0.01	1
ICE01	0	0	1330207	Xylenes	1	28.95	0.00	1
ICE01	0	0	7783064	Hydrogen sulfide	1	13.30	0.00	1
DRL01	0	0	9901.00	Diesel Particulate Matter	1	18.70	2.03	1
COG01	0	0	71432	Benzene	1	36.07	0.00	1
COG01	0	0	7783064	Hydrogen sulfide	1	442.64	0.05	1
COG01	0	0	91203	Naphthalene	1	14.30	0.00	1
COG01	0	0	1151	PAH's	1	0.63	0.00	1
COG01	0	0	50000	Formaldehyde	1	454.54	0.05	1
SMP02	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.01	0.00	1
SMP02	0	0	71432	Benzene	1	0.28	0.00	1
SMP02	0	0	110827	Cyclohexane	1	0.01	0.00	1
SMP02	0	0	100414	Ethylbenzene	1	0.09	0.00	1
SMP02	0	0	110543	n-Hexane	1	2.10	0.00	1
SMP02	0	0	108883	Toluene	1	0.32	0.00	1

SMP02	0	0	1330207	Xylenes	1	0.17	0.00	1
SMP02	0	0	7783064	Hydrogen sulfide	1	0.02	0.00	1
BLR01	0	0	83329	Acenaphthene	1	0.00	0.00	1
BLR01	0	0	208968	Acenaphthylene	1	0.00	0.00	1
BLR01	0	0	75070	Acetaldehyde	1	2.34	0.00	1
BLR01	0	0	107028	Acrolein	1	1.59	0.00	1
BLR01	0	0	120127	Anthracene	1	0.00	0.00	1
BLR01	0	0	56553	Benz(a)anthracene	1	0.00	0.00	1
BLR01	0	0	71432	Benzene	1	0.54	0.00	1
BLR01	0	0	50328	Benzo(a)pyrene	1	0.00	0.00	1
BLR01	0	0	205992	Benzo(b)fluoranthene	1	0.00	0.00	1
BLR01	0	0	191242	"Benzo(g,h,i)perylene"	1	0.00	0.00	1
BLR01	0	0	207089	Benzo(k)fluoranthene	1	0.00	0.00	1
BLR01	0	0	218019	Chrysene	1	0.00	0.00	1
BLR01	0	0	53703	"Dibenz(a,h)anthracene"	1	0.00	0.00	1
BLR01	0	0	100414	Ethylbenzene	1	1.63	0.00	1
BLR01	0	0	206440	Fluoranthene	1	0.00	0.00	1
BLR01	0	0	86737	Fluorene	1	0.00	0.00	1
BLR01	0	0	50000	Formaldehyde	1	6.14	0.00	1
BLR01	0	0	7783064	Hydrogen sulfide	1	15.70	0.00	1
BLR01	0	0	193395	"Indeno(1,2,3-cd)pyrene"	1	0.00	0.00	1
BLR01	0	0	91203	Naphthalene	1	0.05	0.00	1
BLR01	0	0	85018	Phenanthrene	1	0.00	0.00	1
BLR01	0	0	115071	Propylene	1	55.19	0.01	1
BLR01	0	0	129000	Pyrene	1	0.00	0.00	1
BLR01	0	0	108883	Toluene	1	2.70	0.00	1
BLR01	0	0	1330207	Xylenes	1	3.53	0.00	1
TEOR	0	0	95636	"1,2,4 Trimethylbenzene"	1	0.03	0.00	1
TEOR	0	0	71432	Benzene	1	0.95	0.00	1
TEOR	0	0	110827	Cyclohexane	1	0.05	0.00	1
TEOR	0	0	100414	Ethylbenzene	1	0.30	0.00	1
TEOR	0	0	110543	n-Hexane	1	6.98	0.00	1
TEOR	0	0	108883	Toluene	1	1.06	0.00	1
TEOR	0	0	1330207	Xylenes	1	0.56	0.00	1
TEOR	0	0	7783064	Hydrogen sulfide	1	0.07	0.00	1
FLR02	0	0	75070	Acetaldehyde	1	37.67	0.00	1
FLR02	0	0	107028	Acrolein	1	8.76	0.00	1
FLR02	0	0	71432	Benzene	1	139.28	0.02	1
FLR02	0	0	110827	Cyclohexane	1	0.00	0.00	1
FLR02	0	0	100414	Ethylbenzene	1	1264.94	0.14	1
FLR02	0	0	50000	Formaldehyde	1	1024.04	0.12	1
FLR02	0	0	110543	n-Hexane	1	25.40	0.00	1
FLR02	0	0	7783064	Hydrogen sulfide	1	15.70	0.00	1
FLR02	0	0	91203	Naphthalene	1	9.64	0.00	1
FLR02	0	0	1151	PAH's	1	12.26	0.00	1
FLR02	0	0	115071	Propylene	1	2137.44	0.24	1
FLR02	0	0	108883	Toluene	1	50.81	0.01	1
FLR02	0	0	1330207	Xylenes	1	25.40	0.00	1

Fugitive Hydrocarbons

VOC and H2S Emissions Only

0.3 Daily VOC Emissions based on Mike Kelly Analysis, Feb 2015
SJV Rule 4409

100 H2S Concentration in VOCs
Per Client

16 MW VOCs
34 MW H2S

	lb/hr	lb/day	lb/yr	tpy
VOC	0.01	0.30	109.50	0.05
H2S	2.66E-06	6.38E-05	2.33E-02	1.16E-05

Flare

10	MMBtu/hr
1000	scf/MMBtu
100	ppmv H2S[1]
0.98	H2S Destruction Efficiency
0.01	MMCF/hr
87.6	MMCF/yr

Flare					Field Gas Fuel			
FLR01	PPMV	lb/MMCF[2]	lb/MMBtu[3]	MW	Lb/hr	lb/day	lb/yr	tpy
NOx	15		0.133	46	1.330	31.920	11650.800	5.825
VOC		5.5	0.0027	16	0.027	0.648	236.520	0.118
CO		68	0.068	28	0.680	16.320	5956.800	2.978
SOx	98			64	0.165	3.966	1447.766	0.724
PM10		7.6	0.0076		0.076	1.824	665.760	0.333
PM2.5		7.6	0.0076		0.076	1.824	665.760	0.333
H2S	2			34	0.002	0.043	15.696	0.008

[1]Per Client

[2]AP-42 Tables 13.5-1

[3]SJVAPCD Rule 4311 for NOx and VOC

SUMP

30	ft	Length of side
0.007	lb/day-ft2	VOC emissions[1]
100	ppmv	H2S Content in VOCs
16	MV VOC	
34	MW H2S	

	lb/hr	lb/day	lb/yr	tpy
VOC	0.26	6.30	2299.50	1.15
H2S	5.58E-05	1.34E-03	4.89E-01	2.44E-04

[1]SJVAPCD Rule 4402

Vacuum Truck

0.082	lb/bbl	BAAQMD
6000	gallons	Vacuum Truck Capacity
1.5	Trucks/day	
42	gallons/barrel	
100	ppmv H2s	
16	MW VOC	
34	MW H2S	

	lb/hr	lb/day	lb/yr	tpy
VOC	0.73	17.57	6413.57	3.21
H2S	1.56E-04	3.73E-03	1.36E+00	6.81E-04

Tank 3

1000	BBl
100	ppmv H2S
16	MW VOC
34	MW H2S

20.85 lb VOC/day TANKS Output

	lb/hr	lb/day	lb/yr	tpy
VOC	0.87	20.85	7610.25	3.81
H2S	1.85E-04	4.43E-03	1.62E+00	8.09E-04

Tank 2

1000	BBl
100	ppmv H2S
16	MW VOC
34	MW H2S

20.85 lb VOC/day TANKS Output

	lb/hr	lb/day	lb/yr	tpy
VOC	0.87	20.85	7610.25	3.81
H2S	1.85E-04	4.43E-03	1.62E+00	8.09E-04

Tank 1

3000	BBl
100	ppmv H2S
16	MW VOC
34	MW H2S

16.47	lb VOC/day	TANKS Output

	lb/hr	lb/day	lb/yr	tpy
VOC	0.69	16.47	6011.55	3.01
H2S	1.46E-04	3.50E-03	1.28E+00	6.39E-04

Process Heater

8	MMBtu/hr
1000	scf/MMBtu
100	ppmv H2S[1]
0.98	H2S Destruction Efficiency
0.008	MMCF/hr
70.08	MMCF/yr

Process Heater					Field Gas Fuel			
PHT01	PPMV	lb/MMCF[2]	lb/MMBtu[3]	MW	Lb/hr	lb/day	lb/yr	tpy
NOx	9		0.011	46	0.088	2.112	770.880	0.385
VOC		5.5	0.0055	16	0.044	1.056	385.440	0.193
CO	400	84	0.084	28	0.672	16.128	5886.720	2.943
SOx	98			64	0.132	3.173	1158.213	0.579
PM10		7.6	0.0076		0.061	1.459	532.608	0.266
PM2.5		7.6	0.0076		0.061	1.459	532.608	0.266
H2S	2			34	0.001	0.034	12.557	0.006

[1]Per Client

[2]AP-42 Tables 1.4-1 & 1.4-2

[3]SJVAPCD Rule 4306, Table 1, Enhanced Option for NOx and CO

Steam Generator

85	MMBtu/hr
1000	scf/MMBtu
100	ppmv H2S[1]
0.98	H2S Destruction Efficiency
0.085	
744.6	

Steam Generator					Field Gas Fuel			
SGR01	PPMV	lb/MMCF[2]	lb/MMBtu[3]	MW	Lb/hr	lb/day	lb/yr	tpy
NOx	6		0.007	46	0.595	14.280	5212.200	2.606
VOC		5.5	0.0055	16	0.468	11.220	4095.300	2.048
CO	400	84	0.084	28	7.140	171.360	62546.400	31.273
SOx	98			64	1.405	33.715	12306.011	6.153
PM10		7.6	0.0076		0.646	15.504	5658.960	2.829
PM2.5		7.6	0.0076		0.646	15.504	5658.960	2.829
H2S	2			34	0.015	0.366	133.420	0.067

[1]Per Client

[2]AP-42 Tables 1.4-1 & 1.4-2

[3]SJVAPCD Rule 4306 for NOx and CO

IC ENGINE

1000	Bhp
1000	scf/MMBtu
8475	Btu/bhp-hr
100	ppmv H2S
0.98	H2S Destruction Efficiency
0.008475	MMCF/hr
74.241	
89383	ACF@850F/MMBtu
74.241	

Natural Gas Engine				Field Gas			
IC Engine	PPMV[1]	g/Bhp-hr[2]	MW	Lb/hr	lb/day	lb/yr	tpy
NOx	7		46	0.259	6.217	2269.371	1.135
VOC	25		16	0.322	7.724	2819.094	1.410
CO	50		28	1.126	27.032	9866.829	4.933
SOx	98		64	0.140	3.362	1226.982	0.613
PM10		0.02		0.044	1.058	386.252	0.193
PM2.5		0.02		0.044	1.058	386.252	0.193
H2S	2		34	0.002	0.036	13.303	0.007

[1]SJVAPCD Rule 4702 for NOx, CO and VOC (and Mike Kelly notes)

[2]AP-42, Tables 3.2-1 and 3.2-2

Diesel Emissions

Well Construction

10000 ft well

2015 Year

30 Years

23 Drill Days

561 lb/well Mike Kelly Spreadsheet Feb 2015

lb/yr	tpy	lb/day	lb/hr
18.70	0.01	24.39	2.03

Cogen

33	MW	Field Gas Turbine
5	PPMV NOx	
0.281985	MMCF/hr	
8545	Btu/kw-hr	
1000	scf/MMBtu	
100	ppmv H2S[1]	
0.98	H2S Destruction Efficiency	

Turbine Generator					Field Gas Fuel			
COG01	PPMV	lb/MMCF[2]	lb/MMBtu[3]	MW	Lb/hr	lb/day	lb/yr	tpy
NOx	5		0.006	46	1.692	40.606	14821.132	7.411
VOC		2.1	0.0021	16	0.592	14.212	5187.396	2.594
CO	400	82	0.082	28	23.123	554.946	202555.465	101.278
SOx	98			64	4.660	111.849	40824.830	20.412
PM10		6.6	0.0066		1.861	44.666	16303.245	8.152
PM2.5		6.6	0.0066		1.861	44.666	16303.245	8.152
H2S	2			34	0.051	1.213	442.616	0.221

[1]Per Client

[2]AP-42 Tables 3.1-1 & 3.1-2a

[3]SJVAPCD Rule 4703 for NOx and CO

Drilling Mud Sump

0.0021	tons/well-day	Mike Kelly Spreadsheet DRL_Emissions.xlsx received Feb 15, 2015
23	days	10,000 foot well
16	MW VOC	Per Mike Kelly
34	MW H2S	
100	PPMV H2S	Per Client

	lb/hr	lb/day	lb/yr	tpy
VOC	0.01	0.26	96.60	0.05
H2S	2.34E-06	5.62E-05	2.05E-02	1.03E-05

Boiler

10	MMBtu/hr
1000	scf/MMBtu
100	ppmv H2S[1]
0.98	H2S Destruction Efficiency
0.01	MMCF/hr
87.6	MMCF/yr

Boiler					Field Gas Fuel			
BLR01	PPMV	lb/MMCF[2]	lb/MMBtu[3]	MW	Lb/hr	lb/day	lb/yr	tpy
NOx	9		0.011	46	0.110	2.640	963.600	0.482
VOC		5.5	0.0055	16	0.055	1.320	481.800	0.241
CO		84	0.084	28	0.840	20.160	7358.400	3.679
SOx	98			64	0.165	3.966	1447.766	0.724
PM10		7.6	0.0076		0.076	1.824	665.760	0.333
PM2.5		7.6	0.0076		0.076	1.824	665.760	0.333
H2S	2			34	0.002	0.043	15.696	0.008

[1]Per Client

[2]AP-42 Tables 1.4-1 & 1.4-2

[3]SJVAPCD Rule 4306, Table 1, Enhanced Option for NOx and CO

Thermally Enhanced Oil Recovery

0.88 lb/day

16 MW VOC
34 MW H2S
100 ppmv H2S in VOC

	lb/hr	lb/day	lb/yr	tpy
VOC	0.04	0.88	321.20	0.16
H2S	7.79E-06	1.87E-04	6.83E-02	3.41E-05

Flare

100	MMBtu/hr
1000	scf/MMBtu
100	ppmv H2S[1]
0.98	H2S Destruction Efficiency
0.1	MMCF/hr
876	MMCF/yr

Flare					Field Gas Fuel			
FLR01	PPMV	lb/MMCF[2]	lb/MMBtu[3]	MW	Lb/hr	lb/day	lb/yr	tpy
NOx	15		0.133	46	13.300	319.200	116508.000	58.254
VOC		5.5	0.0027	16	0.270	6.480	2365.200	1.183
CO		68	0.068	28	6.800	163.200	59568.000	29.784
SOx	98			64	1.653	39.665	14477.660	7.239
PM10		7.6	0.0076		0.760	18.240	6657.600	3.329
PM2.5		7.6	0.0076		0.760	18.240	6657.600	3.329
H2S	2			34	0.018	0.430	156.964	0.078

[1]Per Client

[2]AP-42 Tables 13.5-1

[3]SJVAPCD Rule 4311 for NOx and VOC

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	Piping Components			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	1.25E-02	109.5	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	1.24E-06	1.08E-02
Benzene	**71432**	2.95E-03	3.69E-05	3.23E-01
Cyclohexane	**110827**	1.44E-04	1.80E-06	1.58E-02
Ethylbenzene	**100414**	9.39E-04	1.17E-05	1.03E-01
n-Hexane	**110543**	2.17E-02	2.72E-04	2.38E+00
Toluene	**108883**	3.31E-03	4.13E-05	3.62E-01
Xylenes	**1330207**	1.74E-03	2.18E-05	1.91E-01
Hydrogen sulfide	**7783064**	100 ppmv	2.66E-06	2.33E-02

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Natural Gas-Fired + Waste Gas Flare			
Applicability	Use this spreadsheet for Natural Gas/Waste Gas-Fired Flares at an Oilfield or Refinery			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	Kern EIR			
ID#:	10 MMBtu/hr Flare			
Project #:				

Inputs	MMscf/hr	MMscf/yr
Flare Rate	1.00E-02	87.60
Specific Gravity of Gas	0.45	
Destruction Efficiency %	98.00	
Methane %	100.00	
	MMscf/hr	MMscf/yr
Flare Gas Methane Rate	0.01	87.60
	MMscf/hr	MMscf/yr
Uncombusted VOCs Rate	2.00E-04	1.75E+00

Formula

Emissions are the result of combustion plus the pass through of uncombusted VOCs. Emissions are determined by the multiplication of each corresponding process Rate and Emission Factor. Enter the Destruction efficiency as a whole number. Default is 98. Enter specific gravity of gas as a decimal. Default is 0.45 Enter the % methane as a whole number. Flare gas assumed to be 100% as a worst case if value is unknown. Waste gas characterization defaults are listed on the Reference tab and can be modified by changing the mole fraction values if so desired.

Substance	CAS#	Flare Gas Methane Combustion Emission Factor	LB/HR	LB/YR	Refinery Gas Composition Emission Factor lbs/ MMscf**	LB/HR	LB/YR	Total LB/HR	Total LB/YR
Acetaldehyde	**75070**	4.30E-02	4.30E-04	3.77E+00	0	0.00E+00	0.00E+00	4.30E-04	3.77E+00
Acrolein	**107028**	1.00E-02	1.00E-04	8.76E-01	0	0.00E+00	0.00E+00	1.00E-04	8.76E-01
Benzene	**71432**	1.59E-01	1.59E-03	1.39E+01	1.41E+02	2.81E-02	2.46E+02	2.97E-02	2.60E+02
Cyclohexane	**110827**	0.00E+00	0.00E+00	0.00E+00	1.22E+02	2.44E-02	2.14E+02	2.44E-02	2.14E+02
Ethylbenzene	**100414**	1.44E+00	1.44E-02	1.26E+02	2.63E+00	5.26E-04	4.61E+00	1.50E-02	1.31E+02
Formaldehyde	**50000**	1.17E+00	1.17E-02	1.02E+02	0	0.00E+00	0.00E+00	1.17E-02	1.02E+02
n-Hexane	**110543**	2.90E-02	2.90E-04	2.54E+00	1.96E+02	3.91E-02	3.43E+02	3.94E-02	3.45E+02
Hydrogen sulfide	**7783064**	100 ppmv	1.79E-03	1.57E+01	2.33E+02	4.66E-02	4.08E+02	4.83E-02	4.23E+02
Naphthalene	**91203**	1.10E-02	1.10E-04	9.64E-01	0	0.00E+00	0.00E+00	1.10E-04	9.64E-01
PAH's	**1151**	1.40E-02	1.40E-04	1.23E+00	0	0.00E+00	0.00E+00	1.40E-04	1.23E+00
Propylene	**115071**	2.44E+00	2.44E-02	2.14E+02	0	0.00E+00	0.00E+00	2.44E-02	2.14E+02
Toluene	**108883**	5.80E-02	5.80E-04	5.08E+00	1.71E+01	3.43E-03	3.00E+01	4.01E-03	3.51E+01
Xylenes	**1330207**	2.90E-02	2.90E-04	2.54E+00	3.26E+00	6.53E-04	5.72E+00	9.43E-04	8.26E+00

References:

* The emission factors were based on the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors

TDA's Direct Oxidation Process for Sulfur Recovery Specific gravity of the gas analyzed was 0.45

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	Sump			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	2.63E-01	2,299.5	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	2.60E-05	2.28E-01
Benzene	**71432**	2.95E-03	7.74E-04	6.78E+00
Cyclohexane	**110827**	1.44E-04	3.78E-05	3.31E-01
Ethylbenzene	**100414**	9.39E-04	2.46E-04	2.16E+00
n-Hexane	**110543**	2.17E-02	5.71E-03	5.00E+01
Toluene	**108883**	3.31E-03	8.68E-04	7.60E+00
Xylenes	**1330207**	1.74E-03	4.58E-04	4.01E+00
Hydrogen sulfide	**7783064**	100 ppmv	5.58E-05	4.89E-01

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	Vacuum Truck			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	7.32E-01	6,413.6	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	7.25E-05	6.35E-01
Benzene	**71432**	2.95E-03	2.16E-03	1.89E+01
Cyclohexane	**110827**	1.44E-04	1.05E-04	9.24E-01
Ethylbenzene	**100414**	9.39E-04	6.87E-04	6.02E+00
n-Hexane	**110543**	2.17E-02	1.59E-02	1.39E+02
Toluene	**108883**	3.31E-03	2.42E-03	2.12E+01
Xylenes	**1330207**	1.74E-03	1.28E-03	1.12E+01
Hydrogen sulfide	**7783064**	100 ppmv	1.56E-04	1.36E+00

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	Tank 3 - 1000 Bbl			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	8.69E-01	7,610.3	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	8.60E-05	7.53E-01
Benzene	**71432**	2.95E-03	2.56E-03	2.25E+01
Cyclohexane	**110827**	1.44E-04	1.25E-04	1.10E+00
Ethylbenzene	**100414**	9.39E-04	8.16E-04	7.15E+00
n-Hexane	**110543**	2.17E-02	1.89E-02	1.65E+02
Toluene	**108883**	3.31E-03	2.87E-03	2.52E+01
Xylenes	**1330207**	1.74E-03	1.51E-03	1.33E+01
Hydrogen sulfide	**7783064**	100 ppmv	1.85E-04	1.62E+00

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	Tank 2 - 1000 Bbl			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	8.69E-01	7,610.3	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	8.60E-05	7.53E-01
Benzene	**71432**	2.95E-03	2.56E-03	2.25E+01
Cyclohexane	**110827**	1.44E-04	1.25E-04	1.10E+00
Ethylbenzene	**100414**	9.39E-04	8.16E-04	7.15E+00
n-Hexane	**110543**	2.17E-02	1.89E-02	1.65E+02
Toluene	**108883**	3.31E-03	2.87E-03	2.52E+01
Xylenes	**1330207**	1.74E-03	1.51E-03	1.33E+01
Hydrogen sulfide	**7783064**	100 ppmv	1.85E-04	1.62E+00

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	Tank 1 - 3000 Bbl			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	6.86E-01	6,011.6	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	6.79E-05	5.95E-01
Benzene	**71432**	2.95E-03	2.02E-03	1.77E+01
Cyclohexane	**110827**	1.44E-04	9.88E-05	8.66E-01
Ethylbenzene	**100414**	9.39E-04	6.44E-04	5.64E+00
n-Hexane	**110543**	2.17E-02	1.49E-02	1.31E+02
Toluene	**108883**	3.31E-03	2.27E-03	1.99E+01
Xylenes	**1330207**	1.74E-03	1.20E-03	1.05E+01
Hydrogen sulfide	**7783064**	100 ppmv	1.46E-04	1.28E+00

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name

Petroleum Process Heaters-Natural Gas and Refinery Gas

Applicability	Use this spreadsheet for Petroleum Process Heaters fueled by Natural Gas and Refinery Gas. Entries required in yellow areas, output in grey areas.		
Author or updater	Matthew Cegielski	*Last Update*	December 9, 2013
Facility:	Kern EIR		
ID#:	8MMBtu/hr Process Heater		
Project #:			

Inputs	MMscf/hr	MMscf /yr	**Formula**
Usage Rate	8.00E-03	70.1	Emissions are calculated by the multiplication of the Usage Rate and Emission Factors.

Substances	**CAS#**	**Natural Gas and Refinery Gas Emission Factor lbs/MMscf***	**LB/HR**	**LB/YR**
Acenaphthene	**83329**	1.81E-05	1.45E-07	1.27E-03
Acenaphthylene	**208968**	1.72E-04	1.38E-06	1.21E-02
Acetaldehyde	**75070**	1.67E-02	1.34E-04	1.17E+00
Acrolein	**107028**	2.84E-03	2.27E-05	1.99E-01
Anthracene	**120127**	1.43E-05	1.14E-07	1.00E-03
Benz(a)anthracene	**56553**	1.67E-05	1.34E-07	1.17E-03
Benzene	**71432**	2.44E-02	1.95E-04	1.71E+00
Benzo(a)pyrene	**50328**	1.10E-05	8.80E-08	7.71E-04
Benzo(b)fluoranthene	**205992**	4.19E-06	3.35E-08	2.94E-04
"Benzo(g,h,i)perylene"	**191242**	9.55E-07	7.64E-09	6.69E-05
Benzo(k)fluoranthene	**207089**	3.18E-06	2.54E-08	2.23E-04
Chrysene	**218019**	1.24E-06	9.92E-09	8.69E-05
"Dibenz(a,h)anthracene"	**53703**	2.08E-07	1.66E-09	1.46E-05
Fluoranthene	**206440**	3.82E-05	3.06E-07	2.68E-03
Fluorene	**86737**	1.69E-03	1.35E-05	1.18E-01

Formaldehyde	**50000**	8.89E-02	7.11E-04	6.23E+00
Hydrogen sulfide	**7783064**	100 ppmv	1.43E-03	1.26E+01
"Indeno(1,2,3-cd)pyrene"	**193395**	6.67E-07	5.34E-09	4.67E-05
Naphthalene	**91203**	6.18E-03	4.94E-05	4.33E-01
Phenanthrene	**85018**	4.30E-04	3.44E-06	3.01E-02
Phenol	**108952**	2.08E-03	1.66E-05	1.46E-01
Propylene	**115071**	1.38E-02	1.10E-04	9.67E-01
Pyrene	**129000**	2.62E-05	2.10E-07	1.84E-03
Toluene	**108883**	3.03E-02	2.42E-04	2.12E+00
Xylenes	**1330207**	3.49E-02	2.79E-04	2.45E+00

References:

* The emission factors were taken from the API and WSPA emission source tests (Hansell and England, 1998) see Table D-8a pg. D-22 in (Review Draft) December 2009 Emission Estimation Protocol for Petroleum Refineries

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Petroleum Steam Generators-Natural Gas and Casing Vapor Recovery Gas

Name

Applicability	Use this spreadsheet for Petroleum Steam Generators fueled by Natural Gas and Casing Vapor Recovery Gas. Entries required in yellow areas, output in grey areas.		
Author or updater	Matthew Cegielski	*Last Update*	December 4, 2013
Facility:	Kern EIR		
ID#:	85 MMBtu/hr Steam Generator		
Project #:			

Inputs	MMscf /hr	MMscf /yr	**Formula**
Usage Rate	8.50E-02	744.6	Emissions are calculated by the multiplication of the Usage Rate and Emission Factors.

Substance	CAS#	Natural Gas and Casing Vapor Recovery Gas Emission Factor lbs/MMscf*	LB/HR	LB/YR
Acenaphthene	**83329**	2.38E-06	2.02E-07	1.77E-03
Acenaphthylene	**208968**	1.03E-05	8.76E-07	7.67E-03
Acetaldehyde	**75070**	2.67E-02	2.27E-03	1.99E+01
Acrolein	**107028**	1.82E-02	1.55E-03	1.36E+01
Anthracene	**120127**	3.82E-06	3.25E-07	2.84E-03
Benz(a)anthracene	**56553**	2.16E-06	1.84E-07	1.61E-03
Benzene	**71432**	6.21E-03	5.28E-04	4.62E+00
Benzo(a)pyrene	**50328**	1.33E-06	1.13E-07	9.90E-04
Benzo(b)fluoranthene	**205992**	4.78E-06	4.06E-07	3.56E-03
"Benzo(g,h,i)perylene"	**191242**	1.75E-06	1.49E-07	1.30E-03
Benzo(k)fluoranthene	**207089**	1.39E-06	1.18E-07	1.03E-03
Chrysene	**218019**	2.16E-06	1.84E-07	1.61E-03
"Dibenz(a,h)anthracene"	**53703**	6.82E-07	5.80E-08	5.08E-04

Ethylbenzene	**100414**	1.86E-02	1.58E-03	1.38E+01
Fluoranthene	**206440**	9.03E-06	7.68E-07	6.72E-03
Fluorene	**86737**	1.30E-05	1.11E-06	9.68E-03
Formaldehyde	**50000**	7.01E-02	5.96E-03	5.22E+01
Hydrogen sulfide	**7783064**	100 ppm	1.52E-02	1.33E+02
"Indeno(1,2,3-cd)pyrene"	**193395**	2.38E-06	2.02E-07	1.77E-03
Naphthalene	**91203**	5.54E-04	4.71E-05	4.13E-01
Phenanthrene	**85018**	3.17E-05	2.69E-06	2.36E-02
Propylene	**115071**	6.30E-01	5.36E-02	4.69E+02
Pyrene	**129000**	1.74E-05	1.48E-06	1.30E-02
Toluene	**108883**	3.08E-02	2.62E-03	2.29E+01
Xylenes	**1330207**	4.03E-02	3.43E-03	3.00E+01

References:

* The emission factors were taken from the API and WSPA emission source tests (Hansell and England, 1998) see page 4-18 Table 4-4 in (Review Draft) December 2009 Emission Estimation Protocol for Petroleum Refineries (note reference c, emission factors specifically for steam generators, even though table states boilers,max value taken from appendix table D-21A)

Non - HAPs, Toxics current as of update date

Name	Field Gas-Fired Four Stroke Lean Burn (4SLB) Internal Combustion Engine			
Applicability	Use this spreadsheet for Field Gas-Fired Internal Combustion 4 Stroke Lean Burn (4SLB) Engine. Entries			
Author or updater	Matthew Cegielski	*Last Update*	December 15, 2014	
Facility:	Kern EIR			
ID#:	1000 bhp ICE			
Project #:				

Inputs	MMscf /hr	MMscf /yr	**Formula**
Field Gas usage rate	8.48E-03	74.241	Supply the necessary rate in MMscf. Emissions are calculated by the multiplication of Fuel Rates and Emission Factors.

Substances	**CAS#**	**Emission Factor lbs/ MMscf**	**LB/HR**	**LB/YR**
Benzene	**71432**	1.70E+00	1.44E-02	1.26E+02
Formaldehyde	**50000**	4.20E+01	3.56E-01	3.12E+03
Propylene	**115071**	1.60E+01	1.36E-01	1.19E+03
Toluene	**108883**	7.70E-01	6.53E-03	5.72E+01
Xylenes	**1330207**	3.90E-01	3.31E-03	2.90E+01
Hydrogen sulfide	**7783064**	100 ppmv	1.52E-03	1.33E+01

References:

Petroleum Refineries . Source data is from API and WSPA emission source tests (Hansell and England, 1998)

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Diesel Emissions
Well Construction

Diesel Particulate Matter	9901	2.03	18.70

Name	Oilfield Field Gas Turbine - CATEF			
Applicability	Use this spreadsheet for Natural Gas/Waste Gas-Fired Flares at an Oilfield or Refinery			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	Kern EIR			
ID#:	33 MW Field Gas Cogeneration Turbine			
Project #:				

Inputs	MMscf/hr	MMscf/yr
Fuel Rate	2.82E-01	2,470.32
Specific Gravity of Gas	0.45	
Destruction Efficiency %	98.00	
Methane %	100.00	
	MMscf/hr	MMscf/yr
Flare Gas Methane Rate	0.282	2,470.32
	MMscf/hr	MMscf/yr
Uncombusted VOCs Rate	5.64E-03	4.94E+01

Formula

Emissions are the result of combustion plus the pass through of uncombusted VOCs. Emissions are determined by the multiplication of each corresponding process Rate and Emission Factor. 98% Destruction efficiency is assumed. Enter specific gravity of gas as a decimal. Default is 0.45 Enter the % methane as a whole number. Waste gas characterization defaults are listed on the Reference tab and can be modified by changing the mole fraction values if so desired.

Substance	CAS#	CATEF lbs/ MMscf*	LB/HR	LB/YR
Benzene	**71432**	1.46E-02	4.12E-03	3.61E+01
Hydrogen sulfide	**7783064**	1.79E-01	5.05E-02	4.43E+02
Naphthalene	**91203**	5.79E-03	1.63E-03	1.43E+01
PAH's	**1151**	2.55E-04	7.20E-05	6.30E-01
Formaldehyde	**50000**	1.84E-01	5.19E-02	4.55E+02

PAH	CAS
1.26E-05	206440
8.53E-08	91587
8.10E-05	91576
1.62E-05	83329
1.10E-06	208968
2.48E-07	120127
3.30E-07	56556
7.99E-07	50328
1.44E-06	205992
2.24E-06	192972
5.31E-06	191242
2.45E-07	207089
1.78E-05	218019
6.91E-06	53703
3.24E-05	86737
3.92E-06	193395
9.50E-07	198550
6.19E-05	85018
9.67E-06	129000
2.55E-04	**TOTAL**

H2S	
34	MW
379.5	Ft3/lb-mol
100	ppmv
0.98	
0.179183	

References:

* The emission factors were based on the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors

TDA's Direct Oxidation Process for Sulfur Recovery Specific gravity of the gas analyzed was 0.45

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	Sump			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	1.10E-02	96.6	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	1.09E-06	9.56E-03
Benzene	**71432**	2.95E-03	3.25E-05	2.85E-01
Cyclohexane	**110827**	1.44E-04	1.59E-06	1.39E-02
Ethylbenzene	**100414**	9.39E-04	1.04E-05	9.07E-02
n-Hexane	**110543**	2.17E-02	2.40E-04	2.10E+00
Toluene	**108883**	3.31E-03	3.65E-05	3.19E-01
Xylenes	**1330207**	1.74E-03	1.92E-05	1.68E-01
Hydrogen sulfide	**7783064**	100 ppmv	2.34E-06	2.05E-02

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Petroleum Steam Generators-Natural Gas and Casing Vapor Recovery Gas

Name

Applicability	Use this spreadsheet for Petroleum Steam Generators fueled by Natural Gas and Casing Vapor Recovery Gas. Entries required in yellow areas, output in grey areas.		
Author or updater	Matthew Cegielski	*Last Update*	December 4, 2013
Facility:	Kern EIR		
ID#:	10 MMBtu/hr Boiler		
Project #:			

Inputs	MMscf /hr	MMscf /yr	**Formula**
Usage Rate	1.00E-02	87.6	Emissions are calculated by the multiplication of the Usage Rate and Emission Factors.

Substance	CAS#	Natural Gas and Casing Vapor Recovery Gas Emission Factor lbs/MMscf*	LB/HR	LB/YR
Acenaphthene	83329	2.38E-06	2.38E-08	2.08E-04
Acenaphthylene	208968	1.03E-05	1.03E-07	9.02E-04
Acetaldehyde	75070	2.67E-02	2.67E-04	2.34E+00
Acrolein	107028	1.82E-02	1.82E-04	1.59E+00
Anthracene	120127	3.82E-06	3.82E-08	3.35E-04
Benz(a)anthracene	56553	2.16E-06	2.16E-08	1.89E-04
Benzene	71432	6.21E-03	6.21E-05	5.44E-01
Benzo(a)pyrene	50328	1.33E-06	1.33E-08	1.17E-04
Benzo(b)fluoranthene	205992	4.78E-06	4.78E-08	4.19E-04
"Benzo(g,h,i)perylene"	191242	1.75E-06	1.75E-08	1.53E-04
Benzo(k)fluoranthene	207089	1.39E-06	1.39E-08	1.22E-04
Chrysene	218019	2.16E-06	2.16E-08	1.89E-04
"Dibenz(a,h)anthracene"	53703	6.82E-07	6.82E-09	5.97E-05

Ethylbenzene	**100414**	1.86E-02	1.86E-04	1.63E+00
Fluoranthene	**206440**	9.03E-06	9.03E-08	7.91E-04
Fluorene	**86737**	1.30E-05	1.30E-07	1.14E-03
Formaldehyde	**50000**	7.01E-02	7.01E-04	6.14E+00
Hydrogen sulfide	**7783064**	100 ppmv	1.79E-03	1.57E+01
"Indeno(1,2,3-cd)pyrene"	**193395**	2.38E-06	2.38E-08	2.08E-04
Naphthalene	**91203**	5.54E-04	5.54E-06	4.85E-02
Phenanthrene	**85018**	3.17E-05	3.17E-07	2.78E-03
Propylene	**115071**	6.30E-01	6.30E-03	5.52E+01
Pyrene	**129000**	1.74E-05	1.74E-07	1.52E-03
Toluene	**108883**	3.08E-02	3.08E-04	2.70E+00
Xylenes	**1330207**	4.03E-02	4.03E-04	3.53E+00

References:

* The emission factors were taken from the API and WSPA emission source tests (Hansell and England, 1998) see page 4-18 Table 4-4 in (Review Draft) December 2009 Emission Estimation Protocol for Petroleum Refineries (note reference c, emission factors specifically for steam generators, even though table states boilers,max value taken from appendix table D-21A)

Non - HAPs, Toxics current as of update date

Name	Oilfield Equipment Light Crude Oil Fugitives			
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Light			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	KERN EIR			
ID#:	TEOR			
Project #:	21815			

Inputs	lb /hr	lb /yr	**Formula**
VOC Rate	3.67E-02	321.2	Emissions are calculated by the multiplication of each VOC Rate and Emission Factor. Hydrogen Sulfide emissions are variable, depending on source and control measures and should be provided by the project engineer

Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR
"1,2,4 Trimethylbenzene"	**95636**	9.90E-05	3.63E-06	3.18E-02
Benzene	**71432**	2.95E-03	1.08E-04	9.48E-01
Cyclohexane	**110827**	1.44E-04	5.28E-06	4.63E-02
Ethylbenzene	**100414**	9.39E-04	3.44E-05	3.02E-01
n-Hexane	**110543**	2.17E-02	7.97E-04	6.98E+00
Toluene	**108883**	3.31E-03	1.21E-04	1.06E+00
Xylenes	**1330207**	1.74E-03	6.39E-05	5.60E-01
Hydrogen sulfide	**7783064**	100 ppmv	7.79E-06	6.83E-02

References:

Investigator: Albert C. Censullo, Ph.D. California Polytechnic State University, San Luis Obispo. 1991. A832-059.

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Name	Oilfield Natural Gas-Fired + Waste Gas Flare			
Applicability	Use this spreadsheet for Natural Gas/Waste Gas-Fired Flares at an Oilfield or Refinery			
Author or updater	Matthew Cegielski	*Last Update*	June 18, 2013	
Facility:	Kern EIR			
ID#:	100 MMBtu/hr Flare			
Project #:				

Inputs	MMscf/hr	MMscf/yr
Flare Rate	1.00E-01	876.00
Specific Gravity of Gas	0.45	
Destruction Efficiency %	98.00	
Methane %	100.00	
	MMscf/hr	MMscf/yr
Flare Gas Methane Rate	0.1	876.00
	MMscf/hr	MMscf/yr
Uncombusted VOCs Rate	2.00E-03	1.75E+01

Formula

Emissions are the result of combustion plus the pass through of uncombusted VOCs. Emissions are determined by the multiplication of each corresponding process Rate and Emission Factor. Enter the Destruction efficiency as a whole number. Default is 98. Enter specific gravity of gas as a decimal. Default is 0.45 Enter the % methane as a whole number. Flare gas assumed to be 100% as a worst case if value is unknown. Waste gas characterization defaults are listed on the Reference tab and can be modified by changing the mole fraction values if so desired.

Substance	CAS#	Flare Gas Methane Combustion Emission Factor	LB/HR	LB/YR	Refinery Gas Composition Emission Factor lbs/ MMscf**	LB/HR	LB/YR	Total LB/HR	Total LB/YR
Acetaldehyde	**75070**	4.30E-02	4.30E-03	3.77E+01	0	0.00E+00	0.00E+00	4.30E-03	3.77E+01
Acrolein	**107028**	1.00E-02	1.00E-03	8.76E+00	0	0.00E+00	0.00E+00	1.00E-03	8.76E+00
Benzene	**71432**	1.59E-01	1.59E-02	1.39E+02	1.41E+02	2.81E-01	2.46E+03	2.97E-01	2.60E+03
Cyclohexane	**110827**	0.00E+00	0.00E+00	0.00E+00	1.22E+02	2.44E-01	2.14E+03	2.44E-01	2.14E+03
Ethylbenzene	**100414**	1.44E+00	1.44E-01	1.26E+03	2.63E+00	5.26E-03	4.61E+01	1.50E-01	1.31E+03
Formaldehyde	**50000**	1.17E+00	1.17E-01	1.02E+03	0	0.00E+00	0.00E+00	1.17E-01	1.02E+03
n-Hexane	**110543**	2.90E-02	2.90E-03	2.54E+01	1.96E+02	3.91E-01	3.43E+03	3.94E-01	3.45E+03
Hydrogen sulfide	**7783064**	100 ppmv	1.79E-03	1.57E+01	2.33E+02	4.66E-01	4.08E+03	4.67E-01	4.09E+03
Naphthalene	**91203**	1.10E-02	1.10E-03	9.64E+00	0	0.00E+00	0.00E+00	1.10E-03	9.64E+00
PAH's	**1151**	1.40E-02	1.40E-03	1.23E+01	0	0.00E+00	0.00E+00	1.40E-03	1.23E+01
Propylene	**115071**	2.44E+00	2.44E-01	2.14E+03	0	0.00E+00	0.00E+00	2.44E-01	2.14E+03
Toluene	**108883**	5.80E-02	5.80E-03	5.08E+01	1.71E+01	3.43E-02	3.00E+02	4.01E-02	3.51E+02
Xylenes	**1330207**	2.90E-02	2.90E-03	2.54E+01	3.26E+00	6.53E-03	5.72E+01	9.43E-03	8.26E+01

References:

* The emission factors were based on the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors

TDA's Direct Oxidation Process for Sulfur Recovery Specific gravity of the gas analyzed was 0.45

Pollutants required for toxic reporting: HAPS w/o Risk Factor or Non - HAPs Current as of update date

Appendix D –
AERMOD

(Files on CD at County office)

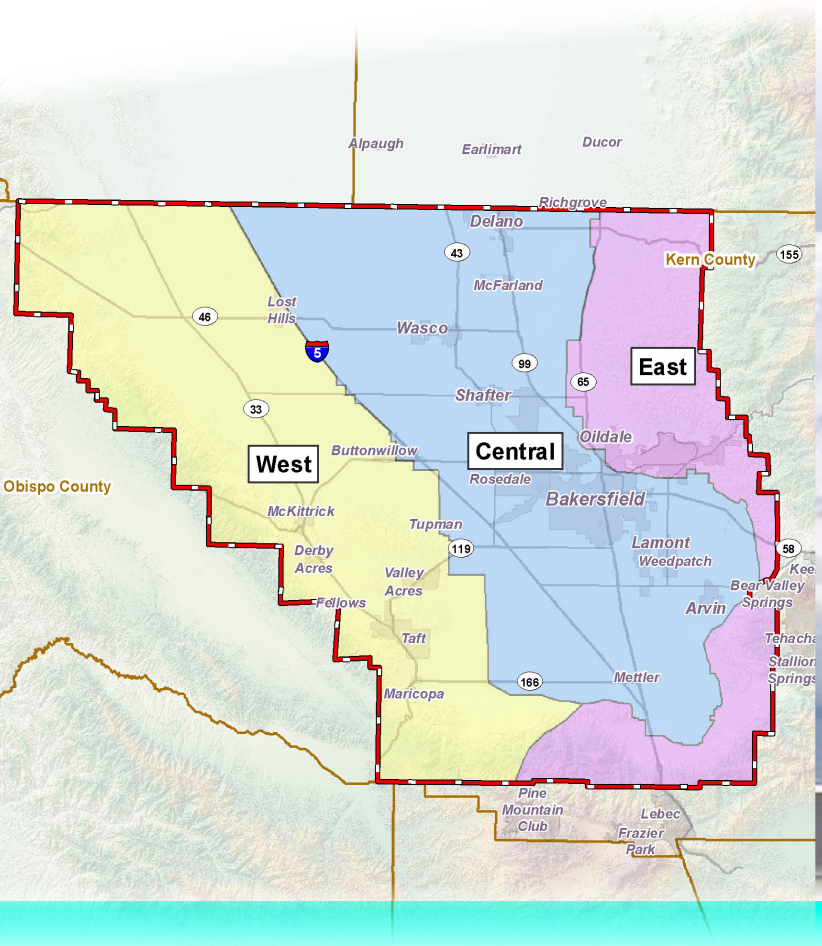
Appendix E –
HARP2

(Files on CD at County office)

Appendix S-1

Revised Water Quality Assessment Report

This page intentionally left blank.





Source: Bommer, P. 2008. A Primer of Oilwell Drilling. Seventh Edition. University of Texas.

Prepared For:

Western States Petroleum Association

Water Quality Assessment Report to Support Draft EIR for Kern County 19.98 Zoning Ordinance Amendment

Kennedy/Jenks Consultants
Engineers & Scientists

Revised - 18 September 2015

Table of Contents

List of Tables ..... *v*

List of Figures ..... *vii*

List of Appendices ..... *viii*

List of Abbreviations ..... *ix*

Executive Summary ES-1

Section 1: Introduction 1

1.1 Project Location and Setting 1
1.2 Objectives 2

Section 2: Project Area Geology 3

2.1 Regional Geology 3
2.1.1 Physical Setting 3
2.1.2 Geology 3
2.1.3 Geologic History 4
2.1.4 Structural Geology 4
2.1.5 Project Sub-area Characteristics 5
2.2 Oil and Gas Field Geology 6
2.2.1 Reservoirs 6
2.2.2 Source Rocks 7
2.3 Oil and Gas Fields in Kern County 7
2.4 Groundwater Basin Geology 8
2.4.1 Groundwater Basin Designation 8
2.4.2 Aquifer Stratigraphy 8
2.4.3 Aquifers 10
2.4.4 Groundwater Conditions 12
2.4.5 Groundwater Recharge 13

Section 3: Surface Water and Groundwater Quality 14

3.1 Project Area Setting 14
3.1.1 Local Surface Water 14
3.1.2 Imported Water 15
3.1.3 Local Groundwater 16
3.2 Primary Factors Affecting Water Quality 16
3.3 Project Area NPDES and WDR Discharges 17
3.4 Designated Beneficial Uses for Water Bodies in the Project Area 17
3.5 Section 303(d) Impaired Water Bodies 19
3.6 Surface Water Quality 19
3.6.1 Sources of Information 19
3.6.2 Surface Water Quality 20

Table of Contents (cont'd)

3.6.3 Surface Water Quality by Sub-Area 22
3.7 Imported Water Quality 23
3.8 Groundwater Quality 23
3.8.1 Sources of Information 23
3.8.2 Groundwater Quality Data 24
3.8.2.1 Summary of Findings from 2008 USGS Study (Shelton et al. 2008) 25
3.8.2.2 Summary of Findings from 2012 USGS Study (Burton and Belitz 2012) 25
3.8.3 Groundwater Quality by Sub-Area 27
3.9 Surface and Groundwater Quality Summary 28
3.9.1 West Sub-area Water Quality 28
3.9.2 Central Sub-area Water Quality 28
3.9.3 East Sub-area Water Quality 29

Section 4: Project Area Oil and Gas Production 30

4.1 History of Oil and Gas Production in Kern County 30
4.1.1 Historical Exploration and Production Practices 30
4.2 Oil and Gas Operations in the Project Area 32
4.2.1 Well Installation 32
4.2.1.1 Drilling 33
4.2.1.2 Drilling fluid 33
4.2.1.3 Casing Installation and Cementing 33
4.2.2 Well Completion 34
4.2.2.1 Production Casing Installation and Perforation 34
4.2.2.2 Well Stimulation 35
4.2.2.3 Production Equipment 36
4.2.3 Oil Field Production 36
4.2.3.1 Oil Production 37
4.2.3.2 Gas Production 37
4.2.3.3 Produced Water 38
4.2.4 Enhanced Oil Recovery 39
4.2.5 Transportation and Conveyance 39
4.2.6 Well Abandonment 40
4.3 Future Development Trends 41
4.3.1 Economic Factors 41
4.3.2 Exploration 41
4.3.3 Production 41
4.3.4 The Monterey Shale 41

Section 5: Water in Oil and Gas Operations 43

5.1 Well Drilling, Completion and Abandonment 43
5.1.1 Well Stimulation 44
5.1.2 Production 45

5.1.3 Enhanced Oil Recovery 45
5.1.4 Wastewater Storage and Disposal 45
5.2 Source Water and Produced Water Quality Summary 46
5.2.1 Produced Water Composition 46
5.2.2 Well Drilling and Servicing Operations 47
5.2.3 Well Stimulation Operations 47
5.2.4 Produced Water Handling Operations 47

Section 6: Water Quality Regulations 49

6.1 Overview of Regulations and Related Oil Field Activities 49
6.2 Federal Regulations 49
6.2.1 The Clean Water Act (CWA) (33 United States Code (U.S.C. §1321 et seq.)) 49
6.2.1.1 Spill Prevention (40 CFR Part 112) 49
6.2.1.2 National Pollutant Discharge Elimination System Program (40 CFR Part 122 to 129) 49
6.2.1.3 National Toxics Rule (40 CFR Part 131) 49
6.2.1.4 The National Oil and Hazardous Substance Pollution Contingency Plan (NCP) (40 CFR Part 300) 50
6.2.1.5 Oil and Gas Extraction Point Source Discharge (40 CFR 435) 50
6.2.2 The Oil Pollution Act (33 U.S.C. 2701 et seq.) 51
6.2.3 The Safe Drinking Water Act (42 U.S.C. §300f et seq.) 51
6.2.4 Resource Conservation and Recovery Act (42 U.S.C. §6921-6992k) 51
6.2.5 The Solid Waste Disposal Act (42 U.S.C. §6901 et seq.) 51
6.2.6 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. §9601-9662) 52
6.2.7 US Army Corps of Engineers 33 CFR 320 52
6.2.8 National Environmental Policy Act (NEPA) 52
6.2.9 Emergency Planning and Community Right to Know (EPCRA) 52
6.3 State of California Regulations 53
6.3.1 California Environmental Quality Act (14 CCR Division 2, Chapters 2) 53
6.3.2 Oil and Gas Resource Regulations (14 CCR Division 2, Chapter 4) 53
6.3.2.1 Section 1722 - Field Rules on Oilfield Spills 54
6.3.2.2 Underground Injection Control Program 55
6.3.2.3 Facility Maintenance Standards (California Assembly Bill 1960) 55
6.3.3 Well Stimulation Treatments (California Senate Bill No. 4, Chapter 313) 56

6.3.4 Hazardous Waste Control Law (22 CCR subsections 66261)....56
6.3.5 Porter-Cologne Water Quality Control Act (California Water Code [CWC] Sections 13020 et seq.) 57
6.3.5.1 Basin Plans and Beneficial Uses (CWC Section 13240)....57
6.3.5.2 Anti-degradation Policy (23 CCR 2900 – Resolution 68-16) 58
6.3.5.3 Surface Water Disposal (CWC Section 13260 to 13275) 59
6.3.5.4 Land Disposal (CWC Section 13260 to 13275) 59
6.3.6 Surface Impoundments....60
6.3.6.1 Siting (27 CCR, Section 20240) 60
6.3.6.2 Dam Safety (23 CCR, Division 2, Chapter 1) 60
6.3.6.3 Wildlife Protection....60
6.3.7 Storm Water Discharge Regulations....60
6.3.8 Oil Spills 61
6.4 Kern County Regulations....61
6.4.1 Aboveground Petroleum Storage Act (APSA) 62
6.4.2 California Accidental Release Program (CalARP) (19 CCR Ch. 4.5, Section 2735.5)....62
6.4.3 Groundwater Production and Monitoring Wells (County Ordinance Code, Chapter 14.08) 62

Section 7: Water Quality Impacts Assessment....63

7.1 Water Quality Impacts from Oil and Gas Operations....63
7.1.1 Potential Impacts from Well Installation 64
7.1.2 Potential Impacts from Well Servicing....64
7.1.3 Potential Impacts from Well Stimulation....65
7.1.4 Potential Impacts from Handling Produced Water....66
7.2 Salt Loading....66
7.3 Impacts Summary....67

References....69

Terminology....77

List of Tables

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Table 2-2: Area and Depth to Fresh Water for Oil and Gas Fields in the Project Area

Table 3-1: Definitions for Designated Beneficial Uses of Water Bodies in the Project Area

Table 3-2: Surface Water Designated Beneficial Uses in Tulare Lake Basin and the Project Area

Table 3-3: Groundwater Designated Beneficial Uses in the Project Area

Table 3-4: Summary of Kern River Water Quality from SWRCB SWAMP, 2002-2004

Table 3-5: Summary of Deer Creek, Poso Creek, and El Paso Creek Water Quality from Central Valley RWQCB ILRP, 2009-2012

Table 3-6: Summary of Water Quality for Surface Water in the Project Area by Geographic Sub-area, 2002-2012

Table 3-7: Summary of Water Quality for Surface Water in the Project Area by Geographic Sub-area, 1951-1991

Table 3-8: Central Valley Project Water Quality in Friant-Kern Canal and Kern River Water Quality near Bakersfield, CA, 2010-2013

Table 3-9: State Water Project Water Quality in California Aqueduct at Kettleman City, CA, 2004-2014

Table 3-10: Range of Drinking Water Contaminant Concentrations for Community Water Systems in the Project Area

Table 3-11: Summary of Water Quality from the GAMA Database for Wells in the Project Area, 2006

Table 3-12: Summary of Water Quality for Shallow Groundwater in the Project Area by Geographic Sub-area, 2007-2013

Table 3-13: Summary of Water Quality for Deep Groundwater in the Project Area by Geographic Sub-area, 2007-2013

Table 4-1: Oil and Gas Fields in Project Area

Table 4-2: Drilling Activity in Project Area, 1995 - 2009

Table 4-3: Active Production Wells in the Project Area, 1995 – 2009

Table 4-4: Well Stimulation Treatment Notices, November 2013 – March 2014

Table 4-5: 2013 Oilfield Production Totals in Project Area

Table 4-6: 2013 Active Production and Injection Wells in Project Area

List of Tables (cont'd)

Table 4-7: 2013 Water/Steam Injection Totals in Project Area

Table 4-8: Fluid Injection Volumes in Project Area, 1995 - 2009

Table 5-1: Volumes of Produced Water Disposed or Reused in 2012

Table 5-2: Oilfield Fluid Handling Processes

Table 5-3: Chemicals Commonly Used in Drilling Fluids in the Project Area

Table 5-4: Water Sources for Well Stimulation Treatments

Table 5-5: Representative Chemicals Listed in DOGGR Hydraulic Fracture Notices

Table 5-6: Representative Chemicals Listed in DOGGR Acid Matrix Stimulation Notices

Table 5-7: Produced Water Summary Statistics for Oilfields in the Project Area

Table 6-1: Summary of Regulations Governing Oilfield Activities

Table 7-1: Potential Impacts to Water Quality from Oil and Gas Operations

Table 7-2: Solute Fluxes (kg/yr) to Groundwater for Selected Oilfields, Assuming 100% Discharge

Table 7-3: Changes in Solute Concentration (mg/L) in Fresh Groundwater Underlying Selected Oilfields, Assuming 100% Discharge

List of Figures

Figure 1-1: Geographic Sub-areas for Water Quality Assessment

Figure 1-2: Oil and Gas Fields in the Project Area

Figure 1-3: Oil Field and Tier Boundary Map

Figure 2-1: Geologic Map with Kern County Oil and Gas Fields

Figure 2-2: Generalized Geologic Cross Section across Southern San Joaquin Valley

Figure 2-3: Generalized Geologic Cross Section Showing Relation of Groundwater Aquifer

Figure 2-4: Stratigraphic Column for Kern County Oil and Gas Fields

Figure 2-5: Map of Miocene and Eocene Source Rocks

Figure 2-6: Distribution of the Corcoran Clay Member in the Project Area

Figure 3-1: Map of Regional Boundaries for California Regional Water Quality Control Boards

Figure 3-2: Project Area, Tulare Lake Hydrologic Basin, and Kern County Sub-basin Boundaries

Figure 3-3: Surface Waters in Project Area

Figure 3-4: Kern County Groundwater Banking Program Locations

Figure 3-5: Facility Locations with NPDES Discharges – Industrial and Other

Figure 3-6: Facility Locations with NPDES Discharges – Construction

Figure 3-7: Groundwater Detailed Analysis Units in the Project Area

Figure 3-8: Groundwater Beneficial Use Aquifer Exemptions

Figure 3-9: Surface Water Sampling Stations in Project Area

Figure 3-10: River and Creek Sampling Stations in the Project Area

Figure 3-11: Generalized Total Dissolved Solids Concentrations in Groundwater

Figure 3-12: USGS Grid Well Locations Map

Figure 3-13: GAMA Well Locations in Project Area

Figure 3-14: Total Dissolved Solids Concentrations Histogram

Figure 3-15: Distribution of Major Anions in Groundwater

Figure 3-16: Distribution of Major Cations in Groundwater

List of Figures (cont'd)

Figure 4-1: Recent Drilling Trends in Project Area
Figure 4-2: Typical Drilling Rig Set-up
Figure 4-3: Drilling Rig Photograph
Figure 4-4: Typical Oil or Gas Well Casing Schematic
Figure 4-5: Typical Production Well Installation
Figure 4-6 Typical Hydraulic Fracturing Project Equipment
Figure 4-7: Typical Tank Battery Installation
Figure 4-8: Top 15 Oil Producing Fields in Project Area in 2013
Figure 4-9: Oil Production Trends 2010-2013
Figure 4-10: Top 15 Gas Producing Fields in Project Area in 2013
Figure 4-11: Gas Production Trends 2010-2013
Figure 4-12: Top 15 Water Producing Fields in Project Area in 2013
Figure 4-13: Fields with Highest Water to Oil Ratio in 2013
Figure 4-14: Fields with Lowest Water to Oil Ratio in 2013
Figure 4-15: Kern River Oilfield
Figure 4-16: Water/Steam Injection Trends 2010-2013

Figure 5-1: Volume of Water Handled during Production in 2012
Figure 5-2: Process Flow Diagram for Oilfield Activities Using Water

List of Appendices

A Field Cross Sections
B NPDES and WDR Orders
C USEPA STORET Legacy Data Center, Project Area Surface Water Quality Data
D Example Well Field Production and Injection Data

List of Abbreviations

°C	degrees Celsius
1,2,3-TCP	1,2,3-trichloropropane
AB	Assembly Bill
AGR	Agricultural Water Supply
API	American Petroleum Institute
APSA	Aboveground Petroleum Storage Act
ARS	aquifer recharge and storage
BAT	best available technology
Bbl	barrel
BCT	best conventional pollutant control technology
Bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BPTC	Best Practicable Treatment or Control
$CaCO_3$	calcium carbonate
CalARP	California Accidental Release Program
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CIPA	California Independent Petroleum Association
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COLD	Cold Freshwater Habitat
CTR	California Toxics Rule
CUPA	Certified Unifier Program Agency
CVP	Central Valley Project
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CWC	California Water Code
DAU	Detailed Analysis Unit
DBCP	1,2-dibromo-3-chloropropane
DOGGR	California Department of Conservation, Division of Oil, Gas, and Geothermal Resources
DSD	Division of Safety of Dams
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources

EDB	1,2-dibromoethane
EIA	U.S. Energy Information Administration
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FRSH	Freshwater Replenishment
GAMA	Groundwater Ambient Monitoring and Assessment
Gpm	gallons per minute
GWR	Ground Water Recharge
HAZNET	Hazardous Waste Information System
ILRP	Irrigated Lands Regulatory Program
IND	Industrial Service Supply
IOPA	Independent Oil Producers' Agency, Inc.
IRWMP	Integrated Regional Water Management Plan
KCWA	Kern County Water Agency
kg/yr	kilograms per year
KR-1	Southern California Edison Kern River Powerhouse No. 1
LACT	Lease Automated Custody Transfer
LC_{50}	Lethal Concentration Causing 50% Mortality
LD_{50}	Lethal Dose Causing 50% Mortality
Max	maximum
Mbbl	million barrels
MCL	maximum contaminant limit
MFL	million fibers per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
Mgal	million gallons
Min	minimum
MPN	most probable number
mrem/yr	millirems per year
Msl	mean sea level
MUN	Municipal and Domestic Water Supply
N	nitrogen
N	number of results
NA	not applicable
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
ND	not detected above the method reporting limit
NDMA	N-nitrosodimthylamine
NEPA	National Environmental Policy Act
NGL	natural gas liquids
NPDES	National Pollutant Discharge Elimination System

NOP	Notice of Preparation
NTR	National Toxics Rule
NTU	nephelometric turbidity units
NWIS	National Water Information System
OPA	Oil Pollution Act
P	phosphorus
PCDD	Planning and Community Development Department
PCE	tetrachloroethylene
pCi/L	picoCuries per liter
POTW	Publicly Owned Treatment Works
POW	Hydropower Generation
PRO	Industrial Process Supply
RARE	Rare, Threatened, or Endangered Species
RCRA	Resource Conservation and Recovery Act
REC-1	Water Contact Recreation
REC-2	Non-Contact Water Recreation
RL	reporting limit
RMP	Risk Management Plan
RQ	reportable quantity
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SDWA	Safe Drinking Water Act
SMCL	secondary maximum contaminant limit
SPCC	Spill Prevention Control and Countermeasures
SPWN	Spawning, Reproduction, and/or Early Development
STORET	STOrage and RETrieval
SWAMP	Surface Water Ambient Monitoring Program
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
TCE	trichloroethylene
TDS	total dissolved solids
ug/L	micrograms per liter
UIC	Underground Injection Control
umho/cm	micromhos per centimeter
uS/cm	microsiemens per centimeter
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VOC	volatile organic compound
WARM	Warm Freshwater Habitat

WDL	Water Data Library
WDR	Waste Discharge Requirement
WILD	Wildlife Habitat
WMS	Water Management Strategies
WQA	Water Quality Assessment
WSPA	Western States Petroleum Association

Executive Summary

Background

Kern County, located in California's southern San Joaquin Valley, is one of the richest and oldest oil-producing areas in the United States, representing approximately 80 percent of the oil and gas currently produced daily in California. Recently, the California Independent Petroleum Association (CIPA), the Independent Oil Producers' Agency, Inc. (IOPA), and the Western States Petroleum Association (WSPA) requested an amendment to the Kern County Zoning Ordinance to include provisions for local permitting of oil and gas production. Specifically, the amendments are intended establish updated standards and conditions to:

- Address environmental effects of pre-drilling exploration, well drilling, and the operations of wells, including exploration, production, completion, SB 4 regulated well stimulation operations, reworking, injection, monitoring, and plugging.

- Establish a new "Oil and Gas Conformity Review" ministerial permit procedure for county approval of well drilling and operation projects.

- Amend Title 19 of the Kern County zoning ordinance focused on Chapter 19.98 for Oil and Gas Local Permitting.

This amendment requires a project-level Environmental Impact Report (EIR) be prepared under the California Environmental Quality Act (CEQA), with Kern County serving as the lead agency. The intent of the EIR process is to provide economically feasible and environmentally responsible growth of oil and gas production in Kern County while protecting the environmental resources and maintaining the long-term sustainability of those resources.

Objective

The Water Quality Assessment (WQA), described herein, has been prepared to provide technical support to the EIR with respect to water quality in the Project Area from oil and gas operations. The objective of the WQA is to evaluate the potential effects to surface water and groundwater quality from future oil and gas exploration and production operations in the Project Area, defined as the southern end of the San Joaquin Valley, from the valley floor and the gently sloping foothills at the valley's southern edge, to elevations below 2,000 feet.

The WQA provides an assessment of the effects on water quality over the range of possible site locations within the Project Area from current and future oil and gas operations. The WQA describes the project setting, local geology, existing surface and groundwater quality conditions, and oil exploration and production activities conducted in the project area. From this information, the WQA evaluates potential impacts from these activities to surface water bodies and groundwater in the Project Area.

Geologic Setting

The San Joaquin Valley is filled with thousands of feet of marine and continental sediments derived from the surrounding Sierra Nevada and Coast Ranges. The sediment thickness generally increases from the valley margins toward the center, but is thickest along the western side of the valley, where up to 30,000 feet of sediments are found forming an asymmetrical basin. The land surface slopes gently, generally less than four percent, from the foothills along the valley margins to the lower elevation near historical dry lake beds along the northern boundary and west-central portions of the valley. The Project Area has internal drainage that is characterized by several large dry lake beds including the Tulare Lake basin just north of Kern County and Buena Vista Lake and Kern Lake at the southern end of the valley.

Mountains and highlands surround the San Joaquin Valley. The Sierra Nevada Foothills rise up to the east of the Project Area towards the metamorphic and igneous rocks of the Sierra Nevada Batholith exposed to the east. To the west are the faulted and folded Tertiary-aged sediments that comprise the Temblor Range of the Coast Ranges. The Tehachapi Mountains and San Emigdio Mountains rise up from the valley floor to the south. Along the southern boundary, the metamorphic and igneous rocks underlie the Tehachapi Mountains whereas faulted and folded sedimentary rocks underlie the San Emigdio Mountains.

The valley floor is underlain by coalescing Quaternary alluvial fans that have formed along the mountain front, resulting in heterogeneous and discontinuous lenses of gravels and sands with increasing silt and clay towards the center of the basin. The San Joaquin valley is filled with predominantly Late Cretaceous to Pliocene-aged sediments, with organic-rich marine rocks of Late Cretaceous, Eocene, and Miocene age providing the source of most of the oil and gas resources. Significant reservoir rocks include the Point of Rocks member of the Kreyenhagen Formation, the Stevens Sand member in the Monterey Formation, and the Chanac and Kern River Formations. Oil and gas traps in the area are both structural, such as in anticlinal folding or faulting, and stratigraphic where the oil pooled in a reservoir rock is trapped by adjacent impermeable rocks.

Water Resources

The Project Area has been divided into three geographic sub-areas, which include (1) the West sub-area, encompassing the Coast Range hills in western Kern County, (2) the Central sub-area, defined as the largely flat valley floor and gently sloping alluvial sediments that comprise the southern San Joaquin Valley basin, and (3) the East sub-area, which encompasses the western foothill of the Sierra up to an elevation of 1,000 feet.

The Project Area is located in the Tulare Lake Hydrologic Basin. The majority of the surface water supply is derived by the Kings, Kaweah, Tule, and Kern Rivers, which drain the west face of the Sierra Nevada. The Basin is essentially closed, as flood flows during periods of heavy runoff represent the only significant outflows from the Basin. Two lakes in the Basin are supplied by flood water from the major rivers during times of heavy runoff: Buena Vista Lake (located in the Project Area) and Tulare Lake (north of the Project Area).

Of these rivers mentioned above, only portions of the Kern River fall within the Project Area. According to the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan), these

waters are of excellent quality. Besides these main rivers, there are also numerous mountain streams in the Basin, divided into “eastside” and “westside” streams in the Basin Plan using Highway 58 between Bakersfield and Tehachapi.

The primary groundwater aquifers beneath the Project Area include the undifferentiated Plio-Pleistocene sedimentary deposits of the Tulare and Kern River Formations, and unconsolidated Quaternary alluvium consisting of alluvial and terrace deposits. The Tulare Formation contains several thick, regionally extensive clay layers. The most important of these is the Corcoran member of the Tulare Formation, also referred to as the Corcoran Clay, a unit sufficiently thick to create confining conditions below it. The unconfined water-bearing zone above the Corcoran Clay is generally associated with poor-quality groundwater (e.g., impacted by elevated nitrate and total dissolved solids) in comparison to the “main aquifer” characterized by confined, fresh, calcium-bicarbonate/sodium-bicarbonate water at depths of 300 to 800 feet below ground surface. Groundwater production from wells in the Central sub area typically ranges in the 100’s to 1,000’s of gpm and is used for agricultural irrigation, as well as municipal and industrial uses.

Below the production zone is a few hundred feet of aquifer that ranges from about 500 mg/L sodium bicarbonate to about 2,000 mg/L chloride. Few wells are constructed in this layer and it is not considered part of the “main aquifer”. The depth to the base of fresh water varies significantly along the western edge of the valley and is near the surface in some locations. Testing indicates that there is poor hydraulic connection between the transition layer and the main aquifer in that area. A thick high sodium chloride aquifer underlies the transition zone. It consists of reduced black-green, coarse sediments. Salinity grades from about 3,500 mg/l to over 5,000 mg/L. Little is known of the salinity of the deeper regions.

There is a strong regional variation in natural groundwater quality associated with the underlying local geology. In the West sub-area, marine-derived sedimentary materials are present that are relatively easily dissolved, yielding a higher dissolved solids content, and hence poorer quality, groundwater. Consequently, groundwater and surface water in the West sub-area are generally not used as sources of potable water supply. In contrast, groundwater in the Central and East sub-areas is recharged by water initially in contact with igneous and metamorphic rocks of the Sierra. These materials are much less readily dissolved, so the resultant groundwater quality is generally of much better quality in comparison.

Oil and Gas Operations

Water is used in oil and gas production in a variety of capacities, including well drilling, well completion and abandonment, well stimulation, production, enhanced oil recovery, and wastewater storage and disposal. Potential impacts to surface water or groundwater quality can result from the various operations involving the handling of water that is transported to the site or wastewater (e.g., flowback, produced water) or that is generated from the oil and gas-producing wells. Examples include potential impacts to surface soil (residual contaminants adsorbed to soil can impact local surface waters quality through erosion and run-off, as well as shallow groundwater through infiltration), surface water (direct impact from surface releases), shallow groundwater (through infiltration and direct contact from downhole releases), and deep (below the Corcoran Clay and/or below the fresh water interface) groundwater (direct contact from downhole releases).

The activities associated with oil and gas production are already highly regulated. Pertinent regulations that apply to potential releases of water used in these activities to the environment (e.g., land surface, shallow potable aquifer) include,

- At the federal level – under the purview of the Clean Water Act – pertinent regulations include:
    - Spill Prevention (40 CFR Part 112),
    - the National Pollutant Discharge Elimination System Program (40 CFR Part 122 to 129),
    - the National Toxics Rule (40 CFR Part 131),
    - the National Oil and Hazardous Substance Pollution Contingency Plan (NCP) (40 CFR Part 300),
    - Oil and Gas Extraction Point Source Discharge (40 CFR 435),
    - the Oil Pollution Act (33 U.S.C. 2701 et seq.),
    - the Safe Drinking Water Act (42 U.S.C. §300f et seq.),
    - the Resource Conservation and Recovery Act (42 U.S.C. §6921-6992k),
    - the Solid Waste Disposal Act (42 U.S.C. §6901 et seq.),
    - the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. §9601-9662), and
    - the National Environmental Policy Act (NEPA).

- At the state level, pertinent regulations include:
    - the California Environmental Quality Act 14 CCR Division 2, Chapters 2);
    - Oil and Gas Resource Regulations (14 CCR Division 2, Chapters 4), including Section 1722 - Field Rules on Oilfield Spills,
    - the Underground Injection Control Program, and Facility Maintenance Standards (California Assembly Bill 1960);
    - Well Stimulation Treatments (California Senate Bill No. 4, Chapter 313);
    - Hazardous Waste Control Law (22 CCR subsections 66261);
    - the Porter-Cologne Water Quality Control Act (California Water Code [CWC] Sections 13020 et seq.), including Basin Plans and Beneficial Uses (CWC Section 13240), Anti-degradation Policy (23 CCR 2900 – Resolution 68-16),
    - Surface Water Disposal (CWC Section 13260 to 13275),
    - Land Disposal (CWC Section 13260 to 13275);
    - Surface Impoundments, including Siting (27 CCR, Section 20240); and
    - Storm Water Discharge Regulations.

- At the county level, pertinent regulations include:
    - Aboveground Petroleum Storage Act (APSA),
    - the California Accidental Release Program (CalARP) (19 CCR Ch. 4.5, Section 2735.5), and
    - Groundwater Production and Monitoring Wells (County Ordinance Code, Chapter 14.08).

Potential Impacts to Water Resources from Oil and Gas Production

Potential water quality impacts are summarized qualitatively within the WQA, addressing a range of release scenarios. Quantitative impact assessments will necessarily be (1) highly site-specific, and (2) highly dependent upon the scale of any release. Consequently, quantitative impact predictions from posited release events were not undertaken. The intent of the qualitative impacts summary is to provide a comprehensive list of the possible effects to surface water and groundwater quality that could result from intentional or unintentional, direct or indirect, release of water that is used or produced by the oil and gas industry in the Project Area.

The list of impacts presents most reasonably foreseeable potential impacts, although it may not capture every possible impact from unforeseen circumstances. The evaluation of impacts does not include potential effects to groundwater quality or purchased water quality over time from long-term acquisition (i.e., surface or groundwater withdrawal for water supply to oil and gas operations) or resulting disposal.

Section 1: Introduction

Representatives of the oil and gas industry associations, specifically the California Independent Petroleum Association (CIPA), the Independent Oil Producers' Agency, Inc. (IOPA), and the Western States Petroleum Association (WSPA), collectively, "the applicants", have requested an amendment to Chapter 19.98 (Oil and Gas Production) of the Kern County Zoning Ordinance to include provisions for local permitting of oil and gas production. Specifically the amendment will establish updated standards and conditions to:

- Address environmental effects of pre-drilling exploration, well drilling, and the operations of wells, including exploration, production, completion, well stimulation operations, reworking, injection, monitoring, and plugging
- Establish a new "Oil and Gas Conformity Review" ministerial permit procedure for County approval of well drilling and operation projects
- Amend Title 19 of the Kern County zoning ordinance focused on Chapter 19.98 for Oil and Gas Local Permitting

The amendment requires a project level Environmental Impact Report (EIR) be prepared under the California Environmental Quality Act (CEQA), with Kern County as the Lead Agency. The EIR will address oil and gas exploration and production activities and result in development of standards and mitigation measures for oilfield activities (Kern County PCDD 2013). The EIR is being prepared to assess the relative impacts of future oil and gas development and operational activities within Kern County. The purpose of the EIR process is to provide economically feasible and environmentally responsible growth of oil and gas production in Kern County while protecting the environmental resources and maintaining the long-term sustainability of those resources. This Water Quality Assessment (WQA) is prepared in support of the EIR and provides a summary of existing surface water and groundwater quality information and evaluates potential impacts to water quality from oil and gas exploration and production operations.

1.1 Project Location and Setting

Kern County is one of the richest and oldest oil-producing counties in the US and is currently producing about 80 percent of the oil and gas produced daily in California. Kern County is located in California's southern Central Valley area; and is bounded by Kings, Tulare, and Inyo Counties on the north, San Bernardino County on the east, Los Angeles and Ventura Counties on the south, and Santa Barbara and San Luis Obispo Counties on the west. The Project Area includes eight incorporated cities: Arvin, Bakersfield, Delano, Maricopa, McFarland, Shafter, Taft, and Wasco.

The proposed amendment to the Zoning Ordinance will apply to the Project Area (Figure 1-1), which includes most of the valley floor area of Kern County and the lower elevations of the

surrounding mountain ranges, up to 2,000 feet above mean seal level (msl). This area contains geologic deposits that account for numerous oil and gas reservoirs throughout the southern Central Valley. According to the Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) records, 99 active or abandoned oil fields are located within the Project Area (Figure 1-2), ranging in size from a few hundred acres to more than 65,000 acres.

The Project Area encompasses about 3,700 square miles and generally includes the San Joaquin Valley Floor portion of Kern County up to an elevation of 2,000 feet. Figure 1-1 shows the boundaries of the Project Area and the three oil and gas Sub-Areas (West, Central, and East) that were considered for the purpose of the WQA, based on the boundaries defined by Kern County for the EIR. For the purpose of this report, these two boundaries will be referred to as the Project Area and the three Sub-Areas. The Project Area boundary and Sub-Area boundaries were defined by Kern County based on generally available information regarding areas with potential or confirmed oil and gas resources.

The Project Area is also divided into “Core Areas”, which represent the aerial extent of the 99 active and abandoned oil fields (Figure 1-3), including a buffer zone around each oil field; and land use areas referred to as “Tier” areas. The land use designations for the Tier Areas are defined as:

Tier 1 – oil and gas exploration and production is the primary land use (synonymous with the “Core” areas not including the buffer zones)

Tier 2 – agriculture is the primary land use

Tier 3 – light manufacturing and industrial is the primary land use

Tier 4 – unincorporated cities, airports, industrial, manufacturing, residential, and commercial uses are prevalent

1.2 Objectives

The objective of the WQA is to evaluate the potential effects to surface water and groundwater quality from future oil and gas exploration and production operations in the Project Area. The WQA describes the project setting and local geology, reviews existing surface and groundwater quality conditions, summarizes oil exploration and production activities conducted in the project area, and evaluates potential impacts from these activities to surface water bodies and groundwater in the Project Area.

This WQA also presents Water Management Strategies (WMS) as potential measures to protect and/or improve surface water and groundwater quality in the project area. The WMS summarize typical operations related to oil and gas exploration and production, describe potential impacts to water quality, and propose procedures and best management practices to be implemented to mitigate the potential impacts.

Section 2: Project Area Geology

To provide context for evaluating water quality, this section summarizes the key geological features that relate to both oil and gas reservoirs and groundwater resources.

2.1 Regional Geology

This section on regional geology provides the overall geologic setting and history of the Project Area to describe the geologic variations that occur across the Project Area.

2.1.1 Physical Setting

The Project Area (Figure 1-1) is located at the southern end of the San Joaquin Valley, and is comprised of the valley floor and the gently sloping foothills at the valley's southern edge, to elevations below 2,000 feet. The land surface within the Project Area generally slopes from the foothills along its southern and eastern boundaries to the lower elevation along its northern boundary near historical dry lake beds in the west-central portion of the valley. Grades are generally less than four percent and the topography can generally be characterized as flat. The Tehachapi Mountains and San Emigdio Mountains rise up from the valley floor to the south, while the Temblor Range of the Coast Ranges and the Sierra Nevada Foothills rise up to the west and east of the Project Area. The Project Area has internal drainage that is characterized by several large dry lake beds including the Tulare Lake basin just north of Kern County and Buena Vista Lake and Kern Lake at the southern end of the valley (Bartow and McDougall 1984; Bartow 1991).

2.1.2 Geology

The San Joaquin Valley is filled with thousands of feet of marine and continental sediments of Tertiary and Quaternary age derived from the surrounding Sierra Nevada and Coast Ranges, and their southern extensions. The sediment thickness increases from the valley margins toward the center. The sequence of sediments forming the basin is asymmetrical, with the thickest sediments occurring along the western side of the valley where up to 30,000 feet of sediments are found in the southwest portion of Kern County (Page 1986).

Figure 2-1 provides the general geologic map for the Project Area. Two structural blocks, the Sierra Nevada on the east and the Coast Ranges on the west, have contributed mineralogically-distinct sediments that interfinger in the subsurface (Bartow and McDougall 1984; Bartow 1991; Page 1986; Wood and Dale 1964). The valley floor is underlain by coalescing Quaternary alluvial fans that have formed along the mountain fronts, resulting in heterogeneous and discontinuous lenses of gravels and sands with increasing silt and clay content towards the center of the basin. The metamorphic and igneous rocks of the Sierra Nevada Batholith are exposed to the east. To the west are the faulted and folded Tertiary-aged sediments that comprise the Coast Ranges (shown as Pliocene, Miocene, Oligocene, Eocene and Paleocene sediments on Figure 2-1). Along the southern boundary, the metamorphic and igneous rocks underlie the Tehachapi Mountains (Sierra Nevada block) whereas faulted and folded sedimentary rocks underlie the San Emigdio Mountains (Coast Ranges block).

2.1.3 Geologic History

Basin sedimentation in the southern San Joaquin Valley began in the Jurassic Period, with the erosion of the rising Sierra Nevada in the east. Sediments were deposited onto the shelf edge of a shallow sea. Because the Coast Ranges orogeny had not yet begun, lands to the west were open to the ocean. Deposits accumulated in the deeper water to the west, resulting in the very thick Franciscan Formation that was later uplifted, forming the Coast Ranges. Deposition proceeded throughout the Mesozoic, which is represented by more continuous units and an absence of deformation (Wood and Dale 1964; Croft 1972).

Tectonic activity associated with the uplift of the Coast Ranges began in the Tertiary Period and resulted in folding and faulting of sediments along the west side and a deepening of the valley floor. Thick sequences of marine sediments that were deposited as the Coast Ranges orogeny continued. By the late Tertiary (Pliocene Epoch), the mountains had cut off the connection to the sea and marine waters had been drained from the valley. As deposition continued, non-marine (continental) sediments were deposited across the valley (Bartow and McDougall 1984; Bartow 1991).

The Pleistocene Epoch was dominated by brackish and freshwater lakes resulting in thick deposits of clay, as represented throughout the upper Tulare Formation. These include the widespread Corcoran Clay, which has been mapped over much of the San Joaquin Valley, and its equivalents which have been correlated to clays beneath the Kern and Buena Vista dry lake beds in the southern Project Area as well as the Tulare Lake sediments on the northern boundary of the County (Wood and Dale 1964; Croft 1972). A more detailed description of the Corcoran Clay is provided in Section 2.4.2.

2.1.4 Structural Geology

The San Joaquin Valley is an asymmetrical syncline (Figure 2-1) or trough that runs north-south with the center along the western side of the valley. Although the San Joaquin Valley constitutes part of a discrete geomorphic province, the geology is internally variable in both stratigraphy and style of deformation. Stratigraphically, the greatest variation is the thick section of marine sediments in the southern part of the basin that grades to thinner, non-marine sediments north of Kern County. Structurally, the greatest differences are between the highly-folded sedimentary layers on the west and the little-deformed sedimentary cover on the east side of the valley (Bartow 1991).

The tectonic activity in the area has produced numerous geologic faults, many of which remain active today. Notable faults and folds are shown on Figure 2-1. Figure 2-1 also illustrates the position of the major oil fields in the Project Area relative to major structural features, such as the Bakersfield Arch and the Cenozoic Basin depositional axis. Two generalized west to east cross sections are presented on Figure 2-2 and 2-3 to further illustrate the variability in geology across the Project Area.

The Bakersfield Arch (Figure 2-1) separates the San Joaquin Valley in the Project Area into a northern and southern area. The arch does not have appreciable structural relief, but does have an influence on sedimentation. The thickest sequences of Tertiary sediments of these basins occur approximately coincident with the Pleistocene and Holocene Buena Vista and Kern Lake

basins in the south and the Tulare Lake basin in the north. The Mesozoic and early Tertiary Great Valley sequence, on the other hand, thins southeastward and is apparently absent south of the Bakersfield Arch (Bartow 1991).

The highly-folded western margin of the valley north of the Bakersfield Arch is characterized by Cenozoic folds and faults that trend, for the most part, slightly oblique to the San Andreas Fault on the southwest. The southeast boundary of the fold belt is arbitrarily placed east and south of Elk Hills where the fold trends change from northwest to west (Figure 2-2 and 2-3). The east boundary deviates from the valley syncline axis to include the subdued anticlines that, although lying east of the valley axis, are structurally more akin to the west-side fold belt than to the less-deformed eastern margin (Figure 2-3). The intensity of deformation increases southeastward along the fold belt as well as southwestward across the belt toward the San Andreas Fault. The increased intensity is evidenced by tighter folds and an increased number of reverse and thrust faults (Bartow 1991).

Normal faults along the east side of the valley are concentrated in the area of the Bakersfield Arch. These faults generally trend northwest to north, although a secondary west to west-northwest trend is apparent (Figure 2-2 and 2-3). The net displacement is down to the southwest, although down-to-the-northeast faults are present (Bartow and McDougall 1984; Bartow 1991).

South of the Bakersfield Arch, the structural trends are variable but there is a general west trend along the south margin of the basin (Figure 2-1). The northwest fold trends of the west-side change to west-northwest where that region merges with the deformed belt at the south end of the valley. The northeast-trending White Wolf fault is the dominant structure (Figure 2-1). The White Wolf fault and the smaller Springs fault to the southeast both trend approximately parallel to the Garlock fault, which lies along the southeast side of the Tehachapi Mountains. Both faults, like the Garlock, show some geologic evidence of left-lateral movement. Farther northeast, the northwest- to west-trending Edison fault is an older Tertiary normal fault (Bartow and McDougall 1984; Bartow 1991).

2.1.5 Project Sub-area Characteristics

As described in Section 1, the Project Area has been divided into three geographic sub-areas (Figure 1-1) for the purposes of this water quality evaluation. The sub-areas differ in terms of their physical and geological conditions, which influence the water qualities of local surface and ground waters (described in Section 3: Surface Water and Groundwater Quality). The following is a brief summary of the general characteristics of the three geographic sub-areas.

- ***West Sub-area –*** includes the Coast Range hills in western Kern County and is typified by comparatively poor groundwater quality (relative to the other two sub-areas). Figure 1-1 shows that north of Bakersfield, the East Sub-Area consists of the area west of Interstate 5. Local geology influences the water composition of groundwater and streams draining the area, and is characterized by sedimentary materials that are more easily dissolved, compared to the East sub-area. The Corcoran Clay is present in the eastern portion of this sub-area and separates shallow and deep groundwater zones. The geologic cross-section presented as Figure 2-3 illustrates the occurrence of saline groundwater west of the Lost Hills (generally west of I-5).

- ***Central Sub-area –*** primarily includes the largely flat, gently sloping alluvial sediments that comprise the southern San Joaquin Valley basin in the Project Area. Figure 1-1 shows that north of Bakersfield, the East Sub-Area consists of the area east of Interstate 5 and west of Highway 65. Agricultural land use is predominant in this sub-area. Groundwater production from wells typically ranges in the 100's to 1,000's of gallons per minute and is used for many beneficial uses including agricultural irrigation, municipal water systems and industrial processes. The Corcoran Clay is present throughout much of this sub-area and separates the shallow and deep groundwater zones. The geologic cross section presented as Figure 2-3 illustrates that the groundwater in the upper several hundred to over one thousand feet is relatively fresh, making this the primary aquifer for the region.

- ***East Sub-area –*** includes the West Sierra Foothills, up to an elevation of approximately 1,000 feet msl, and portions of the gently sloping alluvial sediments downslope of the West Sierra Foothills. Figure 1-1 shows that north of Bakersfield, the East Sub-Area consists of the area east of Highway 65. The geologic cross section included as Figure 2-3 illustrates that the sediments thin towards the east as they overlay onto the granitic basin. In the Foothills, the local geology is characterized by tight, poorly draining, low-solubility igneous and metamorphic rocks, which influences the water composition of streams draining the area. Groundwater wells typically have to moderate production (typically in the 10's to 100's gpm) that is used for mostly domestic (i.e., private well) and small community wells. The alluvial areas are similar geologically to the Central Sub-area, but are distinguished from the West and Central sub-areas, in part, by the absence of the Corcoran Clay. Groundwater production from the alluvial areas also is in the range of 100's to 1,000's of gallons per minute that is used for multiple beneficial uses. Groundwater in the East Sub-area generally has good groundwater quality.

2.2 Oil and Gas Field Geology

A typical petroleum-bearing system is comprised of an organic-rich source rock, reservoir rock, an adequate stratigraphic or structural seal, and; favorable timing for petroleum generation, migration, traping, and accumulation. Migration paths from source rocks to the reservoir rock can be complex, and reservoir rocks can be distant, stratigraphically, geographically, and chronologically, from source rocks (Lillis and Magoon 2007).

2.2.1 Reservoirs

Structural features in the southern San Joaquin basin are largely functions of the complex interplay of compression and fault displacement along North America's western margin, as well as regional uplift. The compression and displacement resulting in the folding and faulting strongly influences the locations of hydrocarbon accumulations. A generalized stratigraphic column for the southern San Joaquin Valley is presented on Figure 2-4, and illustrates the key formations that act as oil and gas reservoirs in the Project Area.

Notable reservoir rocks include, for example, the Point of Rocks member of the Kreyenhagen Formation, the Stevens Sand member in the Monterey Formation, and the Chanac and Kern River Formations. In the Project Area, oil and gas are commonly produced from multiple

reservoir formations within the same field, and each formation may produce mainly oil, mainly gas, or both (Hosford Scheirer and Magoon 2007).

Traps may be structural, such as in anticlinal folding or faulting, or stratigraphic where the oil pooled in a reservoir rock is capped by adjacent impermeable rocks (DOGGR 1998). A variety of traps are found in the Kern County fields. Examples of traps are illustrated for each oil field in a series of cross sections presented in Appendix A.

2.2.2 Source Rocks

The San Joaquin valley trough is filled with predominantly Late Cretaceous to Pliocene-aged sediments, with organic-rich marine rocks of Late Cretaceous, Eocene, and Miocene age providing the source of most of the oil and gas (Lillis et al. 2007). Figure 2-5 illustrates the extent of two of the major source rock groups, the older Eocene Kreyenhagen-Tumey and the Miocene Monterey Formations. The Kreyenhagen source rocks are thickest in the west along the basin axis, and the Miocene rocks are more widespread.

The Eocene and younger oils found in California generally contain a great deal of hydrogen sulfide gas and a high carbon-to-hydrogen ratio compared to older oils, making California oils heavier and more viscous. Generally, many California oils are thus more difficult to produce, transport, and refine compared to other oils (DOGGR 1993). Most of California's "heavy" oil (oil exceeding a specific gravity and viscosity) is in Kern County (Guerard 1998). In the Project Area, oils differ in viscosity from field to field. Oil in some fields will flow freely (e.g., the gushers from west side fields) but in others (e.g., the Kern River field) the oil is thick and generally must be heated to be produced.

Lillis and Magoon (2007) describe three broad oil types linked to source rocks in the Kern County area. Oil sourced mainly from the marine shales of the Miocene Monterey Formation, with evidence of terrigenous influence, is found in the eastern and southern parts of the Project Area. Oil sourced from the Eocene Tumey Formation are found in the central and west central part of the Project Area, but are predominantly north of Kern County. Oil sourced from the Eocene Kreyenhagen Formation is widely distributed along the western side of the basin (e.g., Antelope Hills, Antelope Hills North, Belgian Anticline, McKittrick, Paloma fields).

Lillis et al. (2007) describe three general gas types in the Project Area: thermogenic dry gas, thermogenic wet gas, and biogenic gas. Thermogenic gas is generated by the cracking of kerogen or oil at higher temperatures with increasing burial. Thermogenic 'dry' gas is linked to Miocene-age oil-prone source rock. Thermogenic wet gas is linked by Lillis et al. (2007) to the Kreyenhagen and Tumey Formations, whereas Thermogenic 'dry' gas is linked to the Monterey Formation. Biogenic 'dry' gas is produced from shallow reservoirs in the Pliocene San Joaquin Formation, and most likely originated from the microbial decomposition of marine organic matter in the Pliocene San Joaquin formation. Fields with wells completed in the Tulare, San Joaquin, or Etchegoin formations are likely to produce biogenic gas from these formations (Lillis et al. 2007) in addition to thermogenic gas.

2.3 Oil and Gas Fields in Kern County

A regional geologic map including oil fields is presented on Figure 2-1. In general, oil fields are more numerous along the western side of the San Joaquin basin (near the Cenozoic basin's

depositional axis, where sediments are thickest) and along the Bakersfield Arch, but are found throughout the Project Area.

Table 2-1 lists the name, stratigraphic formation and depth for oil and gas pools for each administrative oil field in the Project Area (DOGGR 1998). A geologic cross section for each oil field in the Project Area (DOGGR 1998) is included in Appendix A.

2.4 Groundwater Basin Geology

Groundwater for municipal, industrial and agricultural use is primarily derived from the alluvial deposits in the flat-lying portions of the valley primarily in the Central and East Sub-areas. The following discussion provides information on the occurrence of groundwater in the San Joaquin Valley and its relevance to water quality.

2.4.1 Groundwater Basin Designation

Boundaries for California groundwater basins and sub-basins are designated by California Department of Water Resources (DWR) Bulletin No. 118, California's Groundwater Update (CA DWR 2006). The portion of Kern County that lies within the San Joaquin Valley is designated as the Kern County sub-basin (DWR Groundwater Basin Number: 5-22.14). This sub-basin is located in the part of the San Joaquin Valley Basin known as the Tulare Lake Hydrologic Region.

Historically, the high groundwater levels directly beneath Kern River have established a hydrologic divide, restricting groundwater south of the river from flowing to the north. On the eastern side of the valley, a series of faults effectively prevent significant hydraulic connection between the groundwater in the dissected uplands and in the valley aquifer. Along the western side of the Project Area, a series of southeast-plunging anticlines has uplifted and exposed sediments with poor hydraulic characteristics to the surface. These uplifts appear to be preventing groundwater flow from these western areas to the valley aquifer. The Semitropic and Buttonwillow anticlines are covered by permeable alluvial sediments allowing for groundwater flow over them. In the northern part of the Project Area, clays of the Tulare Lakebed effectively create a groundwater flow barrier to the west and northwest. To the northeast, groundwater does flow between the Kern County sub-basin and the Tule sub-basin and, to a lesser extent, to the Tulare Lake sub-basin. The extent of the interconnection is not certain; however, groundwater elevations and a persistent groundwater depression in northern Kern County indicate that effective groundwater interaction does occur with areas located immediately north of the Kern County boundary (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

2.4.2 Aquifer Stratigraphy

The primary groundwater aquifers beneath the Project Area include the undifferentiated Plio-Pleistocene sedimentary deposits of the Tulare and Kern River Formations, and unconsolidated Quaternary alluvium consisting of older stream and terrace deposits, and more recent flood basin deposits. These formations are underlain by undifferentiated Tertiary sedimentary rocks and a crystalline basement complex. These deeper units are relatively impermeable and occur

at depths that are not economically attractive for groundwater production (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

Unconsolidated continental deposits of late Tertiary and Quaternary age have been mapped on the south and west sides of the valley (in the West Sub-area) at several locations where they overlie and truncate the underlying marine oil-bearing rocks, and are generally assigned to the Tulare Formation (Wood and Dale 1964).

Fresh-water-bearing continental deposits of late Tertiary and Quaternary age, consisting of Continental deposits that are unconformably overlain by alluvium and unconformably overly older marine and continental deposits, occur in the vicinity of the Kern River (located in the Central and Eastern Sub-areas) and are designated as the Kern River Formation (Wood and Dale 1964; Croft 1972).

The Tulare and Kern River Formations are considered to be stratigraphically equivalent units (CA DWR 2006) and their bases effectively define the lower extent of the primary aquifer. The water quality in the western Tulare Formation differs from the Kern River Formation, which is discussed in more detail in Section 2.4.3.

The Tulare Formation occurs beneath the western portion of the Project Area and crops out in the low foothills of the San Emigdio Mountains in the southern portion of the Project Area (Figure 2-3). This formation consists of up to 2,200 feet of interbedded, oxidized to reduced sands, and gypsiferous clays and gravels derived from the Coast Ranges. This formation also includes clay layers equivalent to the Corcoran Clay Member. The Kern River Formation occurs throughout most of the southeastern and eastern portion of the sub-basin (or mainly the Central and Eastern Sub-areas). This Kern River Formation consists of between 500 and 2,000 feet of poorly sorted lenticular deposits of clay, silt, sand, and gravel derived primarily from the Sierra Nevada. Both the Tulare and Kern River Formations are moderately to highly permeable and can yield moderate to large quantities of water to wells (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007). The water quality in the Tulare Formation in the West Sub-area can be poor, however (SWSD 2012), so water production from the two formations is not equivalent (see Section 2.4.3).

The unconsolidated Quaternary alluvium, which comprises the upper portion of the primary aquifer system, is similar in lithology to both the Tulare and Kern River Formations. This alluvium consists of moderately to highly permeable older stream and terrace deposits and younger low permeable flood basin deposits (Wood and Dale 1964). Permeability within the unconsolidated Quaternary alluvium tends to decrease from east to west and is particularly low beneath the beds of Buena Vista and Kern Lakes (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

The Tulare Formation contains several thick, regionally extensive clay layers. The most extensive of the clay layers, the Corcoran member of the Tulare Formation (also referred to as Corcoran Clay or E-clay), is sufficiently thick to create confining conditions below it. Where the E-clay exists, the aquifer below is referred to as the “main” aquifer (with an upper confined zone and a lower confined zone). In the southeast and east part of the District, the E-clay thins, splits as it nears the surface, and becomes hydraulically ineffective as it merges into the “forebay”- the unconfined part of the main aquifer that is hydraulically connected to the main confined aquifer. The distribution of the Corcoran Clay is shown on Figure 2-6. This important hydraulic

connection causes changes in water levels in the forebay and hydraulic head in the main aquifer to affect each other. Were it not for this hydraulic connection, the confined aquifer would receive little recharge.

The other regional clay, the A-clay, further splits the "unconfined" aquifer into a lower confined portion and an upper unconfined portion (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007). Regionally, the unconfined aquifer thins to the east and south, and the lower zones thicken. The dip is generally west-northwest.

Faults that act as barriers to groundwater within the Kern County Sub-basin include the Edison, Pond-Poso, White Wolf, and Springs faults. The White Wolf fault separates a southeastern alluvial subarea from the remainder of the Kern County Sub-basin. The White Wolf fault is a cross-cutting feature that separates the southern end of the valley from a small subarea between the Tehachapi Mountains and Wheeler Ridge (Figure 2-1). A study on groundwater flow in the vicinity of the fault indicates that groundwater levels are disrupted and groundwater flows across the fault only in certain areas and only during conditions of relatively high water levels (Todd Engineers and Kennedy/Jenks Consultants 2007). The Springs fault, located approximately seven miles south and parallel to the White Wolf fault, is a smaller fault that also cross-cuts the southern edge of the valley (Figure 2-1). Groundwater flow is also impeded across the Springs fault. Here, groundwater flowing northward from recharge areas in the Tehachapi Mountains rises along the fault trace and surfaces as springs, providing the fault with its name. Both of these faults have offset aquifer units in the subsurface and impede groundwater flow to the north (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

2.4.3 Aquifers

Public water supply wells in the Kern County Sub-basin as designated by CA DWR (2006) are typically screened at depths between about 300 and 800 feet below ground surface. Water-bearing geologic units occurring in the Sub-basin include the Miocene-age Olcese and Santa Margarita Formations, the Plio-Pleistocene age Tulare and Kern River Formations, and younger sediments (DWR 2006). Groundwater in the Project Area occurs in several different aquifers (SWSD 2012). Five major aquifers or zones are recognized that include the following (SWSD 2012):

- ***Perched Zone –*** A shallow, 5-20 foot-deep, perched aquifer is located along the border of the West and Central Sub-areas in the northern portion of the Project Area. The area affected by perched conditions changes yearly to some extent depending on hydrologic conditions.
- ***Unconfined Zone –*** The upper, unconfined aquifer when compared to the production zone consists of generally poor quality water. The unconfined aquifer lies above the E-clay; the E-clay thickens to the north with proximity to the Tulare Lakebed and is thin and indistinguishable from the sediments of the "main" aquifer in the forebay area along the eastern and southern boundaries of the valley (the Central and East Sub-areas).
- ***Production Zone –*** Beneath the E-clay, the "main" aquifer is characterized as a confined, fresh, calcium-bicarbonate/sodium-bicarbonate aquifer. The production zone is approximately 300-1000 feet thick and consists of oxidized sediments. The sediments

are tan, yellow, olive-gray, and occasionally deep orange, indicating exposure to previous surface weathering. Most sand units are poorly to moderately well sorted sand, the coarsest size being small pebbles. The top and base sediments are thick, fining-upward sands with several discontinuous sands occurring between. The average salinity is estimated at about 300 milligrams per liter (mg/L).

As illustrated on Figure 2-3, the main aquifer of the area is east of Lost Hills, or in the Central Sub-area. West of Lost Hills, in the West Sub-area, the groundwater is saline.

- ***Transition Zone –*** Below the production zone is a few hundred feet of aquifer that ranges from about 500 mg/L sodium bicarbonate to about 2,000 mg/L chloride. Few wells are constructed in this layer and it is not considered part of the "main aquifer". The depth to the base of fresh water varies significantly along the western edge of the valley and is near the surface in some locations (Figure 2-3). Testing indicates that there is poor hydraulic connection between the transition layer and the main aquifer in the northwest part of the Semitropic Water Storage District (SWSD 2012) (the northwest part of the Central Sub-area).
- ***Saline Zone –*** A thick high sodium chloride aquifer underlies the transition zone. It consists primarily of reduced black-green, coarse sediments. Salinity grades from about 3,500 mg/l to over 5,000 mg/L. Little is known of the salinity of the deeper regions. As illustrated on Figure 2-3, the main aquifer of the area is east of Lost Hills, in the Central Sub-area. West of Lost Hills in the West Sub-area the groundwater is saline.

Along the axis of the main valley trough, the interfingered Tulare and Kern River Formations generally form the lower extent of the aquifer; however, the lower portions may contain brackish water that is generally not considered suitable for beneficial use. Poor quality saline groundwater occurs throughout most of the West Sub-area of the Project Area. This poorer water is typical of the lower part of the Tulare Formation, which surfaces on the west side of the valley. To the east, fresh water from the Sierras recharges the Kern River Formation, primarily by the way of infiltration from the Kern River, Poso Creek, Deer Creek, White River, and through extensive leakage from conveyance facilities which parallel the Friant-Kern Canal (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007). Table 2-2 lists the reported base of fresh water for the oilfields in the Project Area, as noted in DOGGR (2013a), or DOGGR (1998) for abandoned fields. The definition of fresh water is context-dependent; DOGGR Field Rules refer to the "base of fresh water" to guide requirements for installation of protective measures (steel casing, cement seals, etc.) in oil wells. These measures are intended to protect fresh water aquifers from the effects of drilling and oil production, such as contamination by saline water, oil, and gas. State Water Resources Control Board Resolution No. 88-63 (CA SWRCB 2006) sets the current limit for suitable or potentially suitable water (water that must be protected) at 3,000 milligrams per liter (mg/L) of total dissolved solids (TDS). This limit is cited in DOGGR's discussion of requirements of Underground Injection and Control (UIC) permitting: "…Operators are required to use every effort and endeavor to protect any underground or surface water suitable for irrigation or domestic purposes from the infiltration of detrimental substances…State Water Resources Control Board Resolution No. 88-63 states that water with total dissolved solids (TDS) of 3,000 mg/L or less is suitable, or potentially suitable, for municipal or domestic use. A minor aquifer exemption may be required for water with TDS between 3,000 and 10,000 mg/L. (40 CFR 146.4.)" (http://www.conservation.ca.gov/dog/general_information/Pages/UICApplicationGuidance.aspx).

In the past, other criteria have been used to map the base of fresh water (for this discussion considered equivalent to 'suitable water'). For example, Page (1973) mapped the base of fresh water in the San Joaquin Valley using the criteria of a maximum electroconductivity (EC) of 3,000 micromhos (umhos)/minimum resistivity of 3.33 ohm-m at 75 degrees Fahrenheit, and maximum TDS concentration of 2,000 mg/l. According to Bryan (1992), Page (1973) used these criteria based upon the work of Olmsted and Davis (1961), who applied the criteria to map the base of fresh water in the Sacramento Valley. Formation water resistivity and EC can be derived from geophysical logs.

The term "fresh water" is further described in Section 3. Based on the information obtained from DOGGR, fresh water is not present in most of the groundwater aquifers in the oilfields in the West sub-area. In contrast, in the Central sub-area the base of fresh water generally ranges in depth from 800 feet below ground surface (bgs) to 5,700 feet bgs. In the East sub-area, the base of fresh water is more variable, ranging from near-ground surface to 2,500 feet bgs.

2.4.4 Groundwater Conditions

Long-term hydrographs indicate that relatively stable groundwater conditions prevailed in the Project Area until the mid-1940s (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007). Subsequently, increased pumping caused water levels to decline at a rate of about 8 feet per year, with seasonal fluctuations approaching 100 feet per year. These declines continued until initiation of surface water deliveries in the mid-1970s. Regional overdraft was first noted in the mid-1940s with the post-WWII expansion in agriculture and irrigation in the basin (Todd Engineers and Kennedy/Jenks Consultants 2007). A myriad of problems associated with declining water levels were documented including:

- loss of well production and well abandonment,
- increasing pumping costs with lifts exceeding 700 feet in some areas,
- drilling of deeper wells that encounter marginal or unsatisfactory water quality,
- land subsidence resulting in well destruction (Todd Engineers and Kennedy/Jenks Consultants 2007).

The shallow alluvial aquifers were essentially dewatered during this time period, resulting in production from deeper and sometimes less permeable aquifers (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007). The commencement of groundwater banking activities in the early 1990s enhanced groundwater recharge. An elliptical, north-to-south groundwater low has formed along the basin in the northern Project Area. Ridges of high groundwater are maintained under the Kern River, however, these ridges appear to break down slightly in critically dry years. Groundwater levels have been relatively stable in recent years up to the current drought, with fluctuations of about 50 feet; declining during "dry" periods, and increasing during "wet" periods (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

DWR posts water level data from select wells (see http://gis.water.ca.gov/app/groundwater/). Most of the wells monitored by DWR are in the Central and East Sub-areas. The DWR monitors fewer wells in the West Sub-area, and those are mainly either just west of I-5 between Highway 119 and Buena Vista Lake Bed, or in the Maricopa Flat area. The length of the monitoring record varies with a few well records extending as far back as the 1940's.

Groundwater levels in wells can be influenced by a myriad of factors, such as pumping rates, surface water allocations, nearby recharge structures, and climate. Groundwater levels in some parts of the Project Area have dropped sharply since the start of the recent drought. Kern County Water Agency (KCWA) reports groundwater level declines of approximately 60 feet from spring 2012 to spring 2013 in some parts of Improvement District 4 (KCWA 2014), in the Central Sub-area (northwest and southeast of Bakersfield) and West Sub-area (southwest of Bakersfield). The water levels in each well behave uniquely but general trends include:

- Declining levels over most of the Central Sub-area, over two feet per year in some cases. The hydrographs commonly show significant declines (followed by recovery) in the early 1980's, early 1990's, 2009-2010, and 2014. In many wells the lowest levels were in 2009-2010.

- Relatively stable or even increasing levels in some parts of the Central Sub-area, and in the East Sub-area that includes the area east of Mettler and near Arvin.

- Relatively stable levels in most of the monitored West Sub-area wells.

2.4.5 Groundwater Recharge

Replenishment of groundwater underlying the Project Area occurs naturally and indirectly through the delivery of available surface water supplies in lieu of pumping groundwater (i.e., such deliveries are to lands that have developed a reliance on pumped groundwater), referred to as *in-lieu* recharge. Additionally, irrigation water not consumed by evapotranspiration of cropped lands percolates to the underlying groundwater, referred to as return flows (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

Recharge to both the confined and semi-confined aquifers occurs principally as subsurface inflow from the semi-confined aquifer forebay, located to the east of where the Corcoran Clay is absent (Figure 2-6). Recharge to the semi-confined aquifer system also includes deep percolation of excess applied irrigation water, and less frequently from surface flows during wet years. Small drainages along the dissected hills also add a small amount of recharge to the valley aquifer. The importation of surface water to the forebay area has been ongoing for decades. Shallow clay layers, particularly in the northwest portion of the Project Area, restrict the percolation of surface water, and have formed areas of perched water (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

The principal component of recharge in "dry" years is seepage from irrigation water, whereas, in "wet" years, intentional surface recharge and in-lieu recharge are the principal components. As the number of groundwater recharge facilities increases over the years, the natural recharge becomes a smaller portion of total recharge. Programs developed throughout Kern County have contributed significantly to basin recharge, and are critical to maintaining groundwater levels and water quality. Groundwater basin management goals for Water Districts in the Project Area reflect the continuing role of these programs in enhancing groundwater recharge to the basin (SWSD 2012; Todd Engineers and Kennedy/Jenks Consultants 2007).

Section 3: Surface Water and Groundwater Quality

This section provides information on existing water quality conditions and concerns in the Project Area, based on a review of published and publicly available data and reports. This information provides a baseline for assessing potential future effects in the Project Area. Availability and age of water quality data varies by location. For surface water, data from 2002 to 2013 was identified and reviewed for the East and Central sub-areas, as well as older data from 1951 to 1991 for the East, Central, and West sub-areas, to determine average water quality for a given surface water body or sub-area. For imported water, data for 2010 to 2013 (Friant-Kern Canal) and 2004 to 2014 (California Aqueduct) was identified and reviewed to determine average water quality. Groundwater quality data reflect U.S. Geological Survey analyses conducted within the past decade, augmented by analyses of data gleaned from California's Groundwater Ambient Monitoring and Assessment Program database (with data reported through 2013).

3.1 Project Area Setting

As described previously, the Project Area includes most of the San Joaquin Valley Floor portion of Kern County up to an elevation of 2,000 feet. It excludes portions of Metropolitan Bakersfield and all other city jurisdictions. The Project Area (Figure 1-1) is located within the Tulare Lake Hydrologic Basin (Basin), which is within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB), per Figure 3-1. Although the valley floor in the region once contained the largest block of wetland habitat in California, the local hydrology has been significantly altered to support irrigated agricultural and is now the driest region of the Central Valley.

Historic water quality monitoring studies in the region have focused on the Tulare Lake Hydrologic Basin and/or the Kern County Sub-basin. The location of the Project Area boundary relative to the Tulare Lake Hydrologic Basin is illustrated on Figure 3-2. The Tulare Lake Hydrologic Basin comprises the drainage area of the San Joaquin Valley south of the San Joaquin River and encompasses approximately 16,400 square miles (10.5 million acres). The Project Area roughly coincides with the Kern County Sub-basin (groundwater basin), which is the southern portion of the San Joaquin Valley Groundwater Basin, also illustrated on Figure 3-2.

3.1.1 Local Surface Water

The majority of the surface water supply native to the Tulare Lake Hydrologic Basin (Basin) is provided by the Kings, Kaweah, Tule, and Kern Rivers, which drain the west face of the Sierra Nevada. Of these rivers, portions of only the Kern River fall within the Project Area. According to the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan), these waters are of excellent quality. Besides these main rivers, there are also numerous mountain streams in the Basin, divided into "eastside" and "westside" streams in the Basin Plan using Highway 99 between Bakersfield and Tehachapi. The Basin is essentially a closed basin, as flood flows during periods of heavy runoff represent the only significant outflows from the Basin. Two lakes in the Basin are supplied by flood water from the major rivers during times of heavy runoff:

Buena Vista Lake (located in the Project Area) and Tulare Lake (north of the Project Area). These and other nearby surface waters are referred to in the Basin Plan as valley floor waters (CA RWQCB 2004). Buena Vista Lake is a former freshwater lake that was fed by Kern River and dried up in the mid-20th century when its tributary river waters were impounded for agricultural and municipal water uses.

Surface water supplies together with imported water are inadequate to meet the demand for water for agricultural and other development, and so groundwater is mined within the valley to provide additional supply. Groundwater generated from oil production at the Kern River oilfield is also used for agricultural irrigation supply (CA RWQCB 2004).

The local surface waters that are within the Project Area are shown in Figure 3-3 and include the Kern River downstream of Lake Isabella, Poso Creek, numerous eastside and westside streams (mountain streams), and valley floor waters. The designated beneficial uses of these surface waters are specified in the Basin Plan and summarized in Section 3.4. Manmade water features (e.g., canals) are excluded from Figure 3-3, except the major imported water canals in the Project Area (California Aqueduct and the Friant-Kern Canal). Because the region is very dry, it should be noted that some surface water features indicated on Figure 3-3 may only contain water during the wet season or during wet weather events.

3.1.2 Imported Water

Imported surface supplies enter the Project Area through the San Luis Canal / California Aqueduct and the Friant-Kern Canal. The imported water is considered good quality, although some imported water contains elevated salts. The Basin Plan notes the importance of using high quality imported water in the Basin to protect local groundwater quality, because imported water (and native surface water) that is not consumptively used or lost to evapotranspiration will percolate into valley floor groundwater. The historical increase in salt content in the groundwater basin is attributable, in part, to past low-quality imported surface water supplies (CA RWQCB 2004).

The California Aqueduct delivers water from the State Water Project (SWP), which is the largest state-built, multi-purpose water project in the country. It includes approximately 660 miles of aqueducts and is managed by DWR. The primary water source is the Feather River, a tributary to the Sacramento River in northern California. The majority of the SWP supplies are pumped into the 444-mile long California Aqueduct (Kennedy/Jenks Consultants 2011a). In the Project Area, the California Aqueduct occurs principally in the West sub-area.

Imported water from the Friant-Kern Canal is obtained through the Central Valley Project (CVP). The CVP is a set of federally-owned facilities (canals, pumping stations, supporting operations) that extend from north of Redding to south of Bakersfield. The CVP obtains water from two of California's largest river systems, the Sacramento River and the San Joaquin River. The San Joaquin River flows are diverted south through the Friant-Kern Canal, an approximately 152-mile long canal that carries water south from Millerton Lake (just north of Fresno) to the Kern River intertie (Kennedy/Jenks Consultants 2011a). In the Project Area, the Friant-Kern Canal is situated in the East sub-area (Figure 3-3).

3.1.3 Local Groundwater

The Kern County Sub-basin (Sub-basin) generally receives less than 10 inches of rain per year. Other sources of groundwater recharge include irrigation return flows, artificial groundwater banking operations, and infiltration from ephemeral streams along the edge of the Sub-basin (Burton and Belitz 2012). The locations of groundwater banking operations within the Project Area are illustrated on Figure 3-4. Groundwater banking is so important and prevalent in Kern County that nearly every water district, as well as a few oil companies, participates in some form of water banking (WAKC 2014). Groundwater for municipal use in the Sub-basin is limited to depths above 3,000 feet, with water supply wells typically screened at depths shallower than 1,000 feet (CA DWR 2003). More information on the groundwater conditions, aquifers, and recharge is provided in Section 2.

3.2 Primary Factors Affecting Water Quality

This section provides a general overview of the primary factors affecting water quality in the Project Area. Important local industries to the Basin include agricultural (i.e., growing, processing and packaging) and petroleum production and refining (CA RWQCB 2004). The primary factors that affect surface water and groundwater quality in the San Joaquin-Tulare Basins are climate, local geology, land use, and water use, as described in a U.S. Geological Survey (USGS) study (Gronberg et al. 1998). For surface water, water quality is degraded by evaporative concentration of salts due to the semiarid to arid climate. In the San Joaquin Valley, much of the valley floor is agricultural land. Agricultural water use is the largest nonpoint source of pollution to surface and groundwater in the San Joaquin Valley. Irrigation water can contain elevated concentrations of dissolved solids, nutrients, pesticides, and trace elements. Infiltration of these waters can impact the quality of the shallow groundwater. Additionally, on the west side of the valley, agricultural practices commonly include application of water to crop lands to flush the retained salts out of the root zone, driving the salts downward. High quality surface water bodies (rivers, streams, lakes) can be similarly impacted by runoff from irrigated areas or by discharges from groundwater and subsurface drainage systems.

Nonpoint sources of pathogens and nutrients from household septic systems in the area may also degrade surface waters and shallow groundwater. Near cities, surface waters can be impacted by point source discharges to rivers of effluent from wastewater treatment plants. Stormwater point source runoff carrying elevated concentrations of metals, hydrocarbons and other constituents can also impact surface waters. Point source discharges in the Project Area are summarized in Section 3.3.

Due to the closed nature of the Basin, there is little surface or subsurface outflow. Therefore, salts accumulate in the Basin groundwater from importation of water and evaporation. Imported surface water supplies contribute nearly half the increase of salts occurring within the Basin (CA RWQCB 2004). According to the Basin Plan, the paramount water quality problem in the Basin is the accumulation of salts (CA RWQCB 2004). Additionally, contamination by nitrate is a significant issue (Gronberg et al. 1998). Nitrate contamination of groundwater is not uncommon in California. In 2008 the California State Water Resources Control Board (SWRCB) contracted with the University of California to prepare a report to the Legislature titled *Addressing Nitrate in California's Drinking Water With a Focus on Tulare Lake Basin and Salinas Valley Groundwater* (Harter et al. 2012). Among key findings from this report, agricultural fertilizers and animal

wastes applied to cropland are by far the largest regional sources of nitrate in groundwater, and nitrate problems will likely worsen for several decades. Blending, treatment, and use of alternative water supplies are the most cost effective strategies for minimizing nitrate in drinking water.

Major surface water quality issues that have been identified for the Tulare Lake Hydrologic Basin include salinity, pesticide impacts from agriculture, metals (mercury, selenium, and molybdenum), and impacts related to erosion and sediment. Major groundwater quality issues include salinity, nitrate, 1,2-dibromo-3-chloropropane (DBCP), arsenic, gross alpha particle activity and uranium, hexavalent chromium, and localized contamination by other compounds (CA DWR 2013a). The San Joaquin-Tulare Basins include elevated concentrations of naturally occurring trace elements in shallow groundwater in the Tulare Lake Hydrologic Basin (arsenic, boron, molybdenum, uranium, and vanadium), as well as nitrate in groundwater from sources such as fertilizers, livestock manure, and septic systems (Gronberg et al. 1998).

3.3 Project Area NPDES and WDR Discharges

Locations of permitted discharges within the Project Area regulated under the National Pollutant Discharge Elimination System (NPDES) for protection of surface waters were identified and are listed in Appendix B Table B-1. Figure 3-5 (industrial discharges) and Figure 3-6 (construction-related discharges) show the locations of the permitted discharges as of February 2014. The list of California NPDES discharge locations is available from the California SWRCB (CA SWRCB 2014a). There are 235 sites with active NPDES permits within the Project Area, of which 125 (53%) are noted as "Industrial" or other[1] discharges and 110 (47%) are construction-related. Most of these permitted discharges are related to the release of stormwater. Construction-related stormwater discharges are expected to be of short duration and have minimal impact on groundwater quality.

Waste Discharge Requirements (WDRs) are issued for discharges that can potentially impact groundwater quality. Facilities with WDRs in Kern County[2] are listed in Appendix B Table B-2 (CA SWRCB 2012b). In general, WDRs are issued to individual dischargers (individual WDRs) or for groups of dischargers that meet similar discharge characteristics (general WDRs). There are 167 facilities, 56 regulated by general WDRs and 112 regulated by individual WDRs. The facilities are not mapped due to non-specific address locations for many facilities and the non-point source nature of many WDRs. More information on the regulatory structure for the WDR program is provided in Section 6.3.4.4.

3.4 Designated Beneficial Uses for Water Bodies in the Project Area

The SWRCB protects water quality by setting statewide policy and coordinating the efforts of nine Regional Water Quality Control Boards (RWQCBs) (CA SWRCB 2014d). Each RWQCB

[1] Most of the 125 sites are industrial discharges (likely stormwater); the other program types listed are MNSTW1 (two locations), NPDMUNIOTH (two locations), NPDNONMUNIPRCS, (one location), and Phase II Small MS4 (three locations), according to the SWRCB list.

[2] Table 3-2 is not limited to the Project Area.

has a Water Quality Control Plan, or "Basin Plan". A Basin Plan presents designated beneficial uses to be protected for each surface water and groundwater body, water quality objectives (numerical or narrative) to protect those uses, and an implementation program. Surface and ground waters have many uses and potential uses; hence, there can be many designated beneficial uses for each water body (CA RWQCB 2004).

Abbreviations and definitions for the different types of designated beneficial uses that are applicable in the Project Area are provided in Table 3-1. The surface water and groundwater beneficial uses within the Project Area as listed in Table 3-2 and Table 3-3, respectively, as identified in the Basin Plan. Groundwater and natural surface waters have designated beneficial uses that are protected by appropriate water quality objectives (CA RWQCB 2004). The beneficial uses include one or more of the designations described in Table 3-1.

Among others, constituents for which objectives may be specified include ammonia, regulated drinking water compounds (i.e., having Maximum Contaminant Levels), oil and grease, salinity, suspended material, and turbidity. SWRCB policy requires that whenever the existing quality of the surface water or groundwater is better than the objectives established for those waters, the existing quality must be maintained unless otherwise allowed (CA RWQCB 2004).

For surface waters, Figure 3-3 presents a general map of surface waters located within the Project Area and shows the boundaries of the watershed drainage areas (hydrologic units). Per the Basin Plan Table II-1 and the present report's Table 3-2, eastside streams in the Project Area fall within hydrologic units 554 and 555, westside streams in 556 and 559, and valley floor waters in 557 and 558[3]. The hydrologic unit numbers correspond to designated beneficial uses in Table 3-2. As described in the Basin Plan, the beneficial use of any specifically identified water body generally applies to its tributary streams. It should be noted that the beneficial uses that are indicated in Table 3-2 may not apply to all surface water features that appear in Figure 3-3. Applicability of designated beneficial uses is at the discretion of the CVRWQCB.

For groundwater, the Sub-basin is divided into Detailed Analysis Units (DAUs) for consideration of varying beneficial uses. Figure 3-7 identifies the DAUs for the Sub-basin and Table 3-3 identifies the designated beneficial uses for each DAU. Groundwater is considered a MUN beneficial use, unless exempted by the RWQCB. Groundwater areas with specific beneficial use exemptions adopted into the Basin Plan are footnoted in Table 3-3 and shown on Figure 3-8.

In addition to the exempted areas identified in the Basin Plan, surface water and groundwater can be exempted from the MUN designation for other reasons as outlined in the SWRCB Resolution No. 88-63, Adoption of Policy Entitled "Sources of Drinking Water" (CA SWRCB 2006). Groundwater may also be exempted from beneficial use in accordance with regulations set forth in the 40 CFR, Section 146.4(b), where an aquifer may be exempted if it does not currently serve as a source of drinking water, and either "a" or "b" below apply:

[3] The Project Area map of surface waters (Figure 3-3) is based on more recent information compared to the 1986 Basin Plan Figure II-1, which indicates hydrologic unit boundaries and surface waters in the basin. Hydrologic unit boundaries for Figure 3-3 were obtained from Calwater 2.2.1 (California Interagency Watershed Mapping Committee, California Interagency Watershed Map of 1999, updated May 2004). These hydrologic boundaries differ slightly from that shown in the Basin Plan. The surface waters shown are levels 1 – 11 provided by Esri® Data and Maps from USGS and USEPA, which again differ from that shown in the Basin Plan.

a. It cannot now and will not in the future serve as a source of drinking water because:

    a. It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant that it contains minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible.

    b. It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

    c. It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption;

b. The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

In California, the DOGGR has been granted primacy (primary authority) by USEPA to make determinations on aquifer exemptions within oil field boundaries, although final exemption authority lies with USEPA. Aquifer exemptions approved by the DOGGR for the purpose of oilfield production are illustrated on Figure 3-8.

3.5 Section 303(d) Impaired Water Bodies

Section 303(d) of the Clean Water Act requires that States make a list of waters that are not attaining water quality standards after technology-based limits (i.e., best available technology used for pollutant management) are promulgated. For waters on this list, States are required to determine all the sources of the pollutants that cause the water to be listed including contributions from point and non-point sources.

There are no 303(d) impaired water bodies in the Project Area. There is one impaired water body on the 303(d) list in Kern County: Isabella Reservoir, which serves as the source for the Kern River. Isabella Reservoir is included in the 303(d) list for dissolved oxygen and pH (CA SWRCB 2014c; Kennedy/Jenks Consultants 2011b), constituents which will not impact surface water or groundwater in the Project Area.

3.6 Surface Water Quality

Surface water quality for each sub-area of the Project Area is summarized below.

3.6.1 Sources of Information

To identify water quality data, published and publicly available data and reports for the Project Area were reviewed, including:

Databases

- DWR Water Data Library (WDL) (CA DWR 2014)

- California Environmental Data Exchange Network (CEDEN) (CA SWRCB 2012a)
- USGS National Water Information System (NWIS) (USGS 2014b)
- United States Environmental Protection Agency (USEPA) STOrage and RETrieval (STORET) data (EPA 2014), including both the STORET Data Warehouse (more current data) and the STORET Legacy Data Center (data before January 1,1999)

Reports

- USGS reports (Dubrovsky et al. 1998; Gronberg et al. 1998; Gronberg et al. 2004; Kinsey et al. 2005; Kratzer and Shelton 1998; Shelton et al. 2008) obtained from the USGS Publications Warehouse (USGS 2014a)
- Kern Integrated Regional Water Management Plan (IRWMP) for Kern County Water Agency (KCWA) (Kennedy/Jenks Consultants 2011b)
- Urban Water Management Plan (UWMP) for KCWA (Kennedy/Jenks Consultants 2011a)
- KCWA Report on Water Conditions (KCWA 2011; 2012; 2013; 2014)
- Basin Plan for Tulare Lake Basin (CA RWQCB 2004)

3.6.2 Surface Water Quality

Native surface water supplies and imported supplies in the Tulare Lake Hydrologic Basin, which includes the Project Area, are generally of good quality (CA DWR 2013a). Surface water flows from the east side of the Tulare Lake Hydrologic Basin (see Figure 3-2 and Figure 3-3) are considered to be of excellent quality (fed by Sierra snowmelt and granitic bedrock springs). However, flows from the west side are considered to be of comparatively lower quality due to dissolution of naturally occurring constituents (selenium and salinity) (CA DWR 2013a) contained in the soils and sediments. According to the *Tulare Lake Basin Rotational Watershed Monitoring Plan, 2012 – 2016* (CA RWQCB 2012), surface water quality in the upper reaches of the Tulare Lake Hydrologic Basin is not well documented, nor are the spatial or temporal trends within the major river systems in the Basin (Kings, Kaweah, Tule, and Kern Rivers). Of these rivers, portions of only the Kern River fall within the Project Area.

For the present evaluation, water quality data measured between 2002 and 2013 was identified for select sampling stations along the Kern River, Poso Creek, El Paso Creek, and Deer Creek within the Project Area (East and Central sub-areas), and is presented below. Historic data measured from 1951 to 1991 were identified for additional sites over the Project Area, including the West sub-area, and are also presented below. Water quality data were also identified for select canals and tile drains located on the valley floor; these data are excluded from the below summaries, which focus on creek, stream, and river water quality data only, because water quality in canals and tile drains is likely less representative of environmental background conditions. No water quality data was identified in the databases and reports reviewed for other

types of surface waters (i.e., other lakes/ponds that may be present and considered part of the valley floor waters); these surface waters may be seasonal if present.

Figure 3-9 presents a map of all surface water sampling locations that were identified in the Project Area from the SWRCB Surface Water Ambient Monitoring Program (SWAMP), the Central Valley RWQCB Irrigated Lands Regulatory Program (ILRP) (CA SWRCB 2012a), the USGS NWIS (USGS 2014b), and the USEPA STORET Legacy Data Center (EPA 2014), including canals and tile drains. Figure 3-10 presents a map of only the river, creek, or stream sites (excluding canals and tile drains[4]) for which water quality data was compiled. The West sub-area has 11 surface water sampling stations with water quality data, however all of these are USEPA STORET Legacy data sites and therefore the data are older (prior to 1 January 1999). The Central sub-area has three surface water sampling stations of which two appear to be unique and have relatively recent water quality data (Figure 3-10). The East sub-area has 17 surface water sampling stations of which 15 appear to be unique; of these, six sites have recent water quality data (four sites along Kern River) and the remainder are from the USEPA STORET Legacy dataset.

Surface water quality data for Kern River collected by the SWAMP in the East sub-area for four sites is summarized in Table 3-4 (data from CEDEN). The water quality information includes general water quality parameters, some metals, and microbial indicators that were measured between 2002 and 2004. SWAMP water quality data was also identified in select reports for the Tulare Lake Basin (CA RWQCB 2003, 2007) and is included in the CEDEN dataset in Table 3-4. Additional SWAMP monitoring at select Kern River sampling stations is planned for 2015 – 2016 (CA RWQCB 2012), and will include monitoring for dissolved metals, nutrients, general minerals, total suspended solids, and bacteria at sampling stations that include stations within the Project Area.

Water quality information for Kern River is also reported by KCWA for regulated drinking water constituents and other parameters. This information is summarized for the past four years along with KCWA imported water quality in the next section. The Kern River sampling location is assumed to be near Bakersfield.

Surface water quality for four sites along Deer Creek, Poso Creek, and El Paso Creek (see sampling locations in Figure 3-10) collected by the ILRP (data from CEDEN) in the East and Central sub-areas is summarized in Table 3-5. The water quality information includes general water quality parameters, metals, microbial indicators, and pesticides measured between 2009 and 2012. Canals are also monitored as part of the ILRP, and several canal sampling stations are located within the Project Area (see Figure 3-9). The water quality information for canals was excluded from the data summary in Table 3-5.

Data available from the USEPA STORET databases was reviewed to identify any surface water quality information within the Project Area. Surface water quality data for the Project Area was identified in the STORET Legacy Data Center (data before January 1, 1999) for 37 sites (Figure

[4] Also excludes stations for which the location or station name/ID was ambiguous with respect to the type of surface water (e.g., creek vs. canal). These data were excluded from the water quality data summary tables in this section (which focus on rivers, creeks, and streams), except when the station appeared to occur at the location of a mapped creek.

3-9). Based on the sampling station name, 24 sites appear to be for rivers and creeks (Figure 3-10); the remainder may be canals, tile drains, or other features. The water quality data for the 24 river/creek sites is summarized in Appendix C Table C-1. Unique data from the SWAMP (sites in Table 3-4) and ILRP (Table 3-5, Poso Creek only) monitoring programs was identified in the STORET Data Warehouse (i.e., current STORET data) for some sites already summarized above, and was incorporated into these summary tables (Table 3-4 and Table 3-5).

No surface water quality data were found in the California DWR WDL (CA DWR 2014) except for California Aqueduct sampling stations. Some historical monitoring stations on Kern River are available in the DWR WDL but appear to be for flow rate monitoring only.

A limited water quality dataset for nine additional surface water sampling stations in the Project Area was identified in the USGS NWIS database (see Figure 3-9 for sites) (USGS 2014b). The USGS NWIS data is not tabulated for the present evaluation due to limited utility. Except for the "Kern R Nr Bakersfield CA" site, water quality was measured at each site over just one or two sampling events between 1977 to 1986. The "Kern R Nr Bakersfield CA" site was measured more frequently between 1960 and 1980, but the Kern River is well represented in more recent monitoring from SWAMP (Table 3-4).

3.6.3 Surface Water Quality by Sub-Area

Table 3-6 (2002 to 2013) and Table 3-7 (1951 to 1991) present estimated average surface water quality for the project sub-areas (West, Central, East) based on the data available from surface waters that have been monitored[5]. The summary of data is divided into two time periods because the historic data may not represent current conditions. The sites featuring older data (USEPA Legacy) are unique from the sites with the newer data (SWAMP and ILRP), as indicated on the sampling station map (Figure 3-10). West sub-area sites are limited to the historic dataset only.

The historic data (1951 to 1991) is consistent with the general observation that surface water quality is better in the eastern portion of the Basin (CA RWQCB 2004) (East sub-area in the Project Area) compared to the western portion of the Basin (West sub-area). Table 3-7 shows greater concentrations of dissolved salts and general water quality parameters in the West sub-area (i.e., alkalinity, nitrate, hardness, chloride, sodium, specific conductivity, and boron). In the more recent dataset (2002 to 2013 in Table 3-6), the East versus West sub-areas cannot be compared because there are no recent West sub-area sampling stations (Figure 3-10). For both the older and more recent datasets, the water quality between the Central versus East sub-areas is similar (based on dissolved salts and hardness, e.g., chloride, sodium, specific conductivity), with slightly better water quality typically in the East sub-area (i.e., lower dissolved salts and hardness). Using specific conductance and total dissolved solids (TDS) as general indicators of salinity, surface water quality data for salinity is limited in the Project Area (Table

[5] For example, four surface water sampling stations were identified in the Central sub-area that reported ammonia concentration during the 2002 to 2012 period. The average ammonia concentration for each location over its sampling history is tabulated in Table 3-5 and Table 3-8. For the Table 3-6 summary of data, the average ammonia concentration for this area is determined as the average of the four sites' (N = 4) average ammonia concentrations.

3-6 and Table 3-7). Based on the available data, average salinity is below the secondary Maximum Contaminant Limit (MCL) for TDS in drinking water of 500 mg/L (EPA 2013).

This information provides a generalized, baseline understanding of historic and more recent differences in surface water quality across the Project Area; however, this dataset does not include all surface waters present in the area nor are each of the three sub-areas represented equally, due to the availability of data.

3.7 Imported Water Quality

Imported water enters the Project Area through the San Luis Canal / California Aqueduct and the Friant-Kern Canal (see Figure 3-3). Water quality information for imported water from the Friant-Kern Canal is summarized in Table 3-8. The average, median, minimum, and maximum concentrations of various water quality parameters were determined for 2010 to 2013 from data reported by the Kern County Water Agency (KCWA 2011; 2012; 2013; 2014). Water quality information for imported water from the California Aqueduct, as available from the CA DWR Water Data Library is summarized in Table 3-9 (CA DWR 2014).

Using specific conductance and TDS as general indicators of salinity, the imported waters have relatively low salinity levels. Water from the Friant-Kern Canal has an average specific conductance and TDS of approximately 210 microsiemens per centimeter (uS/cm) and 130 mg/L, respectively. California Aqueduct water has slightly higher average levels of 460 uS/cm and 260 mg/L. For reference, the secondary MCL for TDS in drinking water is 500 mg/L (EPA 2013).

3.8 Groundwater Quality

Groundwater quality for each sub-area of the Project Area is summarized below.

3.8.1 Sources of Information

To identify data, published and publicly available data and reports for the Project Area were reviewed, including:

Database

- California SWRCB Groundwater Ambient Monitoring and Assessment (GAMA) database (CA SWRCB 2014b) via the GeoTracker online data retrieval system

Reports

- USGS reports (Dubrovsky et al. 1998; Gronberg et al. 1998; Gronberg et al. 2004; Kinsey et al. 2005; Kratzer and Shelton 1998; Shelton et al. 2008) obtained from the USGS Publications Warehouse available at http://pubs.er.usgs.gov/#home (USGS 2014a)

- KCWA Report on Water Conditions (KCWA 2011; 2012; 2013; 2014)

- Basin Plan for Tulare Lake Basin (CA RWQCB 2004)
- California Water Plan Update 2013 (CA DWR 2013a)
- Draft Environmental Impact Statement/Environmental Impact Reports for the San Joaquin River Restoration Program (USBR 2011) and the Bay Delta Conservation Plan (CA DWR 2013b)
- SWRCB Report to the Legislature on Communities that Rely on Contaminated Groundwater (CA SWRCB 2013a)
- UC Davis Report on Groundwater Nitrate Occurrence With a Focus on Tulare Lake Basin and Salinas Valley Groundwater (Harter et al. 2012)

Site specific groundwater data can also be found in various WDRs for individual dischargers in the Sub-basin and in Groundwater Management Plans for individual water districts. As the objective in this study is to present an overview summary of information, individual WDRs and Groundwater Management Plans were not reviewed.

3.8.2 Groundwater Quality Data

Water quality concerns in the Kern County Sub-basin include elevated TDS, sodium chloride, and sulfate associated with the axial trough of the Sub-basin, elevated arsenic concentrations in some areas associated with lakebed deposits, and elevated nitrate, DBCP, and 1,2-dibromoethane (EDB) concentrations exceeding applicable MCLs in various areas of the Sub-basin (CA DWR 2003, 2006). Additional water quality concerns include gross alpha particle activity and uranium, hexavalent chromium, and localized contamination by organic compounds (benzene, tetrachloroethylene, trichloroethylene and perchlorate) and fluoride (CA DWR 2013a).

According to the California Water Plan Update 2013 (CA DWR 2013a), quality and beneficial uses of deep groundwater (i.e., groundwater beneath the Corcoran Clay layer) remain consistent; however, anthropogenic sources have impacted many shallower (above the Corcoran Clay) zones. Groundwater quality varies from east to west across the basin. In the eastern portion of the Sub-basin (primarily the eastern sub-area), groundwater is predominantly of calcium bicarbonate-type, with the sodium content increasing with greater depth. Bicarbonate ion is replaced by sulfate and, to a lesser extent, chloride, toward the western end of the Sub-basin (CA DWR 2006; Wood and Dale 1964; Wood and Davis 1959; Dale et al. 1966). Overall, the TDS of groundwater in the Sub-basin ranges from 150 mg/l to 5,000 mg/l (KCWA 1998), with generally higher TDS values encountered in the western portion (West sub-area). A generalized map of groundwater TDS concentrations is presented in Figure 3-11 (USBR 2011). The data used to generate the contours in Figure 3-11 were collected between 1934 and 1985, and as such represent “average” values. An evaluation of more recent TDS concentrations, collected between 2007 and 2013, is presented in Section 3.8.3.

Table 3-10 includes a summary of contaminant concentrations for public water systems in the Project Area (2002 to 2010) that rely on groundwater for drinking water and have MCL exceedances. The information presented in Table 3-10 was obtained from the California SWRCB *Report to the Legislature on Communities that Rely on a Contaminated Groundwater*

Source for Drinking Water (CA SWRCB 2013a). Based on the data evaluated in the report, 680 community water systems in California relied on a contaminated groundwater source. Of the 680 community water systems identified, 265 had at least one drinking water MCL violation during the 2002 to 2010 time period.

Another important source of information for groundwater quality in the Project Area is the California GAMA database. Based on analysis of data from this database, the USGS published two comparatively recent summaries of groundwater quality of the Sub-basin (Burton and Belitz 2012; Shelton et al. 2008). The findings from each of these major studies are summarized below.

3.8.2.1 Summary of Findings from 2008 USGS Study (Shelton et al. 2008)

Shelton et al. (2008) selected forty-seven wells within the Sub-basin using a randomized grid-based method to provide a statistical representation of groundwater quality parameters (see Figure 3-12 for a reproduction of the grid). Major water quality parameters (e.g., major cations and anions, iron, and manganese) reported in this study are summarized in Table 3-11. Most of the samples from Sub-basin wells were characterized by concentrations of major elements and TDS below applicable standards, such as the non-enforceable thresholds set for aesthetic concerns.

In addition to major water quality indicators, the GAMA database warehouses data for naturally occurring trace elements, minor ions, and nutrients (e.g., nitrate, nitrite); radioactive constituents; and a large number of anthropogenic constituents, including volatile organic compounds (VOCs), pesticides and their associated degradation products, and constituents of special interest such as perchlorate, *N*-nitrosodimethylamine (NDMA), and 1,2,3-trichloropropane (1,2,3-TCP). Among these data sets, Shelton et al. (2008) observed that detections of most inorganic constituents were below health-based thresholds. Exceptions include nitrate (U.S. EPA's MCL exceeded in two samples), arsenic (U.S. EPA's MCL exceeded in two samples), and vanadium (California notification level exceeded in one sample). VOCs and/or pesticides each were reportedly detected in approximately 60 percent of the grid wells, but detections of all compounds but one were below health-based thresholds (the fumigant DBCP was detected above the USEPA MCL in one sample). Detections of radioactive constituents were reported to be below health-based thresholds, although nine samples were characterized by activities of radon-222 above the lower-proposed USEPA MCL.

A summary of findings for trace element and anthropogenic constituents stemming from the Shelton et al. (2008) study is presented in Table 3-11. A comparison with more recent data extracted for the present evaluation from the GAMA dataset for the Kern County Sub-basin for water samples collected and analyzed between 2007 and 2013 is provided later in Section 3.8.3 (Table 3-12 and Table 3-13).

3.8.2.2 Summary of Findings from 2012 USGS Study (Burton and Belitz 2012)

Burton and Belitz (2012) presented the GAMA data from the Kern County Sub-basin in an alternative format, comparing concentration distributions for individual water quality parameters with various benchmark values. Benchmarks included applicable federal and state regulatory thresholds for protecting human health (e.g., MCLs) or, in their absence, non-regulatory thresholds such as taste and odor standards (e.g., secondary MCLs or SMCLs) or human

health advisory levels. For given parameters, concentrations were correspondingly labeled as "high" if they were greater than the respective benchmark or "moderate" if they were greater than one-half of the benchmark. For organic and special-interest constituents, concentrations were designated as moderate if greater than one-tenth of the respective benchmark. "Low" concentrations included non-detections and values less than moderate concentrations.

Among major water quality indicators assessed by Burton and Belitz (2012) in Kern County Sub-basin wells:

- TDS was listed as present at high concentration across approximately 14 percent of the primary aquifer and at moderate concentration across 17 percent.
- Sulfate was present at high concentrations across approximately eight percent of the primary aquifer and at moderate concentrations across six percent.
- Chloride was reported as present at high concentrations across two percent of the primary aquifer and at moderate concentrations across four percent.
- Iron and/or manganese were present at high concentrations across 13 percent of the primary aquifer and at moderate concentrations across six percent.

Burton and Belitz (2012) reported that trace and/or minor elements are present at high concentrations in 20 percent of the primary aquifer area and at moderate concentrations in another 27 percent. Among minor elements:

- Fluoride was reported as a minor element present at high concentrations across four percent of the primary aquifer and at moderate concentrations in two percent.
- Arsenic, antimony, boron, and vanadium were listed as trace elements occurring at high concentrations across two percent of the primary aquifer.
- Lead, thallium, and selenium were also detected at high concentrations, but across less than two percent of the primary aquifer.

Other findings included:

- Nitrate was found at high concentrations across five percent of the primary aquifer, and at moderate concentrations across another 13 percent. The sources of these elevated concentrations were not distinguished between natural background, applied fertilizer, livestock operations, or septic tank systems.
- Solvents, including carbon tetrachloride and trichloroethene, were reported present at high concentrations across less than one percent of the primary aquifer and at moderate concentrations across four percent.
- Trihalomethanes, potentially attributable to municipal water disinfection and subsequent infiltration of chlorinated landscape irrigation water (Burton and Belitz 2012), were reported present at moderate concentrations across four percent of the primary aquifer.

- Other VOCs (e.g., organic synthesis reagents and gasoline hydrocarbons) were not reported present at high concentrations but were present in moderate concentrations (specifically in the case of benzene) across approximately two percent of the primary aquifer.

- The fumigant DBCP was reported present at high concentrations across some two percent of the primary aquifer. DBCP and other fumigants were reported present at moderate concentrations across four percent of the primary aquifer.

- Perchlorate, an inorganic constituent, and NDMA, a semi-volatile organic compound, were treated as special-interest constituents because of perceived emerging threats to California drinking-water supplies. Within the Kern County Sub-basin, perchlorate was not found at high concentrations in the primary aquifer, but was reported as present at moderate concentrations across six percent of the aquifer. NDMA was not reported at either high or moderate concentrations in the primary aquifer.

- In total, naturally-occurring radioactive constituents – primarily radium and uranium – were reported at high concentrations (according to definitions provided previously) across six percent of the primary aquifer, and at moderate concentrations across 13 percent.

3.8.3 Groundwater Quality by Sub-Area

A review of 2007 to 2013 data from the GAMA database for 490 groundwater wells (e.g., CDPH, environmental) was conducted to evaluate more recent data and compare to the distributions of water quality parameters identified by Shelton et al. (2008). The well locations are shown on Figure 3-13 and the results of this review are summarized in Table 3-12 and Table 3-13. The more recent data generally represents the water quality parameter value distributions reported by Shelton et al. (2008), with differences between the eastern and western portions of the Sub-basin also consistent with historical observations, as noted previously. Concentration data for TDS extracted from the GAMA database are also presented in Figure 3-14 to provide a spatial representation of TDS concentrations in the Sub-basin. As shown in Figure 3-14, TDS concentrations are generally higher on the west side of the Sub-basin than on the east side, consistent with the information presented on Figure 3-11.

Groundwater quality differences among the sub-areas are influenced by geology (Wood and Dale 1964). Streams recharging groundwater in the East sub-area – and, to a large extent, the Central sub-area as well – originate in the Sierra Nevada to the east. Because the streams drain areas that are underlain by low-solubility igneous and metamorphic rocks, the resulting water composition, generally of a calcium-carbonate character, is low in TDS. In contrast, groundwater recharge into the West sub-area stems from the Coast Ranges. These rocks consist of marine-derived sedimentary materials that are more easily dissolved and hence tend to more readily mineralize streams and underlying groundwater (Figure 3-11). For example, sulfate is present at elevated concentrations in some waters in the West sub-basin that have been in contact with gypsum-containing sediments. Also, elevated sodium concentrations are observed in groundwater in some West sub-area locations as a likely result of ion exchange processes (i.e., exchange of calcium and magnesium ions for sodium and potassium ions initially bound to clay minerals in the sediments). For these reasons, groundwater quality in the West sub-area is

generally of poorer quality than the Central and East sub-areas. In the West sub-area, concentrations of many general water quality parameters (e.g., chloride, magnesium, sodium, specific conductivity, and sulfate) are higher in both the shallow and deep groundwater zones, than comparative zones in the Central and East sub-areas (see Tables 3-12 and 3-13; Figures 3-15 and 3-16).

For groundwater, potential effects on water quality in different geographic sub-areas will vary with depth. In particular, the Corcoran Clay (Figure 2-6), present across much of the Central sub-area and a portion of the West sub-area, at depths between 300 and 500 feet, acts as a confining unit that restricts the vertical flow of groundwater. The Corcoran Clay unit is absent from most of the East sub-area. Groundwater encountered above the Corcoran Clay is referred to, herein, as “shallow” groundwater or the shallow aquifer and groundwater below this unit is referred to as “deep” groundwater or the deep aquifer. Where there is no confining clay layer, greater potential exists for shallow groundwater impacts to eventually reach deep groundwater.

3.9 Surface and Groundwater Quality Summary

The sub-area definitions provide a geographic and geologic framework for reviewing and organizing water quality information and evaluating potential impacts to both surface water and groundwater quality within the Project Area

3.9.1 West Sub-area Water Quality

According to the California DWR (CA DWR 2013a), native surface water supplies in the Tulare Lake Hydrologic Basin (which includes the Project Area) are generally of good quality. However, compared to the east side of the Tulare Lake Hydrologic Basin, flows from the west side are considered poor quality due to naturally occurring constituents (e.g., selenium and salinity) (CA DWR 2013a). In general, surface water in the West sub-area is characterized by greater concentrations of dissolved minerals (e.g., alkalinity, nitrate, hardness, chloride, sodium, specific conductivity, and boron) compared to the East sub-area (see Table 3-7 and Table 3-8 and Appendix C, Table C-1).

Similarly, groundwater quality in the West sub-area is generally of poorer quality than the Central and East sub-areas. In the West sub-area, concentrations of many general water quality parameters (e.g., chloride, magnesium, sodium, specific conductivity, and sulfate) are higher in both the shallow and deep groundwater zones, than comparative zones in the Central and East sub-areas (see Tables 3-12 and 3-13; Figures 3-15 and 3-16).

3.9.2 Central Sub-area Water Quality

The Central sub-area includes surface water canals that distribute water for agricultural uses (see Figure 3-3). The Kern River also flows through the Central sub-area before terminating at the West sub-area boundary, where any remaining water is diverted for water supply. Besides this main river, surface waters in the Central sub-area consist of mountain streams flowing from the East sub-area including Poso Creek. Surface water contained in the streams only flows into the Central sub-area during wet months, or wet weather events. The surface water quality in the Central sub-area (when it exists) is similar to the East sub-area (based on dissolved salts and

hardness [e.g., chloride, sodium, specific conductivity]), with slightly better water quality typically in the East sub-area (see Tables 3-5 through 3-8).

Groundwater quality in the Central sub-area is generally of better quality than the West and East sub-areas. In the Central sub-area, concentrations of many general water quality parameters (e.g., chloride, sodium, specific conductivity, and sulfate) are lower in both the shallow and deep groundwater zones, compared to the West and East sub-areas (see Tables 3-12 and 3-13). However, nitrate concentrations in the deep groundwater are highest in the Central sub-area and iron and manganese concentrations in shallow groundwater are significantly higher than the other sub-areas (see Tables 3-12 and 3-13; Figures 3-15 and 3-16).

3.9.3 East Sub-area Water Quality

Surface water flowing from the east side of the Tulare Lake Hydrologic Basin (east of the Project Area) is considered to be excellent quality (CA DWR 2013a). Therefore surface waters in the East sub-area are expected to be of good to excellent quality. The limited data available supports this assessment (see Tables 3-6 and 3-7).

Groundwater quality in the East sub-area is generally of better quality than the West sub-area and poorer quality than the Central sub-area, based on measurements of specific conductivity and distribution and presence of major anions and cations (see Table 3-12; Figures 3-15 and 3-16).

Section 4: Project Area Oil and Gas Production

This section provides background information and the current state of oil and gas production practices in the Project Area. The information presented in this section along with Sections 3 and 5 provide a baseline for evaluating potential impacts to surface and groundwater quality from petroleum exploration and production practices.

4.1 History of Oil and Gas Production in Kern County

Native Americans used asphalt and oil from seeps in the southern San Joaquin Valley for many purposes, such as waterproofing baskets, long before the arrival of Europeans. Spanish explorers also used the asphalt and oil, as did early settlers and travelers (Takahashi and Gautier 2007; DOGGR 1993). As early as 1849 travelers along the western side of the San Joaquin Valley noted the oil seeps and used the material to lubricate wagon wheels (DOGGR 1993).

Settlers found uses for the oil, such as paving, waterproofing, asphalting and refining to produce kerosene and other products. Early developers built pits, quarries, tunnels, and shafts near surface seeps to collect and extract oil and asphalt, such as in the Asphalto and Buena Vista areas (Rintoul 1990). In the late 1800's, shallow wells were drilled with hand tools. Shortly thereafter, deeper wells were drilled with rigs, and society was developing new ways to produce, control, transport, store, and refine the product while innovating ways to increase production. These actions evolved into today's extensive network of activities related to onshore oil and gas production.

DOGGR recognized oil fields in the Project Area are shown on Figure 1-2 and listed in Table 4-1.

4.1.1 Historical Exploration and Production Practices

As noted above, oil production began with pits, quarries, tunnels, and shafts near surface seeps to extract oil and asphalt. This evolved to hand-dug wells in the late 1800s. The first wood derrick for an oil well constructed in Kern County was in 1878 at Reward. The derrick was outfitted to drill an oil well using cable-tool methods (Takahashi and Gautier 2007). Shallow wells were drilled at prospects (commonly near oil seeps) through the area leading to discoveries of the Sunset field in 1887, McKittrick in 1896, Kern River in 1899, and the Midway area of the Sunset field in 1900. Other discoveries followed in the early 20th century, including Elk Hills, Lost Hills, and Belridge South and North (DOGGR, undated). Production from the Kern River field was initially so prolific that it helped vault California to the status of top oil producing state in 1903 (Rintoul 1990).

Cable-tool rigs were outfitted with a steam engine that operated a system of beam, winches, and flywheels. The drill bit, which was basically a large steel chisel suspended from the cable, was dropped repeatedly to pulverize the formation. The chiseling was alternated with bailing to remove the cuttings. Although slow, the method was used for a number of decades.

Rotary drilling largely replaced cable-tool drilling by the 1920s (DOGGR 1993). The rotary system relies on a rotating bit to cut a hole through the rock formation. Drilling fluid circulates down through the drill pipe and out into the open borehole through the face of the bit. The circulating fluid cools the bit and entrains the cuttings, returning them to the surface for removal. The drilling fluid is then recirculated back down the borehole. In this method the entire drill pipe is rotated in order to rotate the drill bit and advance the boring (DOGGR 1993). Modern rotary drills are capable of changing direction, so wells can be drilled at varying angles or horizontal.

Electric well logs were first conducted in 1929. In 1936 the first seismic exploration in California was responsible for discovering the Ten Section field near Bakersfield. Seismic discovery of the productive Paloma and Coles Levee anticlines soon followed (SJGS 2014a).

Some early wells encountered over-pressured formations, which would generate “gushers” of oil and gas that were dangerous or difficult to control, and depleted formation pressures. Early gushers included the 1896 Shamrock well in the McKittrick field, which flowed in at 1,300 barrels per day, and the Lakeview No. 1 gusher, in the Midway-Sunset field in 1910. The Lakeview No. 1 well reached a depth of 2,225 feet when the bailer was blown up through the derrick and a 20-foot wide, 200-foot tall column of oil erupted from the well. The gusher remained uncontrolled for 18 months, spilling more than 8 million barrels of oil onto the ground surface (DOGGR 1993).

Legislation emerged in the late 1800s in California to regulate the industry and protect the resource from water damage and depressurization. The 1903 California Legislature passed a law requiring drillers to seal off water zones between oil-producing zones, and seal a plugged well for at least 100 feet above the producing zone. In 1911 a law was passed to “prevent the wasting of natural gas” (Rintoul 1990). The Department of Petroleum and Gas of the State Mining Bureau was created in 1915, with the duty to supervise petroleum or gas wells in such a manner as to prevent damage to the formations and protect the petroleum resource.

Steps to enhance recovery have a long history in Kern County. Steam flooding had been used successfully on asphalt deposits in the 1800s and on the viscous Kern River oil field in the early 1900s. Experimental bottom hole heating and downhole combustion (“fireflooding”) tests were conducted in the 1950s and 1960s to assess the ability to heat and mobilize viscous oil that was otherwise inaccessible. The experiments indicated that although these methods increased production they were not commercially viable at the time. Much greater success was achieved with hot water or steam injection (Rintoul 1990).

In the 1960s, steam injection became more widely used with the two most common methods being cyclic steam and steam flood. In cyclic steam, steam is introduced into a well for a specified time period, then the injection is stopped and the steam dissipates into the formation. The well is then returned to production, extracting oil and water. This process is completed in cycles throughout the oil field. The cycle times are varied to maximize production. The rate and frequency of steam application can also vary depending on the specific characteristics of the geologic formation. Steam flooding entails continuously adding steam to a specific set of wells to heat and drive the oil to other dedicated extraction wells.

As noted, California led the nation in oil production in 1903. The Kern River, Midway-Sunset, and McKittrick fields accounted for approximately 75% of California’s production; the Kern River field alone produced 17 million barrels. Production increased to a peak during World War II and declined slowly until the early 1970s (SJGS 2014b). Production increased sharply from the early

1970s to a peak in 1985, when Kern County produced 256 million barrels (SJGS 2014a). Production has been steadily declining since 1985.

4.2 Oil and Gas Operations in the Project Area

Oil and gas operations in the Project Area include well installation and completion, well stimulation treatments, production, aboveground fluid separation and processing, water recycling and disposal, and well abandonment. Production includes the extraction of subsurface fluids, in the form of oil, gas and water (referred to as "produced water"). Aboveground processing includes separating the fluids, processing and storing the oil and gas for sale and transportation off of the leasehold, and processing the produced water for use in enhanced oil recovery operations, treating the produced water for beneficial re-use by a third party, or disposal.

4.2.1 Well Installation

Oil and gas production operations begin with drilling wells. The purpose for drilling may be for exploration, field development, or well plugging and abandonment. Exploratory drilling, or wildcatting, is done to assess if oil and gas resources exist in a specific area and if extraction is economically viable, and to investigate the limits of a particular field. Field development consists of step-out drilling and infill drilling and is done to delineate the limits of the field and maximize the recovery of oil and gas within a known field. Development drilling also includes re-drilling and recompleting wells to rejuvenate or maximize the recovery of oil and gas within an existing well (Kern County PCDD 2013).

A summary of the drilling activity from 1995 to 2009 in the Project Area is summarized in Table 4-2 and the number of active producing wells from 1995 to 2009 is summarized in Table 4-3 (DOGGR 2010). A graph showing the number of oil and gas wells drilled, completed, and abandoned from 1995 to 2009 is presented on Figure 4-1. The graph indicates that production well counts peaked in 2002, and well installation/abandonment activities peaked in 2008, and sharply declined in 2009.

Drilling activities occur on a well pad that has been constructed to support the activity (Figure 4-2). Site preparation activities include clearing and grading, and setting containment sumps (temporary pits, operations sumps) and/or portable tanks to store drilling fluids, wellbore cuttings, and waste which result from the drilling process. Portable tanks are also used to mix and store other needed fluids or slurries, such as completion or stimulation fluids.

After the well pad is completed, the drilling rig is set up on the pad (Figure 4-3). Temporary facilities, equipment and materials necessary to support the drilling operation (i.e., water, drilling supplies and materials, crew support trailers, pumps and piping, portable generators, field flares, fuels and lubricants, etc.) are also set up and stored on the well site. Next, a surface casing is set and cemented in place, and blowout prevention equipment is installed at the wellhead and tested.

4.2.1.1 Drilling

Oil wells in the project area are most commonly, but not always, vertical. A small percentage of the wells in the Project Area are advanced at an angle or horizontally, with a process known as directional drilling. Angle borings are commonly drilled when vertical access to the reservoir is not possible, typically as a result of physical constraints at or near the surface. A directionally drilled well starts with a vertical borehole that is extended to a specific point (kickoff point) where the wellbore is curved away from the vertical plane until it intersects the target formation (entry point). At the kickoff point the drill pipe is removed and a hydraulic motor is placed between the drill bit and the drill pipe. The hydraulic motor is powered by the flow of drilling mud down the drill pipe. The motor rotates the drill bit without the need to rotate the entire length of drill pipe between the bit and the surface. This allows the bit to drill a path that deviates from the orientation of the drill pipe. Downhole instruments are used to determine the azimuth and orientation of the drill bit and this information is used by the driller to steer the drill bit (King 2014).

4.2.1.2 Drilling fluid

Drilling fluid, or mud, is typically composed of water, clays (bentonite), fluid loss control additives, density control additives and viscosifiers. Drilling fluids may also have a synthetic chemical base, or even an oil base. The base fluid (typically water), bentonite, and other chemical additives are mixed together in mud mixing tanks and fed into the circulation system. During drilling, the composition and weight of the fluid are altered as needed to suit the changing pressure, temperature, and chemical conditions in the borehole.

The drilling fluid lubricates the bit as it turns, and it carries the drill cuttings back to the surface along the outside of the drill pipe. At the surface, the drilling fluid passes through a screen, which separates out the drill cuttings, and the fluid is circulated back down the drill pipe (DOGGR 1993). Drill cuttings are typically deposited in a reserve pit or sump excavated next to the rig (Kern County PCDD 2013) after they are removed from the drilling mud. The drilling fluid builds a “mud cake” on the walls of the borehole. The mud cake prevents drilling fluids from flowing into porous rock and, together with the weight of the mud column, prevents the hole from caving in. The mud cake also helps seal off the borehole from the surrounding formations (DOGGR 1993).

4.2.1.3 Casing Installation and Cementing

Constructing a typical oil or gas well consists of several cycles of drilling, installing steel casing and cementing the casing in place. The final length of casing, called the production casing, is installed if and when a promising zone has been identified. In each cycle, steel casing of sequentially smaller sizes is installed inside of and below the previous installed casing string. Installing the casing in stages results in multiple layers of protective steel casing and cement in the uppermost portions of the borehole (API 2009).

Before penetrating oil or gas reservoirs, most wells pass through unconsolidated (soil) strata and fresh and/or brackish water-bearing zones (i.e., aquifers - some wells in the West Sub-area do not pass through a freshwater zone before encountering brackish water). The first casing, known as a conductor casing, is placed in the upper portion of the borehole to prevent surface soil from collapsing. For protection of the aquifers and to prevent collapse of the borehole, a

steel casing, known as a surface casing, is installed and cemented into place. The surface casing extends below the base of the fresh water aquifer(s). The “intermediate casing” is set inside the surface casing and typically extends to the top of, or into, the cap rock (the geologic formation that prevents the upward migration of the oil and gas). The last casing installed is the “production casing” and is set, and perforated, in the production zone. Figure 4-4 represents a schematic diagram illustrating the casing and cemented zones of a typical oil or gas well.

Field Rules (DOGGR 2013a) specify casing and cementing depths by field. The rules have been developed over time based on the specific geologic characteristics known by the regulators to exist at the particular field. The conductor casing, surface casing, intermediate, and production casing depth ranges are published along with the annular cement fill depths. Conforming to the Field Rules, and adhering to industry standards of practice for engineering and constructing casing and seals, protects the shallow water-bearing formations from the deep hydrocarbon production zones. DOGGR also requires testing of the cement seals (see Section 6) to assure that they meet certain minimum test pressures, and directs specific corrective measures if a casing or seal fails a pressure test.

The cement slurry design (density, compressive strength, shrinkage, etc.), and the mixing, blending, and pumping of cement is an important factor in establishing the well seal. The design and installation procedures are well established and provided in documents prepared by API (2002) and DOGGR (2013a).

4.2.2 Well Completion

Well completion includes installing production casing, perforation, development, removal of formation damage, installation of production equipment, and production testing. Senate Bill (SB)-4 regulated well stimulation activities (e.g., hydraulic fracturing, acid matrix stimulation) can also be conducted as part of the well completion process. Completion begins once a boring has been drilled to the prescribed depth and drilling mud is removed, and is complete once the well is brought intro production, or used for its’ intended purpose (e.g., injection). Well completion tasks can also be implemented on an existing well to improve performance, or change the production zone (known as recompleting or reworking). A typical production well installation is illustrated on Figure 4-5.

4.2.2.1 Production Casing Installation and Perforation

Once the well has been drilled to its designed depth, typically the bottom of the oil sand or series of oil sands, the production casing is installed in the borehole, and perforated from the bottom of the production zone to a few feet up inside the intermediate casing. The production casing serves as the screened casing for the oil well, allowing oil to enter the well while keeping formation sands out. It is either installed with perforations already made or a blank casing is installed and perforated after installation at the desired depth intervals with a perforating gun (DOGGR 1993).

The steel casing is manufactured to meet requirements of compression, tension, collapse, corrosion resistance, and other factors. Centralizers are used to center the casing in the borehole prior to cementing. The production casing allows hydrocarbons to enter the well and serves as a casing for production tubing and packers that may be inserted into the casing at a

later time. It is cemented in place to isolate the production zone from other formations (API 2009).

After the production casing is installed, a 2-inch to 3.5-inch diameter tubing is installed into the well. The tubing extends from just above the perforated zone to the ground surface, and it is through the tubing that the production fluids are brought to the surface (DOGGR 1993).

4.2.2.2 Well Stimulation

Well stimulation activities (now subject to regulation under SB-4) have been conducted in the Project Area for more than 60 years. Well stimulation is a technique used to increase production by increasing the permeability of the oil-bearing formation through physical or chemical means, thereby improving flow to the well. Well stimulation treatment, as defined in SB-4 includes hydraulic fracturing, acid matrix stimulation, and acid fracturing but excludes uses of acid for routine well cleanout, maintenance and removal of formation damage. Stimulation activities can be conducted on new wells, or as part of reworking an existing well to improve performance. As defined in SB-4, well stimulation "is a short term and non-continual process for the purposes of opening and stimulating channels for the flow of hydrocarbons." SB-4 regulated well stimulation activities do not include steam flooding, water flooding, cyclic steaming, well cleanout work, or routine well maintenance.

SB-4 requires operators to file notices with DOGGR 30 days before conducting a regulated well stimulation treatment. These notices are available to the public on the DOGGR website. Table 4-4 is a summary of the SB-4 regulated well stimulation notices posted for the Project Area since 20 November 2013 (as downloaded on March 3, 2014). The data indicates that hydraulic fracturing treatments represent 85% of the SB-4 regulated well stimulation treatment notices filed between December 2013 and the beginning of March 2014.The data also indicate that the majority of the hydraulic fracturing events were conducted in the Belridge North, Belridge South and Elk Hills oil fields in the West Sub-area.

Hydraulic fracturing in a variety of forms has been widely applied over many decades in California. The vast majority of past and current recorded fracturing activities occur in the North and South Belridge, Lost Hills, and Elk Hills fields, in the Project Area. Contrary to other oil and gas fields in the United States, large-scale application of high-volume hydraulic fracturing has not been widely applied in the Project Area. The majority of the oil produced in the Project Area is not generated from the low-permeability shale source rock (i.e., the Monterey Formation), but rather from geologic formations that have captured oil and gas that migrated from the source rocks. Most of the hydraulically fractured wells in California are vertical or near vertical. These vertical wells are constructed with shorter perforated intervals, compared to long lateral/horizontal wells, and therefore require less fluid for hydraulic fracturing. Therefore, the volumes of water used in hydraulic fracturing in California are much smaller than in oil source rock plays elsewhere.

4.2.2.2.1 Hydraulic fracturing

Hydraulic fracturing (also known as hydrofracturing, "fracking", or "fracing") is the injection of a mixture of water, chemicals, and substances (primarily silica sand) called "proppants" into a well at pressures greater than the fracturing pressure of the formation. Hydraulic fracturing causes microscopic fractures to propagate away from the well/boring, increasing the surface area of the

formation that is in communication with the well. As the injected mixture passes through the fractured formation, the proppants are deposited into the fractures, keeping the fractures open, thereby creating channels through which the oil and/or natural gas can reach the well (DOGGR 2013b). A majority of the wells that are hydraulically fractured in the Project Area are shallow vertical wells installed in the diatomite formations, where permeabilities are extremely low. Data obtained from FracFocus indicate that 830 wells underwent hydraulic fracturing treatment in 2013. Of those 830 wells, only 15 wells were deeper than 2,500 feet bgs. The average hydraulic fracturing job used approximately 127,000 gallons of water. Figure 4-6 illustrates the equipment commonly used on a hydraulic fracturing project in the Project Area.

4.2.2.2.2 Acid Fracturing and Acid Matrix Stimulation

Acid fracturing and acid matrix stimulation are also regulated operations under SB-4. These stimulation operations involve injecting acid into the formation to increase permeability. In the case of acid fracturing, fluids are pumped into the well at pressures exceeding the fracturing pressure of the formation (similar to hydraulic fracturing) in order to fracture the formation, thereby causing or enhancing the production of oil or gas from a well. For acid matrix stimulation, fluids are pumped into the formation at pressures that are lower than the fracturing pressure to achieve the similar results (Robertson and Chilingarian 1989). The DOGGR well stimulation treatment notices reported between the end of November 2013 and the beginning of March 2014 indicate that 15 percent of the notices filed were for acid matrix stimulation treatments.

4.2.2.3 Production Equipment

If the reservoir pressure is sufficient to bring production to the surface without pumping, then a series of valves called a Christmas tree is attached to the tubing at the ground surface, and is used to control the flow. Most wells do not have sufficient reservoir pressure and even flowing wells eventually lose pressure over time, so that a pump must be installed to lift the production to the surface. Reservoirs where heavy oils are present (where steam and water flooding is used to produce the oil) are good examples of this condition.

A rod pump is the most common pumping method for oil wells. A pump mechanism is lowered to the bottom of the tubing and is connected to the surface by a long narrow sucker rod. The top of the sucker rod is attached to a pump jack, which actuates the pump by its constant up and down motion. The pump jack is driven by either a natural gas engine or by electric power, and can either be crank-balanced or air-balanced. Other methods of pumping oil to the surface include submersible pumps and fluid-actuating pumps (DOGGR 1993). Figure 4-5 illustrates a typical production set-up for the Project Area.

4.2.3 Oil Field Production

Oil field production refers to the day-to-day lifting and processing of oil, gas and produced water in the oil fields. As the pump jack operates, production fluids are brought to the surface and transmitted through pipelines that are either above ground or just below ground to a central processing facility called a tank battery. The production fluids arrive at the surface as a mixture of water, oil and gas. The purpose of the tank battery (a number of tanks in series) is to separate the fluids into their respective parts (processing). A typical tank battery is illustrated on

Figure 4-7. Graphs of production and injection data from fields in the Project Area are available on the DOGGR website (DOGGR 2014). Example graphs for production between 1977 and 2013 for the Midway-Sunset and Kern River fields are included as Appendix D.

4.2.3.1 Oil Production

Production fluids from the field are initially fed through a tall cylindrical tank called a separator. Gasses are separated from the fluid and piped out at the top of the separator, while oil and water drain out the bottom. Oil and water then are pumped to a series of vessels designed to separate the fluids based on the viscosity and gravity of the oil. Separation process equipment typically includes free-water knockout vessels, heater treaters and wash tanks (DOGGR 1993). Two chemicals are typically introduced to the production fluid to aid in the separation, an emulsion breaker (to coalesce oil droplets so they can be more effectively removed from the water) and a scale inhibitor (to keep inorganic salts from precipitating on the walls of the tanks and piping).

Oil is skimmed off the top of the separated mixture and piped to stock tanks. Water is drained near the tank bottom. From the stock tanks, the oil is typically piped and metered through a Lease Automated Custody Transfer (LACT) unit. Passing through the LACT unit, the oil is sold and is transported off the lease either by truck or by pipeline. Some tank batteries do not have LACT units. At such facilities the tanks are gauged to determine the volume prior to transport. At this point the oil leaves the production phase and enters the transportation phase.

Oil fields in the Project Area produced a total of 135.4 million barrels (Mbbl) of oil in 2013 (DOGGR 2014). Oil production by field and sub-area for 2013 is summarized in Table 4-5. Table 4-6 summarizes the number of active production and injection wells in each field and sub-area for 2013. Oil production by field is illustrated on Figure 4-8. The data collected from DOGGR indicates the five top oil-producing fields in 2013 were the Midway-Sunset; Belridge, South; Cymric; and Elk Hills fields in the West Sub-area; and the Kern River oilfield in the East Sub-area. Figure 4-9 illustrates the oil production from the top five fields declined an average of 5 percent per year from 2010 to 2013 while production from smaller fields increased by approximately 3 percent per year.

4.2.3.2 Gas Production

Produced gas is a mixture of hydrocarbons including methane, ethane, propane, butane, and natural gasoline. This mixture is also commonly referred to as wet gas. If the field does not produce sufficient gas to process and sell, the gas that is not used to blanket the petroleum in the tanks is sent from the separator to a flare and burned off, used as fuel for steam generators, or sent via pipeline to a gas disposal well. Otherwise, produced gas is piped to a gas plant for processing. The gas plant uses a series of heat treatments to separate the methane, now called dry gas, from the other components, referred to as natural gas liquids (NGLs). The separation process typically uses glycol as a heat transfer fluid. NGLs are drawn off and collected in a tank without further separation. Mercaptans are added to the dry gas to odorize it, and the gas is piped and metered through a LACT unit and sold or consumed on-site. NGLs are also piped through their own, separate, LACT unit. Unwanted component gasses (byproducts) such as hydrogen sulfide are removed by scrubbers using a non-hazardous amine system (Kern County 2013), collected and properly disposed or sold as elemental sulfur.

Oil fields in the Project Area produced a total of 151,402,319 million cubic feet of gas in 2013 (DOGGR 2014) (see Table 4-5). Figure 4-10 illustrates the top gas-producing fields for 2013. Figure 4-11 illustrates that gas production for most fields is relatively steady, except for Kern River which increased sharply from 2012 to 2013.

4.2.3.3 Produced Water

Produced water is usually the largest fraction (commonly greater than 90 percent by volume) of the production fluid in an oilfield in the Project Area. After separation, produced water is typically treated by being passed through an induced gas flotation unit, a sand or walnut shell filter, and an induced air flotation unit (Kern County PCDD 2013). The treated water is then stored in aboveground tanks. Produced water is stored, handled, and disposed or reused depending on the needs of the lease and the quantity and quality of the water. The following are potential options for managing produced water:

- ***Enhanced Oil Recovery Processing –*** Treated as needed (typically this water is softened if being used to generate steam) then pumped to an enhanced recovery system and injected back into the oil producing formation as heated water or steam.

- ***Underground Disposal –*** Pumped to Class II Underground Injection Control (UIC) program wells within the oil field boundary and injected into a deep subsurface formation. The geologic formation receiving the waste fluid is designated by the DOGGER (under authority from the USEPA) to be exempt from meeting water quality standards (referred to as an "exempt aquifer"). This option requires minimal treatment (i.e., filtering) to no treatment.

- ***Land Disposal –*** Treated on-site or transported off the production site, by truck or pipeline, to a wastewater treatment facility or percolation pond. Treated water is pumped to large, permitted, infiltration galleries and allowed to percolate into the subsurface and/or evaporate.

- ***Beneficial Reuse –*** Treated on-site or transported off the lease, by truck or pipeline, to a wastewater treatment facility. Treated water is then provided to a third party for re-use, such as crop irrigation or groundwater recharge (aquifer recharge and storage [ARS] program), wetlands enhancement, etc. (Kern County PCDD 2013).

The DOGGR database indicates that a total of 1,808 Mbbl (75,930 million gallons [Mgal]) of produced water was generated in 2013 (DOGGR 2014), consisting of 1,025 Mbbl from the West Sub-area; 22 Mbbl from the Central Sub-area, 756 Mbbl from the East Sub-area and 5 Mbbl from unspecified fields (Any Field) (Table 4-5). DOGGR data indicate that in the West Sub-area, 90 percent of the produced water is generated by 6 of 44 oil fields (14 percent); in the Central Sub-area 90 percent of the produced water is generated by 8 of 26 oil fields (30 percent); and in the East Sub-area 90 percent of the water is generated by 5 of 20 oil fields (25 percent). The produced water and the ratio of produced water to oil (the "water cut") for 2013 is also summarized in Table 4-5. Figure 4-12 illustrates the percent water produced from the top 15 water-producing fields, relative to the remaining fields. Figures 4-13 and 4-14 illustrate the fields with the highest water cuts (Kern Bluff in the East Sub-area is the highest with 99.4% water to

oil) and the lowest water cuts (Beer Nose in the West Sub-area is the lowest at 6.7% water to oil).

4.2.4 Enhanced Oil Recovery

As reservoirs are depleted and production declines, oil producers seek alternatives to increase efficiency of existing and new wells. Enhanced oil recovery through waterflooding and steam injection has been used in California since the 1950s. Enhanced recovery facilities typically include the same infrastructure as required for oil and gas production, including pipeline distribution, pumps, and compression systems. These systems supply and deliver the water or steam to the reservoir. With thermal enhanced recovery systems, steam is prepared from filtered and softened produced water or sometimes fresh water by onsite gas-fired or solar steam generators or cogeneration facilities. The steam is then delivered via insulated pipelines and injected into wells perforated in the oil-bearing formation (Kern County PCDD 2013). Figure 4-15 presents a photograph of the Kern River Oilfield, showing the network of insulated pipelines that deliver steam to injection wells.

Based on the injection volumes reported in 2013, presented in Table 4-7, water flooding is practiced in all three subareas of Kern County, but is most commonly practiced in the Central subarea where the oil is relatively deep and of low viscosity. Steam flooding and cyclic steam are used in the West and East subareas where the oil tends to be shallow and of higher viscosity.

In 2013, 1,461 Mbbl (61,346 Mgal) of produced water were re-injected into the production zones, in the form of water or steam, to maintain field pressures and optimize production (DOGGR 2014). The amount of water injected as part of field maintenance represents approximately 81 percent of the produced water generated in 2013. Table 4-7 summarizes the steam/water and air injected into formations in 2013, by field. The five oilfields with the largest injection volumes are the South Belridge, Midway-Sunset, Elk Hills and Lost Hills in the West Sub-area, and the Round Mountain oil field in the East subarea. Table 4-8 summarizes the injection volumes for 1995 to 2009 broken down by the method of injection (steamflood, waterflood, etc.) for the Project Area.

The volumes of injected water and steam increased in most fields from 2010 to 2013, as illustrated on Figure 4-16. The largest increase was in Midway-Sunset and the largest decline was in Lost Hills. The general trend is that the volume of fluids being injected is increasing while oil production is declining, gas production is relatively steady, and water production is increasing. For example, for the Midway-Sunset oil field, oil production decreased an average of 5 percent per year between 2010 and 2013, while water production increase approximately 5 percent per year during the same period.

4.2.5 Transportation and Conveyance

Produced oil, gas, and water are generally transported across the oilfields by pipeline or by truck. Pipelines require installation, maintenance, and testing, as well as construction and maintenance of valve stations, compressor stations, and storage tanks. Transportation by truck requires construction and maintenance of roads, support facilities, and storage tanks. Most new pipelines are installed above ground (Kern County PCDD 2013). Transportation of equipment to

and from oil field operations is generally by truck. Access roads are generally maintained by the individual lease operators. Oil and produced water are also transported between the various oil fields and to the refineries via truck and in some cases pipeline. Inter-field movement of water via truck and pipeline is managed and regulated in a similar manner. Inter-field transportation of oil via pipeline is controlled under State Fire Marshall regulations.

4.2.6 Well Abandonment

Well abandonment is performed when a well becomes uneconomical or the producing zone has been depleted. Well abandonment is usually accomplished with a “workover” rig and equipment similar to that used for installation of the production equipment.

Procedures for plugging and abandonment are standardized by the state and special requirements are issued at the field level by way of Field Rules issued by DOGGR. In general, cement plugs are placed across specified intervals to protect oil and gas zones, to prevent degradation of groundwater zones, to protect surface conditions, and for public health and safety. Cement may be mixed with or replaced by other materials with adequate physical properties upon approval by the district DOGGR office (Walker 2011).

An open hole must be plugged with cement from at least 100 feet below the bottom to at least 100 feet above the top of each zone from which oil or gas was produced. A minimum 200-foot thick cement plug must be placed across all fresh-brackish water interfaces or within a thick shale if it separates the fresh water sands from the brackish water sands (Walker 2011).

A cased hole must have all perforations plugged with cement. The cement plug must extend at least 100 feet above the top of the highest perforations, or casing cementing point, or water shut-off holes, or producing zone, whichever is highest for that well. If there is cement outside the casing across the fresh-saltwater interface, a 100-foot cement plug must be placed inside the casing across the interface. If the top of the cement outside the casing is below the top of the highest saltwater sands, pressure cementing is required through perforations to protect the fresh water aquifers. For producing zones in fractured shale or schist, massive sand intervals, depleted productive zones, and multiple producing zones, a cement plug extending from at least 25 feet below the top of the uppermost perforated interval to at least 100 feet above the top of the perforations (or landed liner, or casing cementing point, or water shut-off holes, or producing zone, whichever is highest) is required (Walker, 2011).

At the surface, cement must be placed in at least the top 25 feet inside and outside the casing strings. The district DOGGR office may require that inner casing strings be removed to at least the base of the surface plug prior to placement of the surface plug. All casings must be cut off at least 5 feet but no more than 10 feet below the ground surface. A steel plate must be welded at the top of the casing showing the identification of the well by API well number (Walker 2011).

Well abandonment and plugging operations are required to be permitted by and reported to DOGGR. Table 4-3 summarizes the well abandonment activity from 1995 through 2009 (DOGGR 2010). The records show that well abandonment activity peaked in 2002 with 2,279 wells abandoned and plugged (DOGGR 2010). The number of abandonments appears to have decreased from 1,903 wells in 2005 to 1,176 wells in 2013.

4.3 Future Development Trends

4.3.1 Economic Factors

Oil field development (exploration, enhanced recovery, production, etc.) is driven by the value of the products. Higher prices for oil and gas will generally result in more exploration, more efforts to increase production, and more innovation while lower prices result in the opposite, including the shut-in of currently producing wells, and shut-down of low-yielding fields. The future price of oil and gas cannot be predicted with a reasonable level of certainty; however, it is likely to be sustained at a level to at least support active oil field development for the foreseeable future.

4.3.2 Exploration

Relatively few exploration wells are being drilled in the San Joaquin Valley, which is considered a 'mature' province (Takahashi and Gautier 2007). The most important oil field operators tend to concentrate on developing existing fields. However, as deep and petroliferous as the basin is, undiscovered deposits may exist. Yowlumne field was discovered in 1974, and the Bellevue #1 well in the Lost Hills field tapped into a deep, highly pressured gas zone in the Temblor formation in 1998. Other deposits may yet be found. As such, exploratory wells, within and outside existing oil field boundaries are expected to continue to be drilled in the near future, at a marginal (a few wells per year) rate.

4.3.3 Production

The project applicants estimate that approximately 3,649 wells will be drilled and 2,231 wells will be abandoned each year over the next 20 years in the Project Area, indicating a net gain of 1,418 wells per year. Approximately 2,221 of the 3,649 wells installed annually will be active production wells and 939 will be injection wells. The well count includes 1,029 production wells and 428 injection wells that will be installed annually using SB-4 regulated well stimulation treatments. Recent increases in the volume of produced water suggest that this volume will continue to increase, as oil product decreases. As produced water volumes increase, injection volumes are expected to increase to maintain field pressures. However, the volume of produced water needed for injection will depend on the method of the injection (e.g., waterflood vs. steam injection).

4.3.4 The Monterey Shale

According to the U.S. Energy Information Administration (EIA) Annual Energy Outlook 2014 (EIA 2014), U.S. production of crude oil is projected to increase to 9.6 million barrels (bbl) per day in 2019. Higher production volumes result mainly from increased onshore oil production, predominantly from tight (very-low-permeability) formations.

A report commissioned by EIA (Intek 2011) projected that 15 billion bbl of recoverable, undeveloped oil was available in the "Monterey/Santos" shale in the San Joaquin Valley and Los Angeles areas. However, in May 2014, the estimate for recoverable oils from the Monterey/Santos shale was lowered to 600 million bbl, a 96-percent decrease. The primary

reason cited for the decreased projection was the lack of development to date, based on difficulties in producing oils from the geologically complex formation.

Hughes (2013) states that the Monterey Shale is not comparable to other tight oil plays - it is structurally and stratigraphically complex and thus its depth and thickness are highly variable compared to formations such as the Bakken Shale, in which long horizontal wells are built. The San Joaquin and Santa Maria Basins, where the predominant shale potential lies, have been producing from the Monterey for many decades and Hughes proposes that increases in production are likely to be marginal incremental additions, not a new energy bonanza.

Section 5: Water in Oil and Gas Operations

Water that is needed to explore for and produce oil and gas in the Project Area, including the production of steam for enhanced recovery operations, comes from a variety of sources. Common sources include groundwater (including entitlements as well as purchased), surface water (through various contracts with local purveyors and State Contractors), and produced water (Kern County PCDD 2013). Depending on the proximity of the source to the operation for which it is needed, water is transported by either truck or by pipeline, or both.

Water for oil and gas production may be purchased from local purveyors or pumped from underground sources or produced as part of the oil recovery process. Data collected for calendar year 2012 (WZI 2014) indicates that approximately 96 percent of the water handled in production operations was produced water. Figure 5-1 illustrates the type and volumes of water used for various oil and gas production activities. When the volume of water required to produce oil or gas is less than the cumulative (purchased plus produced) supply, disposal or re-distribution of the excess water is required. Disposal and re-distribution for third-party beneficial reuse occurs under project-specific WDR permits from the RWQCB. Disposal into an administratively exempt aquifer through Class II UIC wells occurs under permits from the DOGGR, under authorization of the USEPA. Table 5-1 summarizes the volume of water disposed to land, pumped into Class II disposal wells, and provided for third-party beneficial re-use in 2012 (Kennedy/Jenks 2015). The following sections present a summary of water quality, quantity and use (handling, transportation, treatment, disposal) as part of the current exploration and production operations in the Project Area, as described in Section 4. Table 5-2 presents summary descriptions of the various water and wastewater handling processes that are part of each operation. Figure 5-2 presents flow diagrams for the various oilfield processes that rely on water.

5.1 Well Drilling, Completion and Abandonment

Well installation, completion and abandonment activities typically use freshwater, obtained from groundwater and surface water sources. The largest volume of drilling-related wastes is used drilling fluid (API 1997). Drilling fluids (drilling mud) contain four basic parts: water; active solids (e.g., clay); inert solids (e.g., barite); and additives. Typical constituents comprising the drilling fluid used in the Project Area are summarized in Table 5-3. Drilling fluids differ based on the zone which is being penetrated. While drilling the upper portion of the borehole (through the fresh water zone), drilling muds are water-based and similar in composition to those used in the water well industry. Once the primary casing is set and sealed, drilling muds more compatible with drilling through the oil-bearing formation are used (commonly oil or synthetic based heavy muds).

As described in Section 4, drill cuttings consist of the inert rock fragments brought to the surface by the fluids. The waste fluid generated from below the fresh water zone typically contains petroleum hydrocarbons, select metals (e.g., boron), and /or high TDS. The USEPA classifies oil and gas wastes and related fluids (e.g., flowback water and produced water) as “special wastes”, which are exempted from classification as a listed hazardous waste. As a result, regulations regarding the handling and disposal of oil-field generated wastes vary from state to

state. Section 6 further describes regulations for characterization, handling and disposal of oilfield wastes in the Project Area.

Drilling and completion of a typical vertical production well in the Project Area uses between 560 and 1,900 bbl of fresh water (dependent on depth and boring diameter), producing an equal amount or more of fluid waste. The forms of the fluid waste commonly include spent drilling muds, cuttings, cement returns, formation (i.e., produced) water and oil. Drilling muds can be stored in aboveground tanks during operations, but are more commonly stored in lined or unlined (where permitted) sumps during drilling. Prior to December 2013, drilling muds and cuttings were typically discharged to surface impoundments after completing drilling operations, where the water was allowed to evaporate, leaving the solid cuttings lining the sump. Prior to December 2013, oilfield practices included removing the free liquid from the sump at the completion of the drilling activities, then mixing the solids with native soils and burying them in-place. Changes in regulations in late 2013 (see Section 6) now require that these solids be removed and appropriately managed.

Well abandonment activities typically use between 850 and 2,950 bbl of fresh water primarily for making cement to seal the well. Handling and disposal of wastes produced during these activities follow those procedures described above.

5.1.1 Well Stimulation

SB-4 well stimulation notices indicate that most of the water used in well stimulation operations consists of fresh water purchased from local water districts. As an example, of the 292,000 bbl (12.3 Mgal) of water used by Chevron for hydraulic fracturing in 2013, 85% (10.8 Mgal) was reportedly purchased freshwater and 15% (1.5 Mgal) was reported to be high-TDS water produced from the Tulare formation. As reported to DOGGR, hydraulic fracturing comprises most of the SB-4 regulated well stimulation activities in the Project Area (Table 5-4). The volume of water injected for hydraulic fracturing projects in 2013 ranged from approximately 3,500 barrels (147,000 gallons) to approximately 11,000 barrels (462,000 gallons) per event. The fresh water used for SB-4 well stimulation activities is typically transported by truck or pipeline to the well site. Proppant and chemical additives are also transported by truck to the well site. Stimulation fluids are mixed with the fresh water at the wellhead, as the mixture is being pumped downhole.

The fracturing fluid utilized is precisely and specifically designed for optimum performance in the specific geologic environment it will be injected. In nearly all instances the fluid is comprised mostly of water, with proppants and a small amount of chemicals added to serve multiple purposes. Chemical additives can include gelling agents, acids, surfactants, biocides, pH stabilizers, gel breakers, clay and iron inhibitors, as well as corrosion and scale inhibitors. Some substances, such as benzene, ethylene glycol, and naphthalene may be included in the additives described above (ALL Consulting 2012). A summary list of chemicals reported in hydraulic fracturing notices for the Project Area is included in Table 5-5 (notices uploaded to DOGGR after November 2013, as reviewed on 13 March 2014). A list of chemicals used in acid fracturing/acid matrix stimulation activities in the Project Area, as obtained from DOGGR, is presented in Table 5-6.

A small amount of the injected hydraulic fracturing fluid is recovered as “flowback” water within a few days of completing the stimulation activities (API 2010). Most of the injected fluid is initially trapped in the production formation and recovered over the long-term as produced water. In the Project Area, SB-4 stimulation notices indicate that flowback water is contained in closed systems (aboveground tanks) at the drill site. Following completion of the stimulation activities, flowback water is transported by truck to a field treatment system (e.g., Elk Hills or Lost Hills), or to a disposal site (e.g., Rose Field). Treated fluid can be re-used (e.g., for enhanced recovery operations in the Elk Hills Field) for other operational processes. Disposal typically occurs by pumping the fluid into Class II UIC wells.

5.1.2 Production

Produced water accounts for the largest volume of water and wastewater that is handled in oil field operations. As summarized in Table 4-5, oilfields in the Project Area generate on average eight to nine barrels of water for every barrel of oil produced. In 2013, 1,808 Mbbl of water (75,930 Mgal) were produced as part of oil production operations (DOGGR 2014). Analyses of produced water from oil fields in the Project Area, principally in the West Sub-area (Mitchell 1989) are summarized in Table 5-7. In general, produced water contains dissolved petroleum hydrocarbons, high TDS concentrations, and elevated metals and semi-metals. The TDS is enriched in sodium and chloride relative to other cations and anions, and relative to shallow groundwater (refer to Section 3). Sulfate concentrations are distinctly low in produced water samples. Elevated boron concentrations (well above the USEPA health advisory concentration of 1 mg/L) are also commonly reported. Produced water is typically transported to field tank batteries through pipes (see Figure 4-14), treated in aboveground tanks (see Figure 4-6), and re-used or disposed.

5.1.3 Enhanced Oil Recovery

Process water for enhanced recovery operations typically consists of treated produced water, with some field also relying on fresh water supplies. Cogeneration plants may use treated produced water or de-mineralized fresh water for evaporative cooling to increase power output when ambient temperatures are high, and untreated fresh water for steam condensation, pump seal flushing and other process uses requiring fresh water. Because treated produced water is used for the majority of enhanced recovery operations, comparatively little purchased fresh water is used in the production of oil and gas (Kern County PCDD 2013). The volume and composition of produced water used for enhanced oil recovery operations is summarized on Table 4-7 and in Section 5.1.2. In 2012, more than 80 percent of the treated produced water was re-used in oilfield operations for water-flooding and steam injection programs (Kern County PCDD 2013).

5.1.4 Wastewater Storage and Disposal

Excess produced water is either disposed or treated and provided to a third party for beneficial re-use (e.g., agricultural irrigation). Disposal practices include injecting produced water into deep subsurface reservoirs using Class II UIC wells, or discharging the water to land (e.g., percolation and evaporation ponds).

Wastewater injection wells are an integral part of California's oil and gas operations. In 2012, there were approximately 10,300 active injection wells operating in the Project Area. Injection wells are classified by the USEPA into six classes according to the type of fluid they inject and where the fluid is injected. Injection wells that are used to inject non-hazardous wastewater associated with oil and natural gas production operations (i.e., produced water) and brine, are designated “Class II” wells. In California, Class II injection wells are regulated by the DOGGR under provisions of the state Public Resources Code and the federal Safe Drinking Water Act. Class II injection wells fall under DOGGR’s UIC program, which is monitored and audited by the USEPA.

The USEPA Region 9 conducted a review and evaluation of the DOGGR UIC Program for compliance with the DOGGR Program Description and Memorandum of Agreement that were submitted in connection with the State of California application for primacy (the Primacy Application) that was approved by EPA in 1983. The review was conducted by Horsley Witten Group, Inc. (HW) under guidance from USEPA Region 9. In general, the USEPA found minor deficiencies in the UIC program and DOGGR prepared a response plan to address the deficiencies. However, the USEPA noted in the report that California regulations require protecting groundwater aquifers containing 3,000 mg/L or less of total dissolved solids, which is a departure from USEPA’s definition of 10,000 mg/L TDS.

Land application of the produced water is regulated under WDRs issued by the CVRWQCB. The CVRWQCB WDR program regulates point source discharges that are exempt under CCR Title 27 and not subject to the Federal Water Pollution Control Act. The discharger must apply to the CVRWQCB for a permit to dispose of the waste, or operate under a General Order if one exists. Discharges are required to submit annual reports summarizing the quality and quantity of water discharged during the preceding year. Land application of produced water requires that the water meet certain quality criteria prior to disposal, which may result in primary treatment of the water to reduce the TDS and/or remove dissolved chemicals. The disposal ponds must be maintained in good condition and operated in accordance with the monitoring program established in the WDR. The ponds may require periodic maintenance to restore their percolation capabilities by dredging out the pond bottoms and restoring the original grade of the ponds (Kern County PCDD 2013). For beneficial re-use the produced water must be treated to meet stringent quality criteria, required by the CVRWQCB as part of the WDR and by the third party receiving the water, to ensure the viability of the crop for which it will be used, including low total dissolved solids and/or metals concentrations.

5.2 Source Water and Produced Water Quality Summary

The following summarizes the general character and sources of different waters and wastewaters used or produced during oil and gas operations, and is a brief summary of the water quality information presented in Section 5.1.

5.2.1 Produced Water Composition

Groundwater contained in oil production zones exhibits some of the characteristics of seawater, including high TDS (often above 10,000 mg/L, and sometimes exceeding 30,000 mg/L) and enrichment in sodium and chloride relative to the concentrations of other major ions. This results in groundwater contained in the oil-bearing formation being geochemically distinct from

shallower groundwater. Oil-zone associated water also appears to be distinctly low in sulfate. In the event of significant mixing of the oil zone (produced) waters and more shallow groundwater as a consequence of oil and gas production operations, the qualitative differences in the composition of oil zone waters and shallow groundwater could allow identification of such an impact through shifts in major ion proportions. However, a comparison of select trace ion data – barium and boron – suggests that trace elements commonly reported for both shallow groundwater and oil-zone waters may not necessarily furnish a means for identifying occurrences when the two are mixed. As indicated on Figures 3-17 and 3-18, both barium and boron are generally present at higher concentrations in produced water and oil zone water samples than ambient shallow groundwater. However, the differences appear to scale with TDS, limiting the value of both trace elements as definitive fingerprint species.

Stable isotopic data pertaining to shallow groundwater and oil-zone produced water were not assessed as part of this study, as such constituents generally do not present regulatory or environmental concerns. However, stable isotope data (e.g., $^{18}O/^{16}O$, $^{2}H/^{1}H$) may be useful for identifying and quantifying mixing of oil-zone produced water with shallow groundwater as a consequence of oil and gas operations.

5.2.2 Well Drilling and Servicing Operations

Well drilling, development and recompletion activities generate used drilling fluid (i.e., drilling mud), consisting of water (typically potable water) mixed with active solids (e.g., clay), inert solids (e.g., barite) and other additives. The additives can be for fluid loss control, density control, and viscosifiers (see Table 5-2). Other waste fluids include cement returns, formation water (high-TDS water from the oil-producing formation), and petroleum products (oil and gas). As of December 4, 2013, drillers using open pit drilling methods must remove drilling fluids and cuttings once the drilling activities are complete. The waste fluids and cuttings must be managed (disposed, recycled, re-used) in accordance with applicable California regulations.

5.2.3 Well Stimulation Operations

SB-4 well stimulation operations (hydraulic fracturing, acid matrix stimulation, and acid fracturing) utilize fresh water mixed with proppants and chemicals additives including acids, surfactants, biocides, pH stabilizers, gel breakers, clay and iron inhibitors, corrosion and scale inhibitors (Table 5-5). Some hazardous substances, such as benzene, ethylene glycol, and naphthalene may also be included in the above additives in small amounts (ALL Consulting 2012). Some of the fluid injected into the formation returns to the well (as flowback water) after the fracturing procedure has been completed. Flowback also includes formation water (high-TDS water from the oil-producing formation), and petroleum products (oil and gas). Of the different SB-4 regulated well stimulation operations, hydraulic fracturing is by far the most common in the Project Area.

5.2.4 Produced Water Handling Operations

Produced water generated during oil and gas extraction accounts for the largest amount (see Figure 5-1) of fluid handled in oilfield operations. Produced water can be treated and reused for enhanced oil recovery operations (waterflooding, steam injection and cyclic steam operations),

treated and provided for beneficial re-use, or disposed (injected into Class II UIC wells or applied to land).

Section 6: Water Quality Regulations

This section describes various regulatory requirements related to water quality protection for oil and gas exploration activities in the Project Area.

6.1 Overview of Regulations and Related Oil Field Activities

Table 6-1 summarizes the various regulations that govern oil and gas exploration and production activities.

6.2 Federal Regulations

This following summarizes various Federal programs and requirements related to water quality protection from oil and gas exploration activities.

6.2.1 The Clean Water Act (CWA) (33 United States Code (U.S.C. §1321 et seq.))

The Clean Water Act regulates the discharge of pollutants into surface waters, and allows for the delegation of authority for implementation to the states. The Clean Water Act is regulated under 40 CFR Chapter 1 Subchapter D, and includes the following programs:

6.2.1.1 Spill Prevention (40 CFR Part 112)

The Spill Prevention Control and Countermeasures (SPCC) rule provides requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans. Any facility capable of storing 1,320 gallons of oil, or more, must prepare an SPCC Plan. Facilities using underground tanks to store oil are exempt from this rule. Underground storage tanks are regulated by the State of California.

6.2.1.2 National Pollutant Discharge Elimination System Program (40 CFR Part 122 to 129)

As authorized by the Clean Water Act, the NPDES permit program regulates point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. The State of California administers the NPDES permit program on behalf of the USEPA.

6.2.1.3 National Toxics Rule (40 CFR Part 131)

40 CFR Part 131 describes requirements and procedures for developing and approving water quality standards by States. National Toxics Rule published as Federal Register 57 FR 60848 sets numeric criteria for priority toxic pollutants for inland surface waters. Along with the California Toxics Rule (Section 5.3.4.5 below), it is intended to limit the discharge of “toxics” into

navigable waters. The regulation specifies water quality criteria for 128 priority pollutants based on their toxicity to aquatic species.

The USEPA promulgated the California Toxics Rule (CTR) supplementing the National Toxics Rule (NTR), to limit the discharge of "toxics" into navigable waters. The SWRCB adopted a policy implementing the CTR in 2000 (Resolution 2000-015 as amended by Resolution 2000-30). The CTR specifies water quality criteria for 128 priority pollutants based on their toxicity to aquatic species. These criteria, as presented in the USEPA Federal Register (EPA 2000), are generally lower than NPDES discharge limits based on Basin Plan criteria.

6.2.1.4 The National Oil and Hazardous Substance Pollution Contingency Plan (NCP) (40 CFR Part 300)

The NCP is the United States' blueprint for responding to oil spills and hazardous substance releases. It documents national response capability and is intended to promote overall coordination among the hierarchy of responders and contingency plans.

6.2.1.5 Oil and Gas Extraction Point Source Discharge (40 CFR 435)

This section addresses regulations related to discharges of point source effluents from oil and gas extraction. The water discharged from onshore activities into surface streams should meet the requirements found in 40 CFR 435.30 et seq. and 40 CFR 435.50 et seq.

6.2.1.5.1 40 CFR 435.30 et seq.

This section addresses discharges from the "onshore" subcategory of the oil and gas extraction industry that are located landward of the inner boundary of the territorial seas. Section 435.32 states "there shall be no discharge of waste water pollutants into navigable waters from any source associated with production, field exploration, drilling, well completion, or well treatment" to the west of the 98th meridian. Unless wastewater discharge to the surface waters is subject to other provisions contained in 40 CFR 435, discharge of wastewater directly to navigable waters is not allowed.

6.2.1.5.2 40 CFR 435.50 et seq.

This section addresses onshore facilities "located in the continental United States and west of the 98th meridian for which the produced water has a use in agriculture or wildlife propagation when discharged into navigable waters". The term "use in agricultural or wildlife propagation" is defined in 435.51 to include produced water of sufficient quality to be suitable for agricultural use. Discharge would be subject to the limitations specified in 40 CFR 435.52, namely:

(a) There shall be no discharge of waste pollutants into navigable waters from any source, other than produced water, associated with production, field exploration, drilling, well completion, or well treatment (i.e., drilling muds, drill cuttings, and produced sands).

(b) The produced water does not exceed a daily maximum limitation for oil and grease of 35 mg/L.

In summary, 40 CFR 435 would allow discharge of oilfield produced waters into surface waters in Kern County, if the water quality is in compliance with designated beneficial use requirements and if the oil and grease levels are below 35 mg/L. However, discharge of other oilfield wastes (e.g., drilling muds, drill cuttings, and produced sands) into surface waters is prohibited.

6.2.2 The Oil Pollution Act (33 U.S.C. 2701 et seq.)

The Oil Pollution Act (OPA) of 1990 prescribes a prevention, response, liability and compensation program for oil pollution from vessels, offshore facilities, pipelines, and onshore facilities. Spill contingency plans are required for each facility where an imminent threat of discharges exists. 40 CFR Part 112 requires the development and maintenance of SPCC Plans. All oil production sites storing more than 1,350 gallons are required to maintain a SPCC. In July of 1996, USEPA issued a Spill Prevention and Reporting Compliance Guidance Plan Document which integrated all the various related rules and regulations into one compliance program.

6.2.3 The Safe Drinking Water Act (42 U.S.C. §300f et seq.)

The Safe Drinking Water Act (SDWA) of 1974 regulates the amount of toxic substances allowed in sources of drinking water. The injection of wastes and wastewaters into the subsurface through the UIC Program is regulated under 40 CFR Chapter 1 Subchapter D, Parts 144 to 147 (Section 1424 of the SDWA). The USEPA has provided DOGGR with primary authority (primacy) to implement the UIC Program for Class II disposal wells in California (see below). Class II UIC wells are used for the injection of produced water and other fluids associated with oil and gas production either as a means of either disposal or as an enhanced recovery fluid. The Class II UIC program sets well construction and testing requirements, and regulates the types and composition of fluids that can be injected.

6.2.4 Resource Conservation and Recovery Act (42 U.S.C. §6921-6992k)

RCRA Subtitle C (promulgated in 1976) regulates the generation, storage, treatment, transportation, and disposal of hazardous wastes. RCRA requires the issuance of a permit before hazardous waste may be treated, stored or disposed on a site. Most waste streams from exploration and production operations (such as produced water and drilling fluids) are exempt from RCRA Subtitle C; however, the generator is ultimately responsible for making that decision, in accordance with the regulations.

6.2.5 The Solid Waste Disposal Act (42 U.S.C. §6901 et seq.)

The Solid Waste Disposal Act establishes restrictions on the disposal of solid waste. Hazardous waste characterization of solid wastes, and disposal procedures and methods are regulated under 40 CFR Part 261 et seq. This section provides a definition of solid hazardous wastes and protocols to characterize hazardous wastes. Section 6.3.4 of this report provides additional details for disposal of hazardous wastes in California.

6.2.6 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. §9601-9662)

CERCLA addresses the release of hazardous substances and associated remediation. Petroleum is expressly excluded from the definition of hazardous substances under CERCLA. However, wastes containing individual constituents can be designated as a hazardous waste, if certain conditions and concentrations are met.

CERCLA regulations also include reporting requirements for releases of hazardous substances or wastes to the environment. USEPA regulates CERCA under 40 CFR Chapter 1 Subchapter J.

6.2.7 US Army Corps of Engineers 33 CFR 320

The Corps of Engineers is not normally involved in oil and gas exploration projects unless there is direct U.S. Government funding for the construction of a dam, or the project will result in the physical alteration of a navigable waterway. The Corps of Engineers generally relies on the California Department of Dams Safety to oversee construction of dam projects that do not involve federal funding.

6.2.8 National Environmental Policy Act (NEPA)

NEPA (42 U.S.C, Chapter 55, Section 4321) established in 1970, provides the national policy promoting the enhancement of the environment and also established the President's Council on Environmental Quality. The law is applicable to any federal, state, or local project that involves federal funding, work performed by the federal government, or permits issued by a federal agency. The act establishes a multidisciplinary approach to considering environmental effects in federal government agency decision making. The NEPA process consists of evaluating relevant environmental effects of a project or action, including a series of pertinent alternatives. Once a determination of whether or not the proposed action is covered under NEPA is made, there are three levels of analysis that can be undertaken to comply with the law: determination of whether a Categorical Exclusion applies (40 CFR Section 1508.4), preparation of an Environmental Assessment and Finding of No Significant Impact (40 CFR Section 1508.9); or preparation of an Environmental Impact Statement (EIS). The NEPA process could impact exploration and production operations conducted on Federal lands.

6.2.9 Emergency Planning and Community Right to Know (EPCRA)

The Emergency Planning and Community Right-to-Know Act (EPCRA) was passed by Congress in 1986 in response to concerns regarding the environmental and safety hazards posed by the storage and handling of toxic chemicals. The regulations impose requirements for federal, state and local governments, tribes, and industry to provide information about the storage of hazardous chemicals at a facility. These requirements include emergency planning and "Community Right-to-Know" reporting. States and local governments can use the information provided by facilities to improve chemical safety and protect public health and the environment.

Sections 301 to 303 require local governments to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts. Facilities that maintain Extremely Hazardous Substances (EHS) on-site in quantities greater than corresponding threshold planning quantities must cooperate in emergency plan preparation.

Section 304 requires facilities to immediately report accidental releases of chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities (RQs) defined under the CERCLA to state and local officials. Information about accidental chemical releases must be available to the public.

Sections 311 and 312 require manufacturing, processing, or storage facilities to retain Safety Data Sheets (SDSs) for all hazardous chemicals used / stored on-site. These facilities must also report inventories of on-site hazardous. Information about chemical inventories at facilities and SDSs must be available to the public.

Section 313 requires that facilities storing and/or handling one or more of the chemicals listed on the Toxics Release Inventory list above the applicable threshold quantities submit a toxic chemical release inventory form (Form R) annually.

Section 322 allows facilities to withhold the specific chemical information from the reports filed under sections 303, 311, 312 and 313, if the facility submits a claim with substantiation to EPA.

6.3 State of California Regulations

6.3.1 California Environmental Quality Act (14 CCR Division 2, Chapters 2)

CEQA (California Code of Regulation (CCR), Title 14, Division 2, Chapter 2 (California Public Resources Code §15000 et seq. and §21000 et seq.)) codifies a statewide policy of environmental protection. CEQA requires state and local agencies within California to assess and publically disclose potential environmental impacts from proposed projects and set procedures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California state and local agency's decision making process. Specifically, for any project under CEQA's jurisdiction, the lead agency must analyze impacts to 18 different environmental resource factors, including “Hydrology and Water Quality”, and for any identified potential significant environmental impacts, must develop mitigation measures or alternatives to reduce or avoid significant impacts if feasible, or make certain findings if mitigation measures or alternatives are not feasible. The analysis and associated mitigation measures are presented in an EIR, or a “Negative Declaration” or “Mitigated Negative Declaration”, and subject to public review and comment.

6.3.2 Oil and Gas Resource Regulations (14 CCR Division 2, Chapter 4)

DOGGR oversees the drilling, operation, maintenance, plugging and abandonment of oil, natural gas and geothermal wells throughout California. CCR, Title 14, Division 2, Chapter 4 (Development, Regulation and Conservation of Oil and Gas Resources) outlines many of the

regulations overseen by DOGGR. In general, these regulations are a guideline for operations to be conducted in accordance with good oil field practices and include:

- Approval of well operations and permits to drill,
- Guidelines for notices of intention to drill, deepen, re-drill, rework, or plug and abandon wells,
- Developing spill contingency plans pursuant to AB-1960 or United States Environmental Protection Agency (USEPA) regulations, and
- Submission of blowout prevention and control plans for certain critical or high pressure wells.

Further, these regulations are supplemented or superseded by “Field Rules”. If Field Rules are established, oil and gas operations shall be performed in accordance with those rules, and overseen by a Field Supervisor.

6.3.2.1 Section 1722 - Field Rules on Oilfield Spills

In August 1998, pursuant to CCR Title 14, Division 2, Chapter 4, Section 1722 (k), DOGGR in conjunction with the SWRCB and the California Department of Fish and Wildlife (CDFW) developed Field Rules that establish volumetric thresholds for reporting discharges of oil to land. The purpose of the Field Rules is to establish reasonable crude oil spill reporting criteria while protecting public health, safety, and the environment. This “Field Rule” (Oil Spill Reporting Criteria) is applicable to Kern County within existing oil and gas fields, as defined by DOGGR. In general, a spill greater than one barrel in volume, occurring on any site without containment, in urban areas, into waters of the United States; or that threatens waters of the United States; or that threatens wildlife or habitat must be reported. However, in areas where a major portion of the oil is highly viscous, with flat terrain and minimal potential impacts to navigable water, habitat or wildlife, operators must report:

1. Spills of five barrels, or more, of crude oil unless the spill occurs within a contained area and is less than ten barrels.
2. Spills of ten barrels or more that occurs within a containment area. (Containment refers to a specific system of dikes or fire walls capable of containing the volume of the largest tank to direct fluids to a preferred collection point.)

Subchapter 1 of Chapter 4, including AB 1960 Amendments, provides requirements related to construction and operation of onshore wells, including the selection of drilling fluids, plugging methods to protect fresh water sources; monitoring and testing requirements during well stimulation treatments; and well closure procedures. This subchapter provides standards for minimizing environmental impacts from potential accidental releases, including guidelines for managing oilfield sumps and open channels, leak detection and testing of aboveground storage tanks, secondary containment around tanks and containment structures, and preparing spill contingency plans.

6.3.2.2 Underground Injection Control Program

The injection of wastes and wastewaters into the subsurface through the UIC Program is regulated under 40 CFR Chapter 1 Subchapter D, Parts 144 to 147 (Section 1424 of the SDWA). In 1981, the USEPA provided DOGGR with primary authority (primacy) to implement the UIC Program for Class II disposal wells in California. In 1983, DOGGR under authority from USEPA, established portions of the groundwater basin as exempt from drinking water standards. The "aquifer exemptions" are based on naturally-occurring elevated concentrations of TDS, and/or the presence of oil in the formation. Since 1983, DOGGR has approved one additional exemption in the project area for the Asphalto oil field. Exempted aquifers are illustrated on Figure 3-8.

Class II UIC wells are used for the injection of produced water and other fluids associated with oil and gas production either as a means of disposal or as an enhanced recovery fluid (e.g., waterflooding, steam flooding, cyclic steaming). The Class II UIC program sets well construction and testing requirements, and regulates the types and composition of fluids that can be injected. It also sets the requirements for permitting and managing waste disposal.

Injection zones are porous and permeable enough to accept injected fluids. The selected zone must be covered by an impermeable formation, like shale, that act as cap rocks, confining injected fluids in the porous beds. The water quality in the injection zone must be designated not suitable for domestic or municipal use; or the aquifer determined not suitable for development as a water supply source.

Injection wells are monitored by DOGGR engineers to ensure the wells are operated properly and have mechanical integrity. Monitoring includes reviewing operational data and running tests like Mechanical Integrity Tests (i.e., spinner, temperature, and pressure tests and tracer surveys).

6.3.2.3 Facility Maintenance Standards (California Assembly Bill 1960)

In 2009, AB 1960 introduced some changes to the regulations (14 CCR, Chapter 4) related to drilling and abandonment of wells, and operation of production facilities. AB 1960 requires DOGGR to prescribe minimum facility maintenance standards for production facilities, including leak detection, corrosion prevention and testing, tank inspection and cleaning, valve and gauge maintenance, and secondary containment maintenance. AB 1960 requires facility operators to:

- notify the supervisor of the construction, alteration, or decommission of a production facility;
- maintain at the production facility's local office all specified production records; and
- provide access to, and copies of, these records to the supervisor.

The regulations also require DOGGR to inspect a production facility to ensure compliance with the standards and issue a cease and desist order to any production facility operating in violation of the prescribed standards.

6.3.3 Well Stimulation Treatments (California Senate Bill No. 4, Chapter 313)

On September 20, 2013, Governor Brown signed into law SB 4, widely considered one of the most comprehensive regulations in the nation governing well stimulation operations. SB 4 requires the DOGGR to consult with the DTSC, California Air Resources Board, SWRCB and various other state and local agencies as it develops its regulations. Formal agreements between the agencies apportioning authority, responsibility and other matters between the agencies are to be entered into by January 1, 2015.

The Bill requires an operator to apply for a permit with the Field Supervisor at least 10 days prior to performing a regulated well stimulation treatment and to record and include all data on acid treatments and hydraulic fracturing treatments, as specified. Also required is disclosure of the composition and disposition of well stimulation fluids, including, but not limited to, hydraulic fracturing fluids and acid stimulation treatment fluids (Section 2, Article 3, 3160). This Bill also requires DOGGR to prepare an EIR to analyze the impacts of well stimulation treatments and adopt rules and regulations specific to well stimulation, including oversight of well construction and full disclosure of the composition and disposition of well stimulation fluids, and authorize the division to allow well stimulation treatments if specific conditions are met (Section 2, Article 3, 3161).

SB 4 requires the SWRCB to develop groundwater monitoring model criteria establishing how to conduct appropriate background groundwater monitoring in the vicinity of individual oil and gas wells subject to a well stimulation treatment. The purpose of the background monitoring program is to establish means and methods for determining impacts to potable water resources, thereby establishing a program for protecting waters designated for beneficial uses. There is a further requirement to report the amount of treatment-generated waste material and identified disposal methods.

SB-4 requires that by January 1, 2015, an independent scientific study be completed on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation. The scientific study shall evaluate the potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. Also, on or before January 1, 2015, the DOGGR is required to enter into formal agreements with the DTSC, the AQMD, the SWRCB, the CVRWQCB, and the Department of Resources Recycling and Recovery to delineate respective authority, responsibility, and notification and reporting requirements associated with well stimulation treatments and related activities.

6.3.4 Hazardous Waste Control Law (22 CCR subsections 66261)

Administered by Department of Toxic Substances Control (DTSC), the regulation sets requirements for generators of hazardous waste.

- Generators must determine if their waste streams are hazardous by characteristic or listing under the program.
- Generators must obtain identification numbers from DTSC for California-only hazardous wastes and from USEPA for RCRA hazardous wastes.

- Generators must follow specific requirements for storing, handling and treating hazardous wastes. The generator is responsible for: (1) determining that a transporter is licensed; (2) that the receiving facility is properly permitted; and (3) the shipping manifest is properly prepared.

Disposal of any hazardous wastes from oil field operations or other activities must be in compliance with DTSC requirements. The DTSC requires that for a waste to be considered non-hazardous, it must be in compliance with 40 CFR 261 and must be in compliance with acute toxicity test (22 CCR subsections 66261.24[a]) criteria:

- the acute oral LD_{50} (the dose causing 50 percent mortality) must be greater than 2,500 milligrams per kilogram (mg/kg)
- the acute dermal LD_{50} must be greater than 4,300 mg/kg
- the acute inhalation LC_{50} must be greater than 10,000 parts per million as gas or vapor
- the acute aquatic 96-hour LC_{50} (lethal concentration causing 50 percent mortality) is greater than 500 mg/L when measured in soft water (total hardness 40 to 48 mg/L of calcium carbonate) with fathead minnows (Pimephales promelas), rainbow trout (Salmo gairdneri) or golden shiners (Notemigonus crysoleucas).

If a waste is found to be hazardous based on the above tests, the end user can submit an application to a local Certified Unifier Program Agency (CUPA) to allow on-site treatment of the waste. The CUPA may provide a conditional authorization for neutralization on a case by case basis. Otherwise, the waste must be disposed off-site at a hazardous waste facility permitted to accept the subject waste.

6.3.5 Porter-Cologne Water Quality Control Act (California Water Code [CWC] Sections 13020 et seq.)

Similar to the Safe Drinking Water Act, the Porter-Cologne Act is the primary statute governing water quality and water protection in California. The authority for the State to regulate wastewater discharges comes from the Porter-Cologne Water Quality Control Act. It established the SWRCB and nine RWQCBs, including the CVRWQCB. The CVRWQCB is the principal regulatory agency responsible for overseeing the discharge of any water that could impact water resources in Kern County. The Porter-Cologne Act gives the SWRCB and the RWQCBs the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanups of hazardous materials or pollutants.

6.3.5.1 Basin Plans and Beneficial Uses (CWC Section 13240)

The CVRWQCB is responsible for implementing the California Water Code, and has adopted a Water Quality Control Plan for the Tulare Lake Basin (CA RWQCB, 2004). As described in Section 3.4, the “Basin Plan” identifies the beneficial uses of the various existing water resources in the region, including surface and ground water and sets narrative and numerical water quality objectives for designated uses. The beneficial use designations for the water

bodies in Kern County include Municipal and Domestic Water Supply (MUN), Agricultural Water Supply (AGR), Industrial Water Supply (IND), and others.

The Implementation Plan section of the Basin Plan addresses Oil Field Wastewater and presents oil-water separation and use of sumps for controlling discharges. In addition, the Basin Plan defines narrative and numeric criteria for groundwater recharge and agricultural use when the water is not delivered to a surface water body. The CVRWQCB may require that oilfield produced water be treated to meet the applicable narrative and specific numerical water quality objectives identified in the Basin Plan prior to discharge.

Under certain circumstances, the CVRWQCB may provide an exception to the beneficial use designation by applying the criteria in SWRCB Resolution No. 88-63, “Sources of Drinking Water Policy.” The criteria governing those exceptions are:

- "The total dissolved solids (TDS) exceed 3,000 mg/L (5,000 [micromhos per centimeter,] umhos/cm, electrical conductivity) and it is not reasonably expected by the Regional Water Board [for the ground water] to supply a public water system, or

- There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or

- The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day, or

- The aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 CFR, Section 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR Section 261.3."

Per the above exceptions, CRWQCB Basin Plan rules will not be applicable to injection of oil and gas field wastes in oil and gas fields as long as these wastes are not hazardous and are being injected into an exempt aquifer.

6.3.5.2 Anti-degradation Policy (23 CCR 2900 – Resolution 68-16)

The SWRCB adopted an anti-degradation Policy in the late 1960s to maintain the quality of existing water resources. Under this policy (Resolution 68-16), discharges must not cause a degradation of the existing quality of the receiving water unless it has been demonstrated that the change will be consistent with maximum benefit to the people of California, that it will not unreasonably affect the present and anticipated beneficial use of such water, and that it is consistent with other parts of the California Water Code. In addition, the discharger must demonstrate that Best Practicable Treatment or Control (BPTC) will be implemented. The anti-degradation analysis is generally provided by the discharger to CVRWQCB staff before a discharge is authorized.

6.3.5.3 Surface Water Disposal (CWC Section 13260 to 13275)

California regulations for wastewater discharge to surface water are based on the federal Clean Water Act. The USEPA has delegated authority to implement the Clean Water Act and issue discharge permits to the SWRCB and RWQCBs. Authorization from the CVRWQCB is required for any discharge that may have an impact on the region's surface water resources. Authorization is in the form of a NPDES permit or, for discharges not subject to federal NPDES permitting, state Waste Discharge Requirements (WDRs). This permit sets water quality standards for discharges to surface water bodies (navigable waters).

6.3.5.4 Land Disposal (CWC Section 13260 to 13275)

The CVRWQCB issues WDRs to govern non-hazardous waste discharges to the ground surface where no surface water bodies will be directly impacted, or where groundwater will be impacted. The terms in the WDRs are established to protect the beneficial uses of underlying groundwater and implement other requirements of the Basin Plan. Title 22 CCR 66261 establishes the criteria to determine whether a waste is classified as hazardous or non-hazardous. For discharges to land, non-hazardous wastes are further evaluated to determine whether the waste has concentrations of constituents that are higher than the water quality objectives for underlying groundwater or could impact beneficial uses. Based on this evaluation, wastes may be termed "Designated waste" and regulated under Title 27 CCR. Title 27 wastes have additional restrictions regarding siting of discharge locations, construction standards for storage impoundments, monitoring, and other management factors.

The CVRWQCB requires a WDR for beneficial re-use of the produced water when delivered as a beneficial re-use to a qualified end user. The treated water must meet the following water quality criteria:

- Crop water quality requirements
- Water quality requirements of the CVRWQCB Basin Plan

Different requirements exist for waters delivered through an established surface water body or through a fixed delivery system (e.g., piping).

In 1982, the CVRWQCB waived requirements for numerous broad categories of discharges, including the discharge of all types of drilling muds and boring wastes (drilling wastes). In 1999, those waivers became subject to an automatic 5-year termination schedule, which would apply unless the waiver was periodically renewed. In 2003, and again in 2008, the CVRWQCB renewed the drilling waste waiver. In December 2013, the Board passed Resolution R5-2013-0145, approving a waiver of Reports of Waste Discharge (RWDs) and Waste Discharge Requirements (WDRs) for specific types of discharge within the Central Valley Region. The Board reviewed the conditions for the "drilling muds/boring wastes waiver" category (Waiver Category No. 2 included in R5-2008-0182), which applied to wastes generated from both fresh water supply well and oil and gas well drilling. The Board considered potential impacts to water quality based on numerous factors and determined that Waiver Category No. 2 should be renewed only for fresh water supply well wastes; stating that discharge of drilling muds/boring wastes from oil and gas operations will be considered in a separate action. Concequently, drilling wastes associated with oil and gas exploration must be removed from open sumps upon

completion of the drilling activities and managed according to existing handling and disposal regulations.

6.3.6 Surface Impoundments

Due to potential differences in supply and demand for produced water, surface impoundments may be needed to store produced water generated during non-peak demand periods.

6.3.6.1 Siting (27 CCR, Section 20240)

This section provides siting criteria for surface impoundments containing solid or liquid wastes. An exemption from this requirement is available if the waste meets the criteria for an "inert waste" as defined by 15 CCR §2524. An "inert waste" is a subset of waste that does not contain hazardous substances or soluble pollutants at concentrations in excess of applicable water quality objectives and does not contain significant quantities of decomposable waste.

6.3.6.2 Dam Safety (23 CCR, Division 2, Chapter 1)

The Division of Safety of Dams (DSD) would be involved with any project that creates a structure to impound water in a navigable waterway as defined by EPA if the structure is greater than 25 feet high or the impoundment contains more than 50 acre-feet of water. In this role, the DSD would ensure that the structural integrity of any jurisdictional dam (storage structure) is adequate for its intended purpose.

6.3.6.3 Wildlife Protection

Any structure that diverts, obstructs or changes the bed, channel or bank of a waterway would require a streambed alteration permit from the California Department of Fish and Wildlife (CDFW). In addition, CDFW is responsible for ensuring sufficient water flow downstream of any water diversion point at all times in order to protect fish and wildlife resources. (Section 5937, Article 2, Chapter 3, Part 1, Division 6 of the California Fish and Game Code). Approval from the CDFW may be required to obtain water appropriation by an end user.

6.3.7 Storm Water Discharge Regulations

Non-construction-related storm water discharges from oil and gas fields in Kern County are regulated by CVRWQCB. Mostly, these releases are regulated through a the state general industrial storm water permit. Facilities exempted from coverage by the general permit include:

i. those whose storm water discharges are covered by other individual, industry-specific or general NPDES permits,

ii. facilities that a RWQCB believes will potentially impact water quality that may not be appropriately addressed by the General Permit and require an individual permit,

iii. facilities that do not discharge storm water into surface waters (e.g., those facilities that discharge storm water into sanitary sewers), and

iv. discharges from oil and gas facilities composed entirely of flows that are from conveyances or systems of conveyances used for collecting and conveying precipitation runoff and do not come into contact with any overburden, raw materials, intermediate products, finished products, by-products, or waste products located at the facility.

Broadly, the state's General Permit prohibits discharges of material other than storm water (non-storm water discharges) that are not authorized by the General Permit and discharges containing hazardous substances in storm water in excess of reportable quantities established under 40 CFR 117.3 and 40 CFR 302.4. NPDES Permits for storm water discharges must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using best available technology (BAT) that is economically achievable for toxics and non-conventional pollutants, the BACT to prevent and reduce pollutants; as well as any more stringent controls necessary to meet water quality standards. Further, storm water discharges shall not cause or contribute to a violation of an applicable water quality standard of the receiving stream. As part of general permit compliance, all facility operators must prepare, retain on site, and implement a Storm Water Pollution Prevention Plan (SWPPP).

The general permit provides additional details for notification and monitoring requirements, records retention and the operator's compliance responsibilities.

6.3.8 Oil Spills

In June 2014, California passed Senate Bill 861 (SB 861), requiring the Department of Fish and Wildlife Office of Spill Prevention and Response to develop emergency response programs throughout the State to respond to oil spills that could potentially impact the waters of the state. This bill expands the California oil spill contingency plan and the administrator's responsibilities relating to oil spills to cover all waters of the state (inland and coastal). The bill imposes a state-mandated local response program and requires that the California oil spill contingency plan provide for the best achievable protection of all state waters, not solely coastal and marine waters. The bill requires the regulations provide for the best achievable protection of all waters and natural resources of the state. The additional emergency response actions, which a required to be adopted by January 1, 2017, will include activities associated with exploration, transportation (via rail, pipeline, truck, etc.), refining and storage of petroleum products.

6.4 Kern County Regulations

The Kern County Public Health Services Department, Environmental Health Services Department is the CUPA for Kern County. The CUPA administers six specific state hazardous materials programs under one agency. The CUPA for the County of Kern is the Environmental Health Services Department; whereas, the CUPA for the city of Bakersfield is the Bakersfield Fire Department. Under CUPA, site inspections of the six hazardous materials programs (above ground storage tanks, underground storage tanks, hazardous waste treatment, hazardous waste generators, hazardous materials management and response plans, and the California

Fire Code) are consolidated and accomplished by a single entity. The CUPAs also provide emergency response to hazardous materials release events.

6.4.1 Aboveground Petroleum Storage Act (APSA)

The APSA requires development of an SPCC and reporting of any spill or leak in excess of one barrel. The CUPAs are responsible to implement the APSA. Spill reporting is made to the appropriate CUPA, depending on the location of the spill. However, oilfield tanks are exempt from the ASPA since they are regulated by DOGGR, under AB-1960. Each oilfield has a spill response plan to address the issues covered under ASPA.

6.4.2 California Accidental Release Program (CalARP) (19 CCR Ch. 4.5, Section 2735.5)

CalARP is designed to minimize the risk of extremely hazardous substances that potentially cause immediate harm to the public and the environment. CalARP requires owners/operators of businesses handling one or more regulated substance over the State and/or Federal threshold to evaluate and determine potential impacts of an accidental release. Facilities must submit a Risk Management Plan (RMP) to the CUPA. The RMP identifies the potential accidental factors; and preventative measures and safeguards are incorporated into facility operations.

6.4.3 Groundwater Production and Monitoring Wells (County Ordinance Code, Chapter 14.08)

Kern County requires permits to install water monitoring and groundwater production wells. Prior to approving the installation of a new well or using an existing well as a monitoring well, the County will conduct an inspection of the well site to verify that the well meets the specified requirements.

Section 7: Water Quality Impacts Assessment

This section provides an assessment of the potential impacts to local surface and ground water quality resulting from current and future oil and gas operations in the Project Area. The assessment for potential impacts is based on the release mechanism, migration pathways, and the differences in water quality between the released fluid and the receiving water body. The assessments in this section are intended to describe the types of potential impacts and their possible magnitude and likelihood as a technical matter, but does not utilize CEQA thresholds of significance or reach CEQA significance conclusions. This will be determined by Kern County as lead agency based on the technical analyses.

7.1 Water Quality Impacts from Oil and Gas Operations

The following presents potential impacts from oil and gas operations to water quality (surface water and groundwater) resources, including:

- Fresh water - surface water and groundwater that is designated to have a beneficial use and contain less than 3,000 mg/kg TDS.

- Non-fresh water – surface and groundwater bodies containing greater than 3,000 mg/kg TDS, and administratively exempt aquifers, and aquifers that would require significant advanced treatment technologies to meet drinking water quality standards.

Potential impacts to surface water or groundwater quality can result from the various operations involving the handling of fluids at the drill site, as well as oil and wastewater (e.g., flowback, produced water) that are generated from the oil- and gas-producing wells. The water process flow diagram (Figure 5-2), summarizes the major process steps where there is a potential for impact on water quality. The assessment includes potential impacts to surface soil (residual contaminants adsorbed to soil can impact local surface water quality through erosion and run-off, as well as shallow groundwater through infiltration); surface water (direct impact from surface releases), shallow groundwater (through infiltration and direct contact from downhole releases), and deep (below the Corcoran Clay and/or below the fresh water interface) groundwater (direct contact from downhole releases).

Release mechanisms, magnitude, type of release, potential impacts and regulatory controls and best management practices associated with each production operation (process) are summarized in Table 7-1. Additionally, the tables include a “Description of Potential Impact” to characterize the water quality change that may be observed in the event of the release (e.g., elevated concentrations of certain constituents). The listed potential magnitude of any release scenario is a qualitative assessment that is relative to the operation and the potential volume of fluid handled or stored, and is qualitatively evaluated as either small, medium or large. Absolute, quantitative impact assessments are (1) highly site- and activity-specific, and (2) dependent on the scale of oil and gas operations in the future. Consequently, quantitative impact predictions from potential release events were not undertaken.

The intent of the Table 7-1 is to provide a comprehensive list of the possible impacts to surface water and groundwater quality that could result from intentional or unintentional, direct or

indirect, release of fluids that is used or produced by the oil and gas industry in the Project Area. The list of impacts in Table 7-1 presents the reasonably foreseeable potential impacts, although it may not capture every possible impact or every impact from unforeseen circumstances. The evaluation of impacts does not include potential impacts to groundwater quality or purchased water quality over time from long-term acquisition (i.e., surface or groundwater withdrawal for water supply to oil and gas operations) because the volume of fresh water acquired for oil and gas exploration represents only a few percent of the total volume of fresh water used in in the Project Area. Impacts directly related to disposal to land surface or UIC wells are not addressed because these operations is controlled under regulated programs designed to protect groundwater quality.

7.1.1 Potential Impacts from Well Installation

Potential impacts from well installation activities are related to accidental releases during mixing and handling operations, as well as fluid loss during drilling. Chemicals used to create drilling muds can be accidentally released to the surface in dry or liquid form and impact surficial soils. In 2012, well construction operations used between 500 barrels and 1,900 barrels of water (21,000 to 80,000 gallons) on average, which represents a small amount of water when compared to other oilfield activities.

Releases to the surface during drilling activities are likely to occur due to failures in piping, joints or valves, and response to these releases is expected to be quick since the rigs are staffed 24 hours per day and workers are trained in spill response; thereby limiting the volume of fluid lost to the environment to a small quantity. Impact to shallow groundwater, through infiltration, is expected to be minimal because drilling fluids tend to be self-sealing and do not infiltrate far into the formation.

Drilling muds can be lost to the formation when an unexpected highly permeable formation, or fracture, is encountered, resulting in a very localized impact to water contained in the formation. Loss of these fluids is detrimental to the drilling operations; consequently, drilling operators continuously monitor mud volumes and pressures to quickly identify these occurrences and minimize their duration and impact. Additionally, drilling muds, associated chemicals, and fluids from the production zone (oil and produced water) could seep into water bearing formations if the casing seals are improperly set or fail.

7.1.2 Potential Impacts from Well Servicing

Potential impacts from well servicing are similar to those presented for well installation, but with even less impact. Impacts from oil and oily water could occur during removal of well pumps and blow-out equipment. A release of fluids stored in aboveground tanks (during use or associated with treatment prior to disposal) could impact surface soils, nearby surface water bodies and shallow groundwater (through infiltration), and would likely trigger an incident response. In 2012, well rework operations used between 140 barrels and 470 barrels of water (5,900 to 19,800 gallons) on average, which represents a small amount of water when compared to other oilfield activities. Response to surface releases is expected to be quick since crews are on-site at all times while wells are being serviced; thereby limiting the volume of fluid potentially lost to the environment to a small quantity. Impact to shallow groundwater, through infiltration, is expected to be minimal.

7.1.3 Potential Impacts from Well Stimulation

Impacts from SB-4 regulated well stimulation operations include accidental surface releases during chemical mixing or fluid storage (pre- or post-fracturing operations); surface releases related to the sudden failure of a tank, valve, or hose; and subsurface releases during well pressurization. In 2012, SB-4 related well stimulation operations used between 1,900 barrels and 16,200 barrels (80,000 gallons to 680,000 gallons) of water per hydraulic fracturing event, which represents a small amount of water when compared to other oilfield activities.

Responses to incidental surface releases are expected to be quick, resulting in limited volumes of fluids being lost to the environment Sudden releases due to equipment failure (e.g., tank rupture, piping or valve blow-out during pressurization) could be significant and result in impacts to surface soils, nearby surface water bodies, and shallow groundwater (through infiltration). Releases to the surface can also occur during disposal operations, due to equipment failure, with the same results.

Subsurface releases can occur either through the geologic formation, or as a result of well failure. Propagation of fractures beyond the intended lateral (in the case of vertical well fracturing) or vertical (in the case of horizontal well fracturing) limits can result in movement of the fracturing fluids outside the intended geologic formation, and could result in the migration of fluids along a bedding plane or fault to a separate hydrocarbon or water-bearing zone. The likelihood of this type of release is low and the impact is anticipated to be insignificant, due to dilution of the fracturing fluid as it migrates. SB-4 requires that fracture propagation be modeled prior to each project and compared to know geologic features (bedding planes, formation boundaries, faults, etc.) to assess the potential for impact. The assessment is submitted to the DOGGR as part of the permit application. SB-4 also requires that fracture propagation be monitored on every fracturing project to assess the impact relative to the permitted criteria. Additionally, during hydraulic fracturing, fluid and casing annulus pressures are closely monitored and the project is immediately terminated if a sudden decrease in fluid pressure is observed; or if casing annulus pressures exceed certain set points. Therefore, the volume of fluids lost to an uncontrolled subsurface release is expected to be minimal.

A release that results from a well casing rupture would be more significant, depending on the volume of material released and where the casing fails. If the intermediate casing fails, high pressure fluids can be forced up the wellbore and out into the deep groundwater aquifer. This could result in a potentially significant impact to groundwater quality in the immediate vicinity of the well. Again, the volume of fluid being release is expected to be minimal as hydraulic fracturing operations include closely monitoring fluid pressures and terminating operations when a change in pressure, outside the monitoring criteria is observed. Chemicals contained in the hydraulic fracturing fluids (Tables 5-4 and 5-5) could migrate away from the well depending on the volume of materials released, and over the course of several years, nearby surface waters or groundwater wells. Constituents typically contained in hydraulic fracturing fluids include small volumes of acids, biocides, corrosion inhibitors, gels and viscoifiers, scale inhibitors, surfactants and pH adjusting agents. The acids, biocides and gels are typically common chemicals used in water wells and are expected to degrade or attenuate over a short period of time. The surfactants and pH adjustment compounds are common household chemicals and not expected to represent a risk to shallow or deep groundwater aquifers. The corrosion and scale inhibitors, which are common in municipal water well treatment programs, are expected to break down slowly and could impact groundwater for an extended period of time. However, most of the

compounds used in hydraulic fracturing are added to the well in a very dilute concentration. Considering the amount of mixing that would occur if these compounds were released to groundwater, their resulting concentrations are expected to be very low.

7.1.4 Potential Impacts from Handling Produced Water

Impacts from the capture of production fluids and any subsequent treatment, re-use and disposal of produced water include small to very large releases related to equipment failure (e.g., tank, valve, or piping); incidental discharge to the surface or nearby water body; and subsurface releases related to discharge of fluids to land or injection into disposal wells. In 2012, approximately 238,000 acre-feet of produced water was generated within the project area, as a result of oil and gas production activities. Produced water represents approximately 96% of all of the water handled as part of oilfield operations.

Accidental releases of oil, oily water, or produced water within the oilfield operations areas are expected to be small/minor and not result in a significant impact. Most small to medium releases are expected to be contained inside secondary containment areas (AB-1960 requires secondary containment for tanks and some piping, and surface control features for piping that is not secondarily contained) and not have a significant impact to surface water or groundwater quality. Incident response actions will likely include capture and treatment of the spilled fluid as well as remediation of impacted soils. A sudden release from a pipeline could impact a nearby surface water body and/or shallow groundwater (through infiltration), resulting in an incident response, remediation and monitoring.

Releases to the surface may occur during disposal, if operations include land application. Disposal to land is controlled by WDRs that protect surface water and groundwater quality.

Impacts to groundwater can also occur as a result of well failure during the injection/disposal of the produced water. The impact could be minor to significant, depending on the volume of material released and which well casing fails. High pressure fluids can be forced up the well annulus, outside the casing and out into the deep groundwater aquifer. This could result in a significant impact to groundwater quality in the immediate vicinity of the well if the native groundwater is of higher quality than the produced water.

7.2 Salt Loading

A potential water quality-related impact stemming from oil and gas operations includes additional salt loading to shallow groundwater beyond those currently associated with other industrial activities. Compared to the maximum TDS concentrations in the shallow and deep groundwater zones, the long-term loading from untreated produced water represents a relatively small impact. To quantify maximum salt loading rates at the scale of individual oil fields, produced water quality data for selected oil fields (principally in the western region of the study area) and produced water volumes were used to quantify annual mass loading rates for each constituent. These fluxes (kilograms per year, kg/yr) are summarized in Table 7-2. The calculations conservatively assume that 100 percent of produced water is discharged to groundwater, either by design or by accident, without being subject to treatment. For comparison, a second set of constituent-based mass fluxes was calculated assuming evaporation of 99 percent of the produced water (and subsequent removal of precipitated salts)

prior to recharge to groundwater. The brine composition used to quantify this set of mass fluxes was estimated using the USGS PHREEQC geochemical model (Parkhurst and Appelo 2009) and its brine chemistry database; modeled precipitates include calcium and magnesium carbonates, sodium bicarbonate, calcium sulfate, and sodium chloride.

Changes in salt concentrations in shallow groundwater as a result of salt loading were calculated for a subset of four oil fields with specified finite thicknesses of fresh groundwater (Table 7-3). The calculations assume that the salt fluxes specified in Table 7-2 are mixed across a portion of a potable aquifer corresponding to the freshwater zone thickness and the areal extent of the oil field (refer to Section 4, Table 4-5), assuming an average porosity of 0.2. It should be noted that the impact of any release of produced water to a potentially potable shallow aquifer will be scale-dependent. Potable wells in close proximity to a release would be expected to measure the greatest impact, whereas the *spatially-averaged* impact across an aquifer or an entire sub-area as defined in this assessment (e.g., East, Central, or West) may be greatly diluted. The scale of an individual oil field, as used for the analysis in Table 7-3, is intended to represent an intermediate scale, with the data for the four West sub-area example oil fields providing some constraint on the expected magnitude of salt fluxes under the assumed release scenario. As indicated in Table 7-3, the expected increase in TDS concentration in shallow groundwater ranges from less than 0.1 mg/L to 51 mg/L when no water treatment is assumed prior to discharge.

Any salt-loading associated with discharges of untreated or partially-treated process water is only one portion of a much broader, well-recognized salt balance problem affecting groundwater resources in the Central Valley in general. Specifically, the potential contributions of salt mass to potable groundwater resources must be viewed in the context of present and future agricultural practices, demands on groundwater for municipal water supply, and groundwater banking strategies.

7.3 Impacts Summary

The majority of the releases identified in Table 7-1 that could impact water quality can be grouped into three main categories:

- Accidental above-ground spills and leaks to surface water or groundwater (e.g., treated or untreated flowback and produced water, drilling fluids, chemical-water mixtures);
- Accidental releases to groundwater from failed construction or operation of oil and gas wells (e.g., drilling fluids, well stimulation fluids); and
- Accidental releases to groundwater during disposal of the produced water (i.e., infiltration from evaporation ponds, failure of UIC disposal well).

On this basis, impacts to surface waters in the Project Area would generally be limited to accidental above-ground spills and leaks that are significant enough to reach a surface water, if nearby.

Impacts to groundwater in the Project Area can potentially occur from above-ground spills and leaks (through infiltration), failure of well casings (production or disposal) that result in releases

to a different geologic formation than intended, as well as the permitted discharges to groundwater (i.e., land disposal). In Table 7-1, impacts to groundwater are described as potentially influencing either the shallow or deep groundwater within each of the three geographic sub-areas. Where the confining clay unit occurs (in parts of the West and Central sub-areas), “shallow” or “deep” refers to the zones above or below the unit. Where there is no confining clay unit, there is more potential for impacts to shallow groundwater to eventually reach deep groundwater.

Substances that could be released to groundwater through these release scenarios principally include major cations and anions – particularly sodium and chloride – associated with high-TDS oil-zone waters, along with hydrocarbons. Impacts associated with these categories of substances are likely to differ in scale: releases of salts are not likely to appreciably impact groundwater concentrations over existing background levels unless releases are very large and/or are continuous for a long period of time, whereas detections of constituents likely to be directly attributable to oil and gas operations (e.g., hydrocarbons, hydraulic fracturing chemicals) would presumably be associated with smaller releases. In the case of hydraulic fracturing chemicals and substances associated with other enhanced oil recovery operations, predicting future impacts associated with releases from these processes is difficult because the chemicals used change in response to technological developments as well as process economics. Additionally, chemicals may be altered or degraded as they migrate through the subsurface.

References

AKL Services, Inc. 2014. Caylx Tank Battery Design. [http://www.aklservices.com, retrieved 4 March 2014]

ALL Consulting. 2012. The Modern Practice of Hydraulic Fracturing: A Focus on Canadian Resources. ALL Consulting, Tulsa, Oklahoma. June 2012.

API. 1997. *Environmental Guidance Document: Waste Management in Exploration and Production Operations*. American Petroleum Institute. API E5. February 1997.

API. 2002. Specifications for Cements and Materials for Well Cementing, Includes Addendum 1. American Petroleum Institue. API Specification 10A. April 2002.

API. 2009. *Water Management Associated with Hydraulic Fracturing Operations-Well Construction and Integrity Guidelines*. American Petroleum Institute. API Guidance Document HF1. October 2009.

API. 2010. *Water Management Associated with Hydraulic Fracturing*. American Petroleum Institute. API Guidance Document HF2. June 2010.

Bartow, A. 1991. *The Cenozoic Evolution of the San Joaquin Valley, California*. U.S. Geological Survey, Denver, CO. USGS Professional Paper 1501.

Bartow, A. and McDougall, K. 1984.*Tertiary Stratigraphy of the Southeaster San Joaquin Valley, California*. U.S. Geological Survey, Washington, D.C. USGS Bulletin 1529-J.

Bommer, P. 2008. *A Primer of Oilwell Drilling, Seventh Edition*. University of Texas.

Burton, C.A. and Belitz, K. 2012. *Groundwater Quality in the Kern County Subbasin, California*. U.S. Geological Survey and the California State Water Resources Control Board, Sacramento, CA. USGS Fact Sheet 2011-3150. June 2012.

CA DWR. 2003. *California's Groundwater*. California Department of Water Resources. Bulletin 118, Updated 2003.

CA DWR. 2006. *San Joaquin Valley Groundwater Basin, Kern County Subbasin*. California Department of Water Resources. California's Groundwater - Bulletin 118. 20 January 2006.

CA DWR. 2013. *California Water Plan Update 2013 - Public Review Draft*. California Department of Water Resources. [Available at: http://www.waterplan.water.ca.gov/cwpu2013/prd/index.cfm, retrieved 28 February 2014]

CA DWR. 2013. *Public Draft Bay Delta Conservation Plan Environmental Impact Report/Environmental Impact Statement (EIR/EIS)*. Prepared by ICF International (ICF

00343.12). [Available at: http://baydeltaconservationplan.com/PublicReview/PublicReviewDraftEIR-EIS.aspx, retrieved 10 April 2014]

CA DWR. 2014. Water Data Library. California Department of Water Resources. [Available at: http://www.water.ca.gov/waterdatalibrary/, retrieved 4 March 2014]

CA RWQCB. 2003. *Surface Water Ambient Monitoring Program, Tulare Lake Basin Annual Report, Fiscal Year 2001-2002*. Staff Report of the California Environmental Protection Agency, California Regional Water Quality Control Board, Central Valley Region, Sacramento, CA. January 2003.

CA RWQCB. 2004. *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*. California Regional Water Quality Control Board, Central Valley Region (Region 5). [Available at: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml, retrieved 18 February 2014]

CA RWQCB. 2007. *Surface Water Ambient Monitoring Program, Tulare Lake Basin Annual Report, Fiscal Years 2002/2003 and 2003/2004*. California Environmental Protection Agency, California Regional Water Quality Control Board, Central Valley Region, Rancho Cordova, CA. June 2007.

CA RWQCB. 2012. *Tulare Lake Basin Rotational Watershed Monitoring Plan, 2012-2016, Version 1.1*. California Regional Water Quality Control Board, Central Valley Region, Surface Water Ambient Monitoring Program (SWAMP). March 2012.

CA SWRCB. 2006. Resolution No. 88-63 (as Revised by Resolution No. 2006-0008), Adoption of Policy Entitled “Sources of Drinking Water”. California State Water Resources Control Board. [Available at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2006/rs2006_0008_rev_rs88_63.pdf, retrieved 17 April 2014]

CA SWRCB. 2012a. California Environmental Data Exchange Network (CEDEN). California State Water Resources Control Board. 9 January 2012. [Available at: http://www.ceden.org/, accessed 5 March 2014]

CA SWRCB. 2012b. California Integrated Water Quality System Project (CIWQS) Regulated Facility Report (Detail). California State Water Resources Control Board. [Available at: https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?reportID=6959070&inCommand=drilldown&reportName=RegulatedFacilityDetail&place=Kern&program=WDR, accessed April 11, 2014]

CA SWRCB. 2013a. *Communities That Rely on a Contaminated Groundwater Source for Drinking Water, Report to the Legislature*. California State Water Resources Control Board [Available at: http://www.waterboards.ca.gov/gama/ab2222/docs/ab2222.pdf, retrieved 10 April 2014].

CA SWRCB. 2013b. *State and Regional Water Boards Brochure*. California State Water Resources Control Board [Available at: http://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/boardoverview.pdf, accessed 20 February 2014].

CA SWRCB. 2014a. California Integrated Water Quality System Project (CIWQS), Public Reports, Miscellaneous Reports, NPDES Permits (Including Stormwater). California State Water Resources Control Board. [Available at: http://www.waterboards.ca.gov/water_issues/programs/ciwqs/publicreports.shtml, accessed 28 February 2014]

CA SWRCB. 2014b. GAMA – Groundwater Ambient Monitoring & Assessment Program. California State Water Resources Control Board. [Available at: http://www.waterboards.ca.gov/water_issues/programs/gama/, accessed April 10, 2014]

CA SWRCB. 2014c. Programs, Water Quality Assessment, Integrated Reports. California State Water Resources Control Board. [Available at: http://www.waterboards.ca.gov/water_issues/programs/#wqassessment, accessed March 12, 2014]

CA SWRCB. 2014d. State and Regional Water Boards. California State Water Resources Control Board. [Available at: http://www.waterboards.ca.gov/waterboards_map.shtml, accessed February 18, 2014]

California Interagency Watershed Mapping Committee, California Interagency Watershed Map of 1999, Version 2.2.1, updated May 2004.

Croft, M.G. 1972. *Subsurface Geology of the Late Tertiary and Quarternary Water-Bearing Deposits of the Southern Part of the San Joaquin Valley, California*. U.S. Geological Survey, Washington, D.C. USGS Water-supply Paper 1999-H.

Dale, R.H., French, J.J., and Gordon, G.V. 1966. Ground-Water Geology and Hydrology of the Kern River Alluvial-Fan Area, California. U.S. Geological Survey, Menlo Park, CA. USGS Open-File Report 66-21.

DOGGR. 1993. *California Oil, Gas, and Geothermal Resources: an Introduction*. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. Publication No. TR03.

DOGGR. 1998. *California Oil & Gas Fields, Volume 1 – Central California, contour maps, cross sections, and data sheets for California's oil and gas fields*. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA.

DOGGR. 2005. Data Set: Oil and Gas Fields. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. [ftp://ftp.consrv.ca.gov/pub/oil/Data_Catalog/Oil_and_Gas/Oil_fields/, retrieved 1 May 2014]

DOGGR. 2010. 2009 Annual Report of the State Oil & Gas Supervisor. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. Publication No. PR06.

DOGGR. 2013. *Oil, Gas & Geothermal - Field Rules*. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. [http://www.consrv.ca.gov/dog/field_rules/Pages/field_rules_index.aspx#b, retrieved 30 April 2014]

DOGGR. 2013. *Hydraulic Fracturing in California*. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. [http://www.consrv.ca.gov/dog/general_information/Pages/HydraulicFracturing.aspx, retrieved 30 April 2014]

DOGGR. 2014. Production and Injection Graphs, Field 029 and Field 030. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. [http://opl.consrv.ca.gov/opl/opl.dll, retrieved March 2014]

DOGGR. Undated. *Oil and Gas Production History in California*. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. Printed 28 February 2014.

Dubrovsky, N.M., Kratzer, C.R., Brown, L.R., Gronberg, J.M., and Burow, K.R. 1998. *Water Quality in the San Joaquin-Tulare Basins, California, 1992–95*. U.S. Geological Survey, Sacramento, CA. USGS Circular 1159.

EIA. 2014. *Annual Energy Outlook 2014 Early Release Overview*. U.S. Energy Information Administration.

EPA. 2000. Water Quality Standards; Establishment of Numeric Criteria for Prioirty Toxic Pollutants for the State of California; Rule. U.S. Enviromental Protection Agency. Federal Register, Volume 65, No. 97.

EPA. 2013. Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals. U.S. Environmental Protection Agency. [Available at: http://water.epa.gov/drink/contaminants/secondarystandards.cfm, retrieved 10 April 2014]

EPA. 2014. STOrage and RETrieval (STORET) Data Warehouse. U.S. Environmental Protection Agency. [Available at: http://www.epa.gov/storet/, accessed 10 March 2014]

Faunt, C., ed. 2009. Groundwater Availability of the Central Valley Aquifer, California. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1766.

Gautier, D.L. and Hosford Scheirer, A. 2007. Eocene Total Petroleum System – North and East of the West Side Fold Belt Assessment Unit of the San Joaquin Basin Province. Chapter 19 in Hosford Scheirer, A., ed., *Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California*. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Gautier, D.L. and Hosford Scheirer, A. 2007. Miocene Total Petroleum System – Lower Bakersfield Arch Assessment Unit of the San Joaquin Basin Province. Chapter 14 in Hosford Scheirer, A., ed., *Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California*. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Gronberg, J.A.M., Dubrovsky, N.M., Kratzer, C.R., Domagalski, J.L., Brown, L.R., and Burow, K.R. 1998. *Environmental Setting of the San Joaquin-Tulare Basins, California*. U.S. Geological Survey, Sacramento, CA. USGS Water-Resources Investigations Report 97-4205.

Gronberg, J.A.M., Kratzer, C.R., Burow, K.R., Domagalski, J.L., and Phillips, S.P.. 2004. *Water-Quality Assessment of the San Joaquin–Tulare Basins: Entering a New Decade*. U.S. Geological Survey, Sacramento, CA. USGS Fact Sheet 2004-3012.

Guerard, W.F. Jr. 1998. *Heavy Oil in California, 4th edition*. DOGGR, Sacramento, California. Publication No. TR28.

Harter, T., Lund, J.R., Darby, J., Fogg, G.E., Howitt, R., Jessoe, K.K., Pettygrove, G.S., Quinn, J.F., Viers, J.H., Boyle, D.B., Canada, H.E., DeLaMora, N., Dzurella, K.N., Fryjoff-Hung, A., Hollander, A.D., Honeycutt, K.L., Jenkins, M.W., Jensen, V.B., King, A.M., Kourakos, G., Liptzin, D., Lopez, E.M., Mayzelle, M.M., McNally, A., Medellin-Azuara, J., and Rosenstock, T.S. 2012a. Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. Prepared for California State Water Resources Control Board. Center for Watershed Sciences, University of California, Davis, CA. [http://groundwaternitrate.ucdavis.edu/, accessed April 9, 2014]

Hosford Scheirer, A. and Magoon, L.B. 2007. Age, Distribution, and Stratigraphic Relationship of Rock Units in the San Joaquin Basin Province, California. Chapter 5 in Hosford Scheirer, A., ed., *Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California*. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Hughes, J.D. 2013. *Drilling California: A Reality Check on the Monterey Shale*. Post Carbon Institute. December 2013.

Intek, Inc. 2011. *Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays*. July 2011.

Jennings, C.W. and Gutierrez, C.I. 2010. *Geologic Map of California*. California Geological Survey, Sacramento, CA. Geologic Data Map 2 2010.<--Supersedes Jennings et al., 1977.

Karp, S.E. 1968. Guidebook: Geology and Oilfields, West Side Southern San Joaquin Valley. 43rd Annual Meeting of the Pacific Sections of the American Association of Petroleum Geologists, Society of Economic Geologists, and Society for Sedimentary Geology.

KCWA. 1998. *Water Supply Report 1995*. Kern County Water Agency, Bakersfield, CA. Prepared by Thomas M. Clark, General Manager, January 1998.

KCWA. 2011. *Improvement District No. 4: Report on Water Conditions 2010*. Kern County Water Agency, Bakersfield, CA. February 2011.

KCWA. 2012. *Improvement District No. 4: Report on Water Conditions 2011*. Kern County Water Agency, Bakersfield, CA. February 2012.

KCWA. 2013. *Improvement District No. 4: Report on Water Conditions 2012*. Kern County Water Agency, Bakersfield, CA. February 2013.

KCWA. 2014. *Improvement District No. 4: Report on Water Conditions 2013*. Kern County Water Agency, Bakersfield, CA. January 2014.

Kennedy/Jenks Consultants, Inc. 2011a. 2010 Urban Water Management Plan - Final. Prepared for Kern County Water Agency Improvement District No. 4 and North of the River Municipal Water District. Kennedy/Jenks Consultants. June 2011.

Kennedy/Jenks Consultants, Inc. 2011b. Tulare Lake Basin Portion of Kern County Integrated Regional Water Management Plan - Final Update. Prepared for Kern County Water Agency. Kennedy/Jenks Consultants, Oxnard, CA. November 2011.

Kern County PCDD. 2013. Initial Study/Notice of Preparation of a Draft Environmental Impact Report for an Amendment to Title 19 - Kern County Zoning Ordinance, focused on Chapter 19.98 (Oil and Gas Production) for Oil and Gas Local Permitting. Kern County Planning and Community Development Department, Bakersfield, CA. 30 August 2013.

King, H. 2014. Directional and Horizontal Drilling in Oil and Gas Wells. [http://geology.com/articles/horizontal-drilling/, retrieved 1 May 2014]

Kinsey, W.B., Johnson, M.V., and Gronberg, J.A.M. 2005. *Data on Dissolved Pesticides and Volatile Organic Compounds in Surface and Ground Waters in the San Joaquin–Tulare Basins, California, Water Years 1992–1995*. United States Geological Survey, Reston, Virginia. USGS Data Series 107.

Kratzer, C.R. and Shelton, J.L. 1998. *Water Quality Assessment of the San Joaquin-Tulare Basins, California; Analysis of Available Data on Nutrients and Suspended Sediment in Surface Water, 1972-1990*. United States Geological Survey, Reston, Virginia. USGS Professional Paper 1587.

Lillis, P.G. and Magoon, L.B. 2007. Petroleum Systems of the San Joaquin Basin Province, California - Geochemical Characteristics of Oil Types. Chapter 9 in Hosford Sheirer, A., ed., *Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California*. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Lillis, P.G., Warden, A., Claypool, G.E., and Magoon, L.B. 2007. Petroleum Systems of the San Joaquin Basin Province, California - Geochemical Characteristics of Gas Types. Chapter 10 in Hosford Scheirer, A., ed., *Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California*. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Lofgren, B.E. 1975. *Land Subsidence Due to Ground-Water Withdrawal, Arvin-Maricopa Area, California*. U.S. Geological Survey, Washington, D.C. USGS Professional Paper 437D.

Ludington, S., Moring, B.C., Miller, R.J., Stone, P.A., Bookstrom, A.A., Bedford, D.R., Evans, J.G., Haxel, G.A., Nutt, C.J., Flyn, K.S., and Hopkins, M.J. 2007. *Preliminary Integrated Geologic Map Databases for the United States, Western States: California, Nevada, Arizona, Washington, Oregon, Idaho, and Utah, Version 1.3*. U.S. Geological Survey, Reston, VA. USGS Open-File Report 2005-1305.

Mitchell, D.C. 1989. *The Effects of Oilfield Operations on Underground Sources of Drinking Water in Kern County*. California Department of Conservation Division of Oil and Gas, Sacramento, CA. Publication No. TR36.

Page, R.W. 1986. Geology of the Fresh Ground-Water Basin of the Central Valley, California, with Texture Maps and Sections. U.S. Geological Survey, Denver, CO. USGS Professional Paper 1401-C.

Parkhurst, D.L. and Appelo, C.A.J. 1999. *User's Guide to PHREEQC (Version 2)--A Computer Program for Speciation, Batch-Reaction, One-Dimensional Transport, and Inverse Geochemical Calculations*. U.S. Geological Survey, Denver, CO. USGS Water-Resources Investigations Report 99-4259.

Peters, K.E., Magoon, L.B., Lampe, C., Hosford Scheirer, A., Lillis, P.G., and Gautier, D.L. 2007. A Four Dimensional Petroleum Systems Model for the San Joaquin Basin Province, California. Chapter 12 in Hosford Scheirer, A., ed., *Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California*. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Poland, J.F., Lofgren, B.F., Ireland, R.L., and Pugh, R.G. 1975. *Land Subsidence in the San Joaquin Valley, California, As of 1972*. U.S. Geological Survey, Washington, D.C. USGS Professional Paper 437-H.

Rintoul, W. 1990. *Drilling Through Time: 75 Years with California's Division of Oil and Gas*. California Division of Oil and Gas, Sacramento, CA.Robertson Jr., J.O. and Chilingarian, G.V. 1989. Acidizing Oil Wells. Chapter 5 in Robertson, J.O., Chilingarian, G.V., and Kumar, S., eds., *Surface Operations in Petroleum Production II*. Elsevier Science Publishing Co. Inc., New York, NY.

Shelton, J.S., Pimentel, I., Fram, M.S., and Belitz, K. 2008. *Ground-Water Quality Data in the Kern County Subbasin Study Unit, 2006—Results from the California GAMA Program*. U.S. Geological Survey, Reston, VA. USGS Data Series 337.

SJGS. 2014a. The History of the Oil Industry. San Joaquin Geological Services, Inc., Bakersfield, CA. [http://www.sjvgeology.org/history/, retrieved 31 January 2014]

SJGS. 2014b. The San Joaquin Valley Oil Industry. San Joaquin Geological Services, Inc., Bakersfield, CA. [http://sjvgeology.org/oil/index.html, retrieved 29 January 2014]

SWSD. 2012. 2012 Groundwater Management Plan, Kern County, California. Semitropic Water Storage District.

Takahashi, K.I. and Gautier, D.L. 2007. A Brief History of Oil and Gas Exploration in the Southern San Joaquin Valley of California. Chapter 3 in Hosford Scheirer, A., ed., *Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California*. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Todd Engineers with Kennedy/Jenks Consultants. AB3030 Groundwater Management Plan. Prepared for Wheeler Ridge-Maricopa Water Storage District. Todd Engineers, Emeryville, CA and Kennedy/Jenks Consultants, Ventura, CA. November 2007.

USBR. 2011. San Joaquin River Restoration Program, Program Environmental Impact Statement/Environmental Impact Review - Public Review Draft. U.S. Bureau of Reclamation. April 2011.

USC. 2013. The Monterey Shale & California's Economic Future. University of Southern California Price School of Public Policy - Global Energy Network, Los Angeles, CA.

USGS. 2014a. USGS Publications Warehouse. [Available at: http://pubs.er.usgs.gov/#home, retrieved 26 February 2014]

USGS. 2014b. USGS Water Data for the Nation, National Water Information System (NWIS): Web Interface. U.S. Geological Survey. [Available at: http://waterdata.usgs.gov/nwis, retrieved 5 March 2014]

WAKC. 2014. Sources of Water: Water Banking. Water Association of Kern County. [Available at: http://www.wakc.com/index.php/water-overview/sources-of-water/87-water-banking, retrieved 11 April 2014]

Walker, J.D. 2011, California Class II Underground Injection Control Program Review. Horsley Witten Group, Inc. June 2011.

Wood, P.R. and Dale, R.H. 1964. *Geology and Ground-Water Features of the Edison-Maricopa Area, Kern County, California*. U.S. Geological Survey, Washington, D.C. USGS Water-Supply Paper 1656.

Wood, P.R. and Davis G.H. 1959. Ground-Water Conditions in the Avenal-McKittrick Area, Kings and Kern Counties, California. U.S. Geological Survey, Washington, D.C. USGS Water-Supply Paper 1457.

Terminology

Aquifer

A saturated body of rock or sediment that is sufficiently porous and permeable to store, transmit, and yield significant or economic quantities of groundwater to wells and springs.

Available water

The amount of water in an aquifer that can be used by an activity, without consideration for other needs or regulatory controls.

Beneficial Use

The description of the ressources, services, and qualities of an aquatic system (surface waters, groundwater, marsh, wetland) that serves as a basis for establishing water quality objectives and discharge prohibitions to attain and protect the established goals.

Beneficial Re-use

The use of treated produced water as a substitute for other water sources, including both internal industrial applications (e.g., enhanced oil recovery, hydraulic stimulation) and external non-industrial applications (e.g., agricultural irrigation, groundwater recharge, habitat enhancement).

Brackish water

Water with a salinity intermediate between seawater and freshwater (containing from 1,000 to 10,000 milligrams per liter of dissolved solids).

Central Valley Project

A large multi-purpose water project operated by the US Bureau of Reclamation. The facilities and service area of the Central Valley Project are generally located in California's Central Valley, with some facilities in the San Francisco Bay Area. Water from the Central Valley Project is delivered to specific entities that hold contracts for the water.

Consumed water / Net consumed water

Water removed from but not returned to the same drainage basin.

Contaminant

Any substance or property preventing the use or reducing the usability of water for ordinary purposes such as drinking, preparing food, bathing, washing, recreation, irrigation, and industrial uses. Any solute or cause of change in physical properties that renders water unfit for a given use. Generally considered synonymous with pollutant.

Cyclic Steam Injection

A method of thermal recovery in which steam in injected into the production reservoir; the injection well is then shut-in and allowed to sit idle for a specified period of time, then subsequently put back into production.

Depletion

Continued withdrawal of water from groundwater or other water body at a rate greater than the rate of replenishment.

Downhole Disposal

Injection of produced water into a subterranean aquifer for the purpose of disposal.

Drainage basin

Area from which direct surface runoff from precipitation drains by gravity into a stream or other water body.

Evapotranspiration

Transfer of water to the atmosphere as a result of evaporation and plant transpiration.

Fossil water

"*Groundwater*" body that has a negligible rate of natural recharge on the human time-scale.

Freshwater

Water that contains less than 1,000 milligrams per liter of dissolved solids.

Groundwater

Water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation in which it is situated. It excludes soil moisture, which refers to water held by capillary forces in the upper unsaturated zones of soil or rock.

Groundwater banking

Storage of water into a groundwater basin for storage and withdrawal/use at a later time.

Groundwater basin

An area underlain by permeable materials capable of furnishing a significant supply of groundwater to wells or storing a significant amount of water. A groundwater basin is three-dimensional and includes both the surface extent and the subsurface fresh water-yielding material.

Groundwater overdraft

The condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average conditions. See “Depletion”

Groundwater recharge

The natural or intentional infiltration or pumping of water into the zone of saturation.

Impact

A significant change due to human activity. The change can be positive, negative, relative to the measure applied.

Industrial Water

Water used for industry purposes such as fabricating, processing, washing, diluting, cooling, or transporting a product; incorporating water into a product; or for sanitation needs within a manufacturing facility. Water for industrial use may be supplied by a public source (e.g., municipal water supplier) or be self-supplied; hence it may or may not be potable. The required quality of industrial water is dependent on its intended use.

Municipal Water

Water that has been processed at a central plant to make it potable or "safe to drink", and is then distributed to homes and businesses via a fixed distribution system (i.e., water mains). Either public agencies or private companies can be involved in providing "municipal water."

Potable water

Water that is satisfactory for drinking, culinary and domestic purposes and meets the requirements of the health authority having jurisdiction.

Produced water

Groundwater extracted from an oil reservoir or an oil-bearing formation. Produced water typically contains elevated concentrations of total dissolved solids and select metals; and generally does not have a beneficial use without treatment.

Rainwater

Water that falls to the ground through precipitation.

Rainwater infiltration

The part of precipitation that infiltrates into the ground and recharges groundwater.

Raw Water

Natural water, such as rainwater, groundwater and water from bodies like lakes and rivers that has not undergone any treatment.

Reinjection

The Injection of produced water into a producing reservoir to enhance oil recovery or maintain reservoir pressures.

Return flow

Any flow that is returned to a surface water body or to groundwater after use. Note: the quality, quantity, temperature and point of return to a watershed or aquifer are typically controlled by state regulations.

Receiving water body

A “Water Body” receiving “Return Flow”.

Recycled water

Water that serves more than one use for any industrial, municipal or public program or process, and requires treatment in between uses.

Reused water

Water that serves more than one use for any industrial, municipal or public program or process, but does not require significant treatment in between uses.

Run off

The portion of precipitation that does not infiltrate into the ground but collects in a surface water body (stream, river, lake, reservoir, etc.).

Salinity

The concentration of mineral salts dissolved in water. Typically expressed in terms of concentration or as electrical conductivity. See also total dissolved solids.

State Water Project

A large multi-purpose water project operated by the California Department of Water Resources. The facilities and service area of the State Water Project are located in various parts of California. Water from the State Water Project is delivered to specific entities that hold contracts for the water.

Steam Injection

A method of enhanced oil recovery whereby steam is injected into the production reservoir to reduce the viscosity of the oil, and fluids (oil and water) are extracted at a nearby location.

Supplying water body

Any resource capable of supplying water needed by an activity to meet its process' water requirements.

Surface water

All water in overland flow and storage, excluding seawater.

Total Dissolved Solids

A quantitative measure of the dissolved minerals in a water body or sample. Usually expressed as a concentration and reported in milligrams per liter (mg/L).

Water treatment plant

A facility designed or dedicated to treat and produce water of an acceptable quality for its intended use. The quality of the treated water may or may not meet drinking water criteria depending on its intended use.

Water body

An accumulation of water above or below ground that has definite hydrological, hydrogeologic, physical, and chemical characteristics in a given geographical area.

Water quality

Description of the chemical, physical (e.g. thermal) and biological characteristics of water with respect to its suitability for an intended use.

Water use

Use of water for human activity. Use includes, but is not limited to, direct (drinking water) and indirect (as part of a consumer product) consumption, industrial processes, irrigation, recreation, and other activities necessary to support human existence.

Water withdrawal

Anthropogenic removal of water from any water body or from any drainage basin, either permanently or temporarily.

Wastewater

Excess water requiring discharge or disposal after use, and containing or potentially containing properties or chemicals that can impair its quality.

Wastewater treatment plant

A facility designed or dedicated to treat “Waste Water” prior to being reused (recycled water), discharged to the natural environment, or disposed.

Waterflood

A method of oil recovery whereby hot water is injected into the production reservoir to reduce the viscosity of the oil, maintain reservoir pressures and drive oil towards a nearby production well.

Tables

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Sub-area	Administrative Oil Field[a] as in DOGGR TR11	Area Name as in DOGGR TR11[b]	Pool Name shown in DOGGR TR11[b]	Pool Stratigraphic Formation as shown in DOGGR TR11[c]	Pool Average Depth in feet, as Reported in DOGGR TR11
West Sub-area					
West	Antelope Hills	-	Agua	Temblor	2,300
West	Antelope Hills	Hopkins	Point of Rocks	Kreyenhagen	2,000-2,500
West	Antelope Hills	Hopkins	Phacoides	Temblor	2,400-3,400
West	Antelope Hills	Nepple Gas (Abd)	Etchegoin	Etchegoin	1,000
West	Antelope Hills	Williams	Gas Zone	Monterey	1,900
West	Antelope Hills	Williams	Button Bed	Temblor	2,100
West	Antelope Hills	Williams	Agua	Temblor	2,300
West	Antelope Hills	Williams	Upper	Tulare	845-1,400
West	Antelope Hills - North	-	Point of Rocks	Kreyenhagen	1,545
West	Antelope Hills - North	-	Phacoides (Wygal)	Temblor	2,100
West	Antelope Hills - North	-	IIA	Temblor	2,360
West	Antelope Hills - North	-	Agua	Temblor	2,380
West	Antelope Hills - North	-	Button Bed	Temblor	2,340-2,360
West	Antelope Hills - North	-	Packwood	Monterey	600-1,300
West	Antelope Plains Gas (Abd)[c]	-	-	Kreyenhagen	3,200
West	Asphalto	-	Etchegoin	Etchegoin	3,050
West	Asphalto	-	Olig	Monterey	4,825
West	Asphalto	-	Carneros	Temblor	5,510
West	Asphalto	-	Stevens	Monterey	5,660
West	Asphalto	-	Antelope Shale	Monterey	7,550
West	Beer Nose	-	Bloemer	Temblor	11,100
West	Belgian Anticline	-	Oceanic	Tumey	5,300
West	Belgian Anticline	Main Area	Agua	Temblor	4,300
West	Belgian Anticline	Main Area	Phacoides	Temblor	4,600
West	Belgian Anticline	Main Area	Oceanic	Tumey	5,300
West	Belgian Anticline	Main Area	Point of Rocks	Kreyenhagen	6,070
West	Belgian Anticline	Main Area	Gould-Santos	Monterey-Temblor	3,785-4,023
West	Belgian Anticline	Northwest Area	Phacoides	Temblor	1,400
West	Belgian Anticline	Northwest Area	"Phacoides"-Oceanic	Temblor-Tumey	2,050
West	Belgian Anticline	Northwest Area	Point of Rocks	Kreyenhagen	3,400
West	Belgian Anticline	Northwest Area	Carneros	Temblor	4,600
West	Belridge, South	-	Tulare	Tulare	400
West	Belridge, South	-	Diatomite	Etchegoin-Reef Ridge-Upper Monterey	1,000
West	Belridge, South	-	Etchegoin	Etchegoin	1,500
West	Belridge, South	-	Antelope Shale	Monterey	4,000
West	Belridge, South	-	McDonald	Monterey	6,700
West	Belridge, South	-	Devilwater-Gould	Monterey	8,200
West	Blackwells Corner	-	Devilwater	Monterey	700
West	Blackwells Corner	-	Agua	Temblor	1,300
West	Blackwells Corner	-	Grit	Temblor	1,400
West	Buena Vista	-	MYA (Gas)	San Joaquin	1,800
West	Buena Vista	Buena Vista Front Area	Sub Scalez One (SS1)	San Joaquin	4,000
West	Buena Vista	Buena Vista Front Area	Sub Scalez Two (SS2)	San Joaquin	4,050
West	Buena Vista	Buena Vista Front Area	Above Scalez (As)	San Joaquin	4,200
West	Buena Vista	Buena Vista Front Area	Mulinia	Etchegoin	4,300
West	Buena Vista	Buena Vista Hills Area	MYA (Gas)	San Joaquin	1,800
West	Buena Vista	Buena Vista Hills Area	Top Oil (Sub Scalez)	San Joaquin	2,300
West	Buena Vista	Buena Vista Hills Area	Sub Mulinia	Etchegoin	2,400
West	Buena Vista	Buena Vista Hills Area	Wilhelm	Etchegoin	2,500
West	Buena Vista	Buena Vista Hills Area	Gusher	Etchegoin	2,600
West	Buena Vista	Buena Vista Hills Area	Calitroleum	Etchegoin	2,900
West	Buena Vista	Buena Vista Hills Area	99-90	Etchegoin	3,100
West	Buena Vista	Buena Vista Hills Area	27-B (E Sands)	Etchegoin	3,500
West	Buena Vista	Buena Vista Hills Area	Calidon (Gas)	Etchegoin and Monterey	3,800
West	Buena Vista	Buena Vista Hills Area	Reef Ridge	Reef Ridge	3,800
West	Buena Vista	Buena Vista Hills Area	Antelope Shale	Monterey	4,200
West	Buena Vista	Buena Vista Hills Area	555 Stevenes	Monterey	5,300
West	Cal Canal Gas	-	Etchegoin	Etchegoin	5,800
West	Cal Canal Gas	-	Stevens	Monterey	11,800
West	Capitola Park	-	Media	Temblor	650
West	Carneros Creek	-	Button Bed	Temblor	2,100
West	Carneros Creek	-	Carneros	Temblor	2,375
West	Carneros Creek	-	Wygal (Phacoides)	Temblor	2,480
West	Carneros Creek	-	2nd Point of Rocks	Kreyenhagen	3,600
West	Carneros Creek	-	1st Point of Rocks	Kreyenhagen	3,875
West	Chico Martinez	-	Etchegoin	Etchegoin	900
West	Chico Martinez	-	Fractured Shale	Monterey	3,780
West	Cienaga Canyon	-	Temblor "A"	Temblor	2,000
West	Cienaga Canyon	-	Vaqueros (Abd)	Temblor	4,030
West	Coles Levee, North	-	Gas zone	Etchegoin	5,300
West	Coles Levee, North	-	Point of Rocks	Kreyenhagen	17,500
West	Coles Levee, North	-	Steven	Monterey	8,000-9,650
West	Coles Levee, South	-	4th MYA Gas	San Joaquin	4,200

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Sub-area	Administrative Oil Field[a] as in DOGGR TR11	Area Name as in DOGGR TR11[b]	Pool Name shown in DOGGR TR11[b]	Pool Stratigraphic Formation as shown in DOGGR TR11[c]	Pool Average Depth in feet, as Reported in DOGGR TR11
West	Coles Levee, South	-	Etchegoin Gas	Etchegoin	5,120
West	Coles Levee, South	-	Lower Stevens	Monterey	10,530
West	Coles Levee, South	-	Mozu	Monterey	11,680
West	Coles Levee, South	-	Stevens	Monterey	9,600-9,900
West	Cymric	-	Tulare	Tulare	1,200
West	Cymric	Cymric Flank Arrea	Carneros	Temblor	8,600
West	Cymric	Cymric Flank Arrea	Phacoides	Temblor	10,145
West	Cymric	Salt Creek Main Area	Etchegoin	Etchegoin	650
West	Cymric	Salt Creek Main Area	Phacoides	Temblor	2,200
West	Cymric	Salt Creek Main Area	Carneros	Temblor	1,500-2,400
West	Cymric	Salt Creek West Area	Phacoides	Temblor	500
West	Cymric	Sheep Springs Area	Tulare	Tulare	1,420
West	Cymric	Sheep Springs Area	Etchegoin	Etchegoin	2,450
West	Cymric	Sheep Springs Area	Monterey	Monterey	2,650
West	Cymric	Sheep Springs Area	Carneros	Temblor	3,400
West	Cymric	Sheep Springs Area	Phacoides	Temblor	4,600
West	Cymric	Sheep Springs Area	Oceanic	Tumey	4,700
West	Cymric	Welport Area	Antelope	San Joaquin	670
West	Cymric	Welport Area	1st McKittrick	Reef Ridge	1,100
West	Cymric	Welport Area	2nd McKittrick	Reef Ridge	1,230
West	Cymric	Welport Area	Olig (Reef Ridge)	Reef Ridge	2,250
West	Cymric	Welport Area	Agua (Santos	Temblor	3,400
West	Cymric	Welport Area	Etchegoin	Etchegoin	3,400
West	Cymric	Welport Area	McDonald-Devilwater	Monterey	4,050
West	Cymric	Welport Area	Point of Rocks	Kreyenhagen	5,400
West	Cymric	Welport Area	Tulare	Tulare	1,000-1,200
West	Cymric	Welport Area	Carneros	Temblor	4,150-5,560
West	Cymric	Welport Area	Phacoides	Temblor	4,300-7,870
West	Cymric	Welport Area	Oceanic	Tumey	4,900-8,750
West	Devils Den	Alferitz Area	Escudo	Monterey	1,100
West	Devils Den	Alferitz Area	Carneros-Agua	Temblor	1,350
West	Devils Den	Alferitz Area	Wagonwheel	Wagonwheel	2000
West	Devils Den	Alferitz Area	Avenal	Kreyenhagen	4,200
West	Devils Den	Alferitz Area	por	Kreyenhagen	1,200-3,200
West	Devils Den	Bates Area	Bates	Etchegoin	1,600
West	Devils Den	Old Area	Cymric (Salt Creek)	Temblor	200
West	Devils Den	Old Area	Santos	Temblor	200
West	Devils Den	Old Area	Wagonwheel (Tumey)	Wagonwheel	500
West	Devils Den	Old Area	por	Kreyenhagen	600
West	Eagle Rest (Abd)	-	Eocene Sand	Tejon	7,976
West	Edison	Northeast	Chanac	Chanac	500
West	Elk Hills	-	Tulare	Tulare	1,120
West	Elk Hills	-	MYA Gas	San Joaquin	2,300
West	Elk Hills	-	Scalez	San Joaquin	2,400
West	Elk Hills	-	Mulinia	Etchegoin	2,700
West	Elk Hills	-	Bittium	Etchegoin	2,850
West	Elk Hills	-	Wilhelm	Etchegoin	3,000
West	Elk Hills	-	Calitroleum	Etchegoin	3,200
West	Elk Hills	-	Gusher	Etchegoin	3,200
West	Elk Hills	-	Olig	Reef Ridge	5,000
West	Elk Hills	-	Northwest Stevens	Monterey	8,900
West	Elk Hills	-	Carneros	Temblor	9,300
West	Elk Hills	-	Agua	Temblor	9,500
West	Elk Hills	-	Stevens	Monterey	5,900-7,100
West	Gonyer Anticline (Abd)	-	Gonyer	Temblor	1,700
West	Landslide	-	Stevens	Monterey	12,190
West	Los Lobos	-	Reef Ridge	Reef Ridge	6,500
West	Los Lobos	-	Etchegoin	Etchegoin	7,500
West	Los Lobos	-	Monterey	Monterey	1,700-3,000
West	Lost Hills	-	Tulare	Tulare	200
West	Lost Hills	-	Etchegoin	Etchegoin	1,000
West	Lost Hills	-	Reef Ridge	Reef Ridge	1,550
West	Lost Hills	-	Devilwater	Monterey	4,200
West	Lost Hills	-	Carneros	Monterey	6,020
West	Lost Hills	-	Cahn	Monterey	3,200-3,900
West	Lost Hills, Northwest	-	Etchegoin	Etchegoin	2,000-2,800
West	Lost Hills, Northwest	-	Antelope	Monterey	2,200-3,800
West	McDonald Anticline	-	Phacoides	Temblor	1,300
West	McDonald Anticline	Bacon Hills Area	Antelope	Monterey	500
West	McDonald Anticline	Bacon Hills Area	Oceanic	Tumey	8,000
West	McDonald Anticline	Layman Area	Tulare	Tulare	550
West	McDonald Anticline	Layman Area	D-1	Monterey	1,200
West	McDonald Anticline	Layman Area	Phacoides	Temblor	1,300

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Sub-area	Administrative Oil Field[a] as in DOGGR TR11	Area Name as in DOGGR TR11[b]	Pool Name shown in DOGGR TR11[b]	Pool Stratigraphic Formation as shown in DOGGR TR11[c]	Pool Average Depth in feet, as Reported in DOGGR TR11
West	McDonald Anticline	Layman Area	Layman 101	Monterey	1,400
West	McDonald Anticline	Layman Area	6th Sand	Monterey	1,500
West	McDonald Anticline	Layman Area	Layman Two (intex)	Monterey	1,500
West	McDonald Anticline	Layman Area	Theta (2nd Devilwater)	Monterey	2,100
West	McDonald Anticline	Layman Area	Buttonbed	Temblor	2,200
West	McDonald Anticline	Layman Area	2A	Temblor	2,600
West	McDonald Anticline	Layman Area	Agua	Temblor	2,600
West	McDonald Anticline	Layman Area	Tolco (7th Devilwater)	Monterey	2,600
West	McDonald Anticline	Layman Area	por	Kreyenhagen	3,500
West	McKittrick	-	Tulare-San Joaquin	Tulare-San Joaquin	300-500
West	McKittrick	Main Area	Olig	Reef Ridge	800
West	McKittrick	Main Area	Basal Reef Ridge	Reef Ridge	1,500
West	McKittrick	Main Area	Stevens	Monterey	2,800
West	McKittrick	Main Area	Antelope Shale	Monterey	2,000-4,750
West	McKittrick	Main Area	Tulare-San Joaquin	Tulare-San Joaquin	500-1,000
West	McKittrick	Northeast Area	Tulare (Amnicola)	Tulare	650
West	McKittrick	Northeast Area	Olig	Reef Ridge	1,900
West	McKittrick	Northeast Area	Antelope	Monterey	3,600
West	McKittrick	Northeast Area	Carneros	Temblor	6,500
West	McKittrick	Northeast Area	Phacoides (Wygal)	Temblor	7,900
West	McKittrick	Northeast Area	Oceanic	Tumey	8,300
West	McKittrick	Northeast Area	Point of Rocks	Kreyenhagen	9,100
West	McKittrick	Northeast Area	San Joaquin	San Joaquin	900-1,200
West	Midway Sunset	-	Marvic	Monterey	1,000
West	Midway Sunset	-	MYA Tar	Etchegoin	1,100
West	Midway Sunset	-	Obispo	Monterey	3,600
West	Midway Sunset	-	Pacific	Monterey	3,700
West	Midway Sunset	-	Antelope Shale	Monterey	3,800
West	Midway Sunset	-	Pulv	Monterey	8,700
West	Midway Sunset	-	Leutholtz (Metson)	Monterey	1,200-3,200
West	Midway Sunset	-	Republic	Monterey	1,300-4,900
West	Midway Sunset	-	Webster	Monterey	1,500-1,800
West	Midway Sunset	-	Calitroleum	Etchegoin	1,500-4,500
West	Midway Sunset	-	Lakeview	Reef Ridge	1,700-3,300
West	Midway Sunset	-	Gusher	Etchegoin	2,000-3,000
West	Midway Sunset	-	Kinsey	Etchegoin	2,000-3,600
West	Midway Sunset	-	Wilhelm	Etchegoin	2,000-3,600
West	Midway Sunset	-	Moco	Monterey	2,100-2,700
West	Midway Sunset	-	Pioneer	Temblor	2,800-3,800
West	Midway Sunset	-	Potter	Reef Ridge	200-2,500
West	Midway Sunset	-	McDonald Shale	Monterey	4,125-4,900
West	Midway Sunset	-	Sub-lakeview	Reef Ridge	400-3,100
West	Midway Sunset	-	Top Oil	San Joaquin	500-2,500
West	Midway Sunset	-	Monarch (Spellacy)	Monterey	600-2,000
West	Midway Sunset** [d]	-	Tulare	Tulare	200-1,400
West	Monument Junction	-	Bent	Reef Ridge	5,800
West	Monument Junction	-	Antelope	Monterey	6,300
West	Paloma	Main Area	Lower Stevens	Monterey	11,500
West	Paloma	Main Area	Paloma	Monterey	10000-10300
West	Paloma	Main Area	Gas Zone	San Joaquin-Etchegoin	4100-5200
West	Paloma	Symons Area	Symons (Stevens)	Monterey	11,400
West	Paloma	Symons Area	Paloma (Stevens)	Monterey	11,900
West	Pioneer	-	Pioneer	Temblor	3,500
West	Pleito	Creek Area	Santa Margarita	Santa Margarita	4,300
West	Pleito	Ranch Area	Chanac-Santa Margarita	Chanac-Santa Margarita	8900-13000
West	Railroad Gap	-	Amnicola (Gas)	Tulare	950
West	Railroad Gap	-	Amnicola (Oil)	Tulare	1,100
West	Railroad Gap	-	2nd MYA (Gas)	San Joaquin	2,300
West	Railroad Gap	-	Olig	Reef Ridge	4,400
West	Railroad Gap	-	Antelope Shale	Monterey	5,000
West	Railroad Gap	-	Valv	Monterey	6,700
West	Railroad Gap	-	Carneros	Temblor	7,000
West	Railroad Gap	-	Upper Santos	Temblor	8,000
West	Railroad Gap	-	Phacoides (Wygal)	Temblor	9,100
West	Rio Viejo	-	Stevens	Monterey	14,100
West	San Emidio Nose	-	Reef Ridge	Reef Ridge	11,700
West	San Emidio Nose	Main Area	Reef Ridge	Reef Ridge	11,700
West	San Emidio Nose	Main Area	Stevens	Monterey	12,600
West	San Emidio Nose	Northwest	Stevens	Monterey	12,080
West	San Emigdio (Abd)	-	Pioneer	Temblor	1,415
West	San Emigdio Creek (Abd)	-	Eocene (27-12)	Tejon	8,660
West	Shale Flats Gas (Abd)	-	Mabury	Kreyenhagen	2,800
West	Shale Point Gas	-	Mabury	Kreyenhagen	3,400

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Sub-area	Administrative Oil Field[a] as in DOGGR TR11	Area Name as in DOGGR TR11[b]	Pool Name shown in DOGGR TR11[b]	Pool Stratigraphic Formation as shown in DOGGR TR11[c]	Pool Average Depth in feet, as Reported in DOGGR TR11
West	Temblor Hills	-	Agua and Point of Rocks	Temblor and Kreyenhagen	3,570
West	Temblor Ranch	-	Phacoides (Wygal)	Temblor	400
West	Temblor, East (Abd)	-	-		
West	Welcome Valley	-	Tumey	Tumey	100
West	Wheeler Ridge	-	Main	Fruitvale	2,050
West	Wheeler Ridge	Central Area	Coal Oil Canyon	Santa Margarita	1,000
West	Wheeler Ridge	Central Area	Main	Fruitvale	2,050
West	Wheeler Ridge	Central Area	Valv	Round Mountain	3,400
West	Wheeler Ridge	Central Area	Olcese	Olcese	3,900
West	Wheeler Ridge	Central Area	2-38	Olcese	4,250
West	Wheeler Ridge	Central Area	ZA-5	Vedder	6,500
West	Wheeler Ridge	Central Area	ZB-5	Vedder	8,700
West	Wheeler Ridge	Central Area	Refugian	San Emigdio	9,600
West	Wheeler Ridge	Central Area	Eocene	Tejon	9,800
West	Wheeler Ridge	Northeast Area	FA-2	Fruitvale	2,900
West	Wheeler Ridge	Northeast Area	Hagood	Fruitvale	5,100
West	Wheeler Ridge	Northeast Area	ZB-3	Vedder	8,760
West	Wheeler Ridge	Southeast Area	72-34 (Olcese)	Olcese	6,875
West	Wheeler Ridge	Telegraph Canyon (Abd)	Tejon	Tejon	10,580
West	Wheeler Ridge	Windgap Area	Reserve	Fruitvale	5,600
West	Wheeler Ridge	Windgap Area	"Lower Olcese"	Freeman-Jewett	7,400
West	White Wolf	-	700 Sand	Chanac	815
West	White Wolf	-	Antelope	Monterey	1,770
West	White Wolf	-	Reef Ridge	Reef Ridge	2,800
West	Yowlumne	-	Etchegoin	Etchegoin	10,400
West	Yowlumne	-	South Yowlumne (Stevens)	Monterey	11,350
West	Yowlumne	-	10-4 (Stevens)	Monterey	11,500
West	Yowlumne	-	Yowlumne (Stevens)	Monterey	11200-13300
Central Sub-Area					
Central	Bellevue	Main Area	Stevens	Fruitvale	6,400-6,700
Central	Bellevue	South Area	Stevens	Fruitvale	7,400
Central	Bellevue, West	-	Stevens-Clark	Fruitvale	7,740
Central	Bellevue, West	-	Stevens-82	Fruitvale	7,830
Central	Bellevue, West	-	Lower Stevens	Fruitvale	8,750-9,100
Central	Belridge, North	-	Tulare-Etchegoin	Tulare-Etchegoin	600
Central	Belridge, North	-	Diatomite	Etchegoin-Reef Ridge	2,200
Central	Belridge, North	-	Fractured Shale	Reef Ridge-Monterey	3,500
Central	Belridge, North	-	Temblor Sand	Monterey-Temblor	5,000
Central	Belridge, North	-	Carneros	Temblor	6,700
Central	Belridge, North	-	R sand (Agua)	Temblor	7,100
Central	Belridge, North	-	Bloemer, Belridge 64, Gibson	Temblor	7,700
Central	Belridge, North	-	Y Sand	Tumey	8,550
Central	Bowerbank	-	2nd MYA (Gas)	San Joaquin	3,140
Central	Bowerbank	-	Root (Gas)	San Joaquin	4,000
Central	Bowerbank	-	4-23 (Gas)	San Joaquin	4,200
Central	Bowerbank	-	Espee (Gas)	San Joaquin	4,300
Central	Bowerbank	-	Sub Scalez (Gas)	San Joaquin	4,600
Central	Bowerbank	-	Sub Mulinia (Gas)	Etchegoin	4,700
Central	Bowerbank	-	Stevens (Gas)	Monterey	10,620
Central	Buttonwillow Gas (Abd)	-	San Joaquin Gas Zones	San Joaquin	2,300-3,200
Central	Calders Corner	-	Upper Stevens	Fruitvale	8,700
Central	Canal	-	Upper Stevens	Fruitvale	8000
Central	Canal	Main Area	Upper Stevens	Fruitvale	8,000
Central	Canal	Main Area	Middle Stevens	Fruitvale	8,500
Central	Canal	Main Area	Lower Stevens	Fruitvale	9,400
Central	Canal	Main Area	Pliocene (Gas)	San Joaquin and Etchegoin	3,100-5,000
Central	Canal	Pioneer Canal Area	Stevens	Fruitvale	8,900
Central	Canal	Pioneer Canal Area	Lower Stevens	Fruitvale	10,150
Central	Canfield Ranch	-	Stevens	Fruitvale	8,100-9,800
Central	Canfield Ranch	Gosford, East, Area	Stevens	Fruitvale	7,900-9,800
Central	Canfield Ranch	Gosford, South, Area	Stevens	Fruitvale	7,950-10,150
Central	Canfield Ranch	Gosford, West, Area	Stevens	Fruitvale	7,900
Central	Canfield Ranch	Old Area	Stevens	Fruitvale	8,100
Central	Canfield Ranch	Old River (Abd)	Stevens	Fruitvale	8,100
Central	English Colony	DOGGR - Abd	Stevens	Fruitvale	7,000
Central	Garrison City Gas (Abd)	-	Atwell Island	San Joaquin	3,450
Central	Garrison City Gas (Abd)	-	Mulinia	Etchegoin	4,500
Central	Garrison City Gas (Abd)	-	Mitchel	Etchegoin	5,970
Central	Goosloo	-	Upper Stevens	Fruitvale	9,500-10,000
Central	Greeley	-	Stevens	Fruitvale	8,300
Central	Greeley	-	Olcese 12-21	Jewett	10,530
Central	Greeley	-	Rio Bravo-Vedder	Jewett-Vedder	11,300
Central	Jerry Slough (Abd)	-	Fractured Shale	Reef Ridge and Monterey	11,250

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Sub-area	Administrative Oil Field[a] as in DOGGR TR11	Area Name as in DOGGR TR11[b]	Pool Name shown in DOGGR TR11[b]	Pool Stratigraphic Formation as shown in DOGGR TR11[c]	Pool Average Depth in feet, as Reported in DOGGR TR11
Central	Lakeside (Abd)	-	Stevens	Fruitvale	8,900
Central	Lakeside, South (Abd)	-	Upper Stevens	Fruitvale	10,880
Central	McClung (Abd)	-	Stevens	Fruitvale	7,450
Central	Rio Bravo	-	Upper Olcese	Round Mountain	10,200
Central	Rio Bravo	-	Olcese	Freeman-Jewett	10,550
Central	Rio Bravo	-	Osborn	Freeman-Jewett and Vedder	11,400
Central	Rio Bravo	-	Helbling	Vedder	11,660
Central	Rio Bravo	-	Gas Zone	Etchegoin	5500-6000
Central	Rose	No Entry in TR11	No Entry in TR11	No Entry in TR11	No Entry in TR11
Central	Rosedale	East Area (Abd)	Stevens	Fruitvale	4800-6800
Central	Rosedale	Main	Stevens Sand Stringers	Fruitvale	5,600
Central	Rosedale	Main	Main Stevens	Fruitvale	5,800
Central	Rosedale	Main	Lower Massive Stevens	Fruitvale	7,500
Central	Rosedale	North Area	Lower Massive Stevens	Fruitvale	6,900
Central	Rosedale	South Area	Stevens	Fruitvale	5800-6100
Central	Rosedale Ranch	-	Kernway 44	Chanac	4,900
Central	Rosedale Ranch	Northeast Area	Chanac	Chanac	4,300
Central	Rosedale Ranch	Main Area	Etchegoin Sand	Etchegoin	3,500
Central	Rosedale Ranch	Main Area	Lerdo	Etchegoin	4,200
Central	Rosedale Ranch	Main Area	KCL 31-38	Chanac	4,675
Central	Rosedale Ranch	Main Area	Kernway 44	Chanac	4,900
Central	Semitropic	-	Randolph	Etchegoin	7,400
Central	Semitropic	-	Vedder	Vedder	17,610
Central	Semitropic	-	San Joaquin (Gas)	San Joaquin	2200-4400
Central	Semitropic Gas, Northwest (Abd)	-	1st MYA	San Joaquin	2,740
Central	Seventh Standard	-	Stevens (27-3 Sand)	Fruitvale	7,900
Central	Shafter (Abd)	-	Vedder	Vedder	12,800
Central	Shafter Southeast Gas (Abd)	-	Etchegoin (E-7)	Etchegoin	4,300
Central	Shafter, North	-	McClure	Monterey	7,575
Central	Stockdale	-	Chanac	Chanac	6,350
Central	Stockdale	Old Area	Chanac	Chanac	6,350
Central	Stockdale	Panama Lane Area	Mozu	Round Mountain	11,500
Central	Strand	-	Upper Stevens	Fruitvale	8,350
Central	Strand	East Area	Upper Stevens	Fruitvale	8,150
Central	Strand	East Area	Lower Stevens	Fruitvale	9,770
Central	Strand	Main Area	Etchegoin Gas	Etchegoin	3,850
Central	Strand	Main Area	Upper Stevens	Fruitvale	8,350
Central	Strand	Main Area	Lower Stevens	Fruitvale	9,500
Central	Strand	Main Area	Vedder	Vedder	12,450
Central	Strand	Northwest Area	Upper Stevens	Fruitvale	8,700
Central	Strand	Northwest Area	Lower Stevens	Fruitvale	9,740
Central	Strand	Northwest Area	Etchegoin Gas	Etchegoin	3900-5900
Central	Strand	South Area (Abd)	Lower Stevens	Fruitvale	9,240
Central	Ten Section	-	Upper Stevens	Fruitvale	7,950
Central	Ten Section	Main Area	Upper Stevens	Fruitvale	7,950
Central	Ten Section	Main Area	Lower Stevens	Fruitvale	9,050
Central	Ten Section	Main Area	Etchegoin (Gas)	Etchegoin	3650-5800
Central	Ten Section	Northwest Area	Upper Stevens	Fruitvale	8,100
Central	Ten Section	Northwest Area	Lower Stevens	Fruitvale	9,500
Central	Trico Gas**	-	First MYA	San Joaquin	2,525
Central	Trico Gas**	-	Atwell Island	San Joaquin	3,225
Central	Wasco	-	Vedder	Freeman-Jewett	13,000
Central	Wasco	-	Eocene	Kreyenhagen	15,000
East Sub-Area					
East	Ant Hill	-	Olcese	Olcese	2,300
East	Ant Hill	-	Jewett	Jewett	4,500
East	Comanche Point	-	Santa Margarita	Santa Margarita	650
East	Dyer Creek	-	Vedder	Veddy	2,340
East	Edison	-	Mozu	Round Mountain	4,100
East	Edison	Edison Groves Area	Kern River-Chanac	Kern River-Chanac	1,150
East	Edison	Edison Groves Area	Olcese	Olcese	3,450
East	Edison	Jeppi Area	Jeppi	Chanac	3,300
East	Edison	Jeppi Area	Santa Margarita	Santa Margarita	3,500
East	Edison	Jeppi Area	Jewett	Freeman-Jewett	5,900
East	Edison	Jeppi Area	Pyramid Hill	Freeman-Jewett	5,950
East	Edison	Jeppi Area	Vedder	Vedder	6,040
East	Edison	Main Area	Walker	Walker	2,900
East	Edison	Main Area	Nozu	Round Mountain	3,000
East	Edison	Main Area	Freeman-Jewett	Freeman-Jewett	3,150
East	Edison	Main Area	Schist	Schist	1,200-4,500
East	Edison	Main Area	Wicker	Fruitvale	1,500-2,500
East	Edison	Main Area	Santa Margarita	Santa Margarita	400-4,400
East	Edison	Main Area	Kern River-Chanac	Kern River-Chanac	750-4,200

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Sub-area	Administrative Oil Field[a] as in DOGGR TR11	Area Name as in DOGGR TR11[b]	Pool Name shown in DOGGR TR11[b]	Pool Stratigraphic Formation as shown in DOGGR TR11[c]	Pool Average Depth in feet, as Reported in DOGGR TR11
East	Edison	Portals-Fairfax Area	Nozu	Round Mountain	4,100
East	Edison	Portals-Fairfax Area	Wicker	Fruitvale	4,200
East	Edison	Race Track Hill Area	Kern River-Chanac	Kern River-Chanac	1,070
East	Edison	Race Track Hill Area	Santa Margarita	Santa Margarita	1,830
East	Edison	Race Track Hill Area	Wicker	Fruitvale	3,200
East	Edison	Race Track Hill Area	Nozu	Round Mountain	3,260
East	Edison	Race Track Hill Area	Jewett	Jewett	4,570
East	Edison	Race Track Hill Area	Pyramid Hill	Jewett	4,620
East	Edison	Race Track Hill Area	Vedder	Vedder	4,730
East	Edison	West Area	Chanac	Chanac	3,200
East	Edison	West Area	Santa Margarita	Santa Margarita	4,000
East	Edison	West Area	Porter	Olcese	4,400
East	Edison	West Area	Nozu	Round Mountain	4,500
East	Edison	West Area	Freeman-Jewett	Freeman-Jewett	4,700
East	Edison	West Area	Pyramid Hill-Vedder	Jewett-Vedder	5,300
East	Fruitvale	-	Mason-Parker	Chanac	3,100
East	Fruitvale	-	Martin	Chanac	3,250
East	Fruitvale	-	Santa Margarita	Santa Margarita	4,500
East	Fruitvale	-	Kernco	Chanac	3,400-3,800
East	Fruitvale	Calloway	40-7	Chanac	4,050
East	Fruitvale	Calloway	42-0	Chanac	4,150
East	Fruitvale	Greenacres (Abd)	Lerdo	Etchegoin	4,300
East	Fruitvale	Greenacres (Abd)	Chanac	Chanac	4,400
East	Fruitvale	Main	Fairhaven	Etchegoin	3,000
East	Jasmin	-	Pyramid Hill	Jewett	1,705
East	Jasmin	-	Cantleberry Sands	Vedder	2,750
East	Jasmin, West (Abd)	-	Famoso	Walker	4200
East	Kern Bluff	-	Santa Margarita	Santa Margarita	950
East	Kern Bluff	-	Vedder	Vedder	4,020
East	Kern Bluff	-	Transition	Transition	740-1,350
East	Kern Front	-	Etchegoin-Chanac	Etchegoin-Chanac	2,290
East	Kern River	-	Jewett	Jewett	4,220
East	Kern River	-	Vedder	Vedder	4,700
East	Kern River	-	Kern River	Kern River	400-1300
East	Kernsumner (Abd)	-	Wicker Canyon fill	Fruitvale	10,530
East	Mount Poso	Baker-Grover	Vedder	Vedder	1,750
East	Mount Poso	Dominion Area	Pyramid Hill	Freeman-Jewett	1,140
East	Mount Poso	Dominion Area	Vedder	Vedder	1,560
East	Mount Poso	Dorsey Area	Vedder	Vedder	1,500
East	Mount Poso	Granite Canyon Area	Vedder	Vedder	1,390
East	Mount Poso	Main Area	Pyramid Hill	Freeman-Jewett	1,600
East	Mount Poso	Main Area	Vedder	Vedder	1,750
East	Mount Poso	West Area	Vedder	Vedder	2,575
East	Mountain View	-	Wharton (Hogan)	Santa Margarita	5,500
East	Mountain View	Arvin Area	Kern River	Kern River	4,900
East	Mountain View	Arvin Area	Chanac	Chanac	5,500
East	Mountain View	Arvin Area	Schist	Schist	5,700-7,100
East	Mountain View	Arvin Area	Santa Margarita	Santa Margarita	6,100-6,500
East	Mountain View	Arvin, West, Area	Chanac-Cattani	Chanac	6,100
East	Mountain View	Arvin, West, Area	Richards	Chanac	6,100
East	Mountain View	Arvin, West, Area	Cattani	Chanac	7,100
East	Mountain View	Arvin, West, Area	Houchin	Santa Margarita	8,100
East	Mountain View	Arvin, West, Area	Brite	Freeman-Jewett	8,300
East	Mountain View	Arvin, West, Area	Frick	Olcese	8,900
East	Mountain View	Arvin, West, Area	Stenderup	Fruitvale	9,600
East	Mountain View	Digiorgio (Abd)	Schist	Schist	5,800
East	Mountain View	Digiorgio (Abd)	Santa Margarita	Santa Margarita	6,000
East	Mountain View	Main Area	Nichols	Chanac	4,900
East	Mountain View	Main Area	(Basal Chanac) Hood	Chanac	5,200
East	Mountain View	Main Area	Transition	Chanac	5,400
East	Mountain View	Main Area	Wharton (Hogan)	Santa Margarita	5,500
East	Mountain View	Main Area	Walker	Walker	5,800
East	Mountain View	Main Area	Olcese	Olcese	7,000
East	Mountain View	Main Area	Schist	Schist	7,275
East	Mountain View	Main Area	Mozu	Round Mountain	7,300
East	Mountain View	Vaccaro Area	Chanac	Chanac	7,400
East	Mountain View	Vaccaro Area	Derby	Fruitvale	8,400
East	Mountain View	Vaccaro Area	Cattani	Chanac	7,100-7,400
East	Mountain View	Vaccaro Area	Houchin	Santa Margarita	8,000-9,100
East	Poso Creek	-	Chanac	Chanac	2,500
East	Poso Creek	Enas Area	Basal Etchegoin	Etchegoin	1,800
East	Poso Creek	Enas Area	Chanac	Chanac	1,900
East	Poso Creek	McVan Area	Basal Etchegoin	Etchegoin	1,150

Table 2-1: Physical Characteristics for Project Area Oil and Gas Fields

Sub-area	Administrative Oil Field[a] as in DOGGR TR11	Area Name as in DOGGR TR11[b]	Pool Name shown in DOGGR TR11[b]	Pool Stratigraphic Formation as shown in DOGGR TR11[c]	Pool Average Depth in feet, as Reported in DOGGR TR11
East	Poso Creek	McVan Area	Santa Margarita	Santa Margarita	1,800
East	Poso Creek	McVan Area	Pyramid Hill	Freeman-Jewett	3,150
East	Poso Creek	Premier Area	Macoma	Etchegoin	2,350
East	Poso Creek	Premier Area	Basal Etchegoin	Etchegoin	2,400
East	Poso Creek	Premier Area	Chanac	Chanac	2,500
East	Poso Creek	Premier Area	Kelly 2	Santa Margarita	3,400
East	Round Mountain	Alma Area	Vedder	Vedder	2,600
East	Round Mountain	Coffee Canyon Area	Pyramid Hill	Freeman-Jewett	1,500
East	Round Mountain	Coffee Canyon Area	Vedder	Vedder	1,650
East	Round Mountain	Main Area	Jewett	Freeman-Jewett	1,600
East	Round Mountain	Main Area	Pyramid Hill	Freeman-Jewett	1,900
East	Round Mountain	Main Area	Vedder	Vedder	2,000
East	Round Mountain	Pyramid Area	Pyramid Hill	Freeman-Jewett	1,250
East	Round Mountain	Pyramid Area	Vedder	Vedder	1,390
East	Round Mountain	Pyramid Area	Walker	Walker	1,535
East	Round Mountain	Sharktooth Area	Vedder	Vedder	2,400
East	Round Mountain South	No entry for this field	No entry for this field	No entry for this field	No entry for this field
East	Tejon	-	2-1 Sand	Fruitvale	2,670
East	Tejon	Central Area	Transition	Transition	2,725
East	Tejon	Central Area	Santa Margarita	Santa Margarita	2,900
East	Tejon	Central Area	Reserve	Fruitvale	4,400
East	Tejon	Central Area	Valv	Round Mountain	4,650
East	Tejon	Central Area	Olcese	Olcese	5,600
East	Tejon	Central Area	JV	Freeman-Jewett	7,200
East	Tejon	Eastern Area	Transition-Santa Margarita	Transition-Santa Margarita	2,000
East	Tejon	Southeast Area	Lower Reserve	Fruitvale	1,670
East	Tejon	Southeast Area	Upper Reserve	Fruitvale	1,810
East	Tejon	Southeast Area	2-1 Sand	Fruitvale	2,670
East	Tejon	Western Area	Transition-Santa Margarita	Transition-Santa Margarita	2,600
East	Tejon	Western Area	Pulv (Reserve)	Fruitvale	4,600
East	Tejon	Western Area	Valv	Round Mountain	5,400
East	Tejon Flats (Abd)	-	San Emigdio	San Emigdio	6,900
East	Tejon Hills	-	Santa Margarita	Santa Margarita	450
East	Tejon Hills	-	Valv	Round Mountain	1,350
East	Tejon Hills	-	Vedder	Vedder	1,565
East	Tejon Hills	-	San Emigdio	San Emigdio	2,100
East	Tejon, North	-	Olcese	Olcese	7,300
East	Tejon, North	-	"Basal" Sand	basalt	7,800
East	Tejon, North	-	JV	Freeman-Jewett	8,150
East	Tejon, North	-	Vedder	Vedder	10,000
East	Tejon, North	-	San Emigdio	San Emigdio	10,900
East	Tejon, North	-	Metralla	Tejon	11,000
East	Tejon, North	-	Fruitvale (Pulv)	Fruitvale	4275-5370
East	Union Ave.	-	Chanac	Chanac	4,100
East	Union Ave.	-	Santa Margarita	Santa Margarita	5,000
East	Valpredo	-	Santa Margarita	Santa Margarita	6,715

Notes:

(a) Field Names are from DOGGR TR11 *California Oil and Gas Fields* Volume I, downloaded on 12 February 2014.

(b) Area names and Pool names are taken directly from data sheets in DOGGR TR11. Some differences in Area and Pool names may exist between TR11 and monthly/yearly fielc production and injection data reports available from DOGGR.

(c) Producing interval's stratigraphic formation is taken directly as noted on data sheets in DOGGR TR11. Some differences in nomenclature or local/informal usage may occur.

(d) Abd = Abandoned, as designated in DOGGR TR11 or in DOGGR production and injection reports.

Table 2-2: Area and Depth to Fresh Water for Oil and Gas Fields in the Project Area

Sub-area	Administrative Oil Field [a]	Area in Square Miles[b]	Area in Acres	Depth from ground surface to the Base of Fresh Water (feet) [c][d]
West Sub-Area				
Fields Overlying Fresh Water				
West	Belgian Anticline	15.4	9,865	1,200 at west edge of Main area
West	Blackwells Corner	3.6	2,308	600
West	Cal Canal Gas	5.5	3,515	800
West	Coles Levee, North	15.1	9,671	1,300
West	Coles Levee, South	17.7	11,328	1,700
West	Devils Den [g]	12.8	8,175	No fresh water in south; 300 in north
West	Eagle Rest[e]	0.5	309	3,600
West	Landslide	2.1	1,374	4,500
West	Los Lobos	6.1	3,892	500-3,000; generally higher in north and east
West	Midway-Sunset**[f][g]	99.7	63,833	Extreme SE area 500; Other areas None
West	Paloma	29.7	18,985	2,500
West	Pioneer	1.0	643	800
West	Rio Viejo	4.1	2,642	5,500
West	San Emidio Nose	7.6	4,881	3,800-5,000
West	San Emigdio Creek (Abd)	0.5	341	3,200
West	Yowlumne	10.1	6,447	1,600-4,000
Fields Not Overlying Fresh Water				
West	Antelope Hills	4.4	2,824	No fresh water[e]
West	Antelope Hills, North	3.9	2,467	No fresh water
West	Antelope Plains Gas (Abd)	0.3	161	None[e]
West	Asphalto	4.6	2,976	No fresh water
West	Beer Nose	1.0	645	No fresh water
West	Belridge, North	9.1	5,801	No fresh water
West	Belridge, South	25.3	16,218	No fresh water
West	Buena Vista	46.9	29,993	No fresh water
West	Capitola Park[e]	1.0	652	None
West	Carneros Creek	1.5	967	No fresh water
West	Chico-Martinez	2.6	1,635	No fresh water
West	Cienaga Canyon	0.6	402	No fresh water
West	Cymric	21.5	13,758	No fresh water
West	Devils Den [g]	12.8	8,175	No fresh water in south; 300 in north
West	Elk Hills	72.9	46,631	No fresh water
West	Gonyer Anticline (Abd)	0.5	345	None
West	Lost Hills	33.2	21,273	No fresh water
West	Lost Hills, Northwest	8.6	5,508	No fresh water
West	McDonald Anticline	3.7	2,372	No fresh water
West	McKittrick	10.6	6,777	No fresh water
West	Midway-Sunset**[f][g]	99.7	63,833	Extreme SE area 500; Other areas None
West	Monument Junction	3.3	2,086	No fresh water
West	Pleito	3.0	1,927	No fresh water. Tulare Fm. in contact with fresh water in Valley
West	Railroad Gap	1.7	1,101	No fresh water
West	San Emigdio (Abd)	0.5	306	None
West	Shale Flats Gas (Abd)	1.0	647	None
West	Shale Point Gas (Abd)	0.6	387	None
West	Temblor Hills	1.0	644	None
West	Temblor Ranch	0.5	318	No fresh water
West	Temblor, East (Abd)	0.2	155	None
West	Welcome Valley	0.8	490	No fresh water
West	Wheeler Ridge [g]	8.1	5,204	Windgap area 1,800; Other areas None
West	White Wolf	1.3	846	No fresh water
Central Sub-Area				
Fields Overlying Fresh Water				
Central	Bellevue	3.6	2,326	West-1,900; east- 3,300
Central	Bellevue, West	2.0	1,248	2,400
Central	Bowerbank	16.2	10,352	1,700
Central	Buttonwillow Gas (Abd)	10.0	6,379	1,200
Central	Calders Corner	1.5	970	1,400
Central	Canal	3.9	2,477	2,000
Central	Canfield Ranch	13.3	8,536	2,600-3,100
Central	English Colony [e]	1.1	682	2,650-3,000
Central	Fruitvale	18.3	11,714	3,000
Central	Garrison City Gas Field (Abd)	4.7	3,017	1,550
Central	Goosloo Oil Field	3.0	1,935	2,250
Central	Greeley	9.4	6,022	2,400
Central	Jasmin, West (Abd)	0.5	322	2,750
Central	Jerry Slough (Abd)	0.5	318	1,500
Central	Kernsumner (Abd)	0.2	160	3,875
Central	Lakeside[e]	1.3	804	3,000
Central	Lakeside, South (Abd)	0.3	160	3,100
Central	McClung (Abd)	0.5	320	2,300
Central	Mountain View	28.5	18,251	2,000
Central	Northwest Semitropic Gas Field (Abd)	0.5	323	1,100

Table 2-2: Area and Depth to Fresh Water for Oil and Gas Fields in the Project Area

Sub-area	Administrative Oil Field [a]	Area in Square Miles[b]	Area in Acres	Depth from ground surface to the Base of Fresh Water (feet) [c][d]
Central	Rio Bravo	6.1	3,925	2,000-2,500
Central	Rose	5.5	3,522	1,520
Central	Rosedale	3.6	2,321	3,200
Central	Rosedale Ranch	5.0	3,213	2,900
Central	Semitropic	25.1	16,077	500-800
Central	Seventh Standard	0.5	320	3,000
Central	Shafter Oil Field (Abd)	0.5	321	1,500
Central	Shafter Southeast Gas (Abd)	1.0	642	1,500
Central	Shafter, North	7.5	4,768	1,700
Central	Stockdale	2.4	1,568	3,300-3,900
Central	Strand	7.9	5,069	1,800-2,000
Central	Ten Section	7.4	4,726	800-2,400
Central	Trico Gas**[f]	6.8	4,359	1,200
Central	Valpredo	0.3	163	5,700
Central	Wasco	4.0	2,576	1,400
East Sub-Area				
Fields Overlying Fresh Water				
East	Ant Hill	1.7	1,098	850
East	Comanche Point	1.9	1,203	750
East	Dyer Creek	0.4	240	1,300
East	Edison	34.0	21,742	1,700 main; 4,000 in west
East	Edison, Northeast	0.6	409	1,400
East	Jasmin	10.3	6,607	Water is fresh to basement
East	Kern Bluff	4.2	2,669	950
East	Kern Front	19.0	12,136	2,500
East	Kern River	25.8	16,533	Entire zone is fresh water
East	Mount Poso [g]	45.9	29,361	Fractures in basement contain salt water
East	Poso Creek	30.9	19,807	1,600-2,200
East	Round Mountain [g]	19.2	12,266	Coffee Canyon Area 0-200; Other areas None
East	Round Mountain South (No entry)	0.4	277	Not Listed
East	Tejon	11.3	7,228	1,600
East	Tejon Flats (Abd)	0.3	161	2,200
East	Tejon Hills	6.7	4,283	800
East	Tejon, North	9.2	5,914	2,100
East	Union Ave.	1.0	655	3,550
East	Wheeler Ridge [g]	8.1	5,204	Windgap area 1,800; Other areas None
Fields Not Overlying Fresh Water				
East	Mount Poso [g]	45.9	29,361	Fractures in basement contain salt water
East	Round Mountain [g]	19.2	12,266	Coffee Canyon Area 0-200; Other areas None

Notes:

DOGGR - California Division of Oil, Gas, and Geothermal Resources
(Abd) = Indicates field operations have been abandoned

Footnotes:

(a) Kern County cites California Division of Oil, Gas, and Geothermal Resources (DOGGR) Field Boundaries, 6 March 2013

(b) Field Size in Acres and Square Miles from: Initial Study/Notice of Preparation, Amendment to Title 19 Kern County Zoning Ordinance, focused on

(c) Base of fresh water from 1) Field Rules on DOGGR website http://www.consrv.ca.gov/dog/field_rules/Pages/field_rules_index.aspx#b accessed on 21 February 2014 or 2) If field is abandoned, or field rules were not on DOGGR website, the base of fresh water was taken from DOGGR TR11 (1998)

(d) "No fresh water" is the phrase used in the Field Rules whereas "None" is the phrase used on field data sheets.

(e) DOGGR - Abd: Not shown as Abandoned on NOP, but listed as 'Abandoned' in DOGGR website, accessed 20 February 2014.

(f) ** Field is located on the border of Kern and an adjacent county. Area in Kern County is approximate.

(g) Field overlies both fresh and non-fresh groundwater aquifers

Table 3-1: Definitions for Designated Beneficial Uses of Water Bodies in the Project Area

Abbreviation	Name	Description
MUN	Municipal and Domestic Supply	Uses of water for community, military, or individual water supply systems including drinking water supply
AGR	Agricultural Supply	Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing
IND	Industrial Service Supply	Uses of water for industrial activities that do not depend primarily on water quality, including mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization
PRO	Industrial Process Supply	Uses of water for industrial activities that depend primarily on water quality
POW	Hydropower Generation	Uses of water for hydropower generation
REC-1	Water Contact Recreation	Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible, including swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, and use of natural hot springs
REC-2	Non-Contact Water Recreation	Uses of water for recreational activities involving proximity to water but where there is generally no body contact with water or any likelihood of ingestion of water, including picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities
WARM	Warm Freshwater Habitat	Includes support for reproduction and early development of warm water fish
COLD	Cold Freshwater Habitat	Uses of water that support cold water ecosystems, including preservation or enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates
WILD	Wildlife Habitat	Uses of water that support terrestrial or wetland ecosystems, including preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), and wildlife water and food sources
RARE	Rare, Threatened, or Endangered Species	Uses of water that support aquatic habitats necessary, at least in part, for the survival and successful maintenance of plant and animal species established under state or federal law as rare, threatened, or endangered
SPWN	Spawning, Reproduction, and/or Early Development	Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish (limited to cold water fisheries)

Table 3-1: Definitions for Designated Beneficial Uses of Water Bodies in the Project Area

Abbreviation	Name	Description
GWR	Ground Water Recharge	Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers
FRSH	Freshwater Replenishment	Uses of water for natural or artificial maintenance of surface water quantity or quality

Table 3-2: Surface Water Designated Beneficial Uses in Tulare Lake Basin and the Project Area

Stream[a]	MUN	AGR	IND	PRO	POW	REC-1	REC-2	WARM	COLD	WILD	RARE	SPWN	GWR	FRSH
554, 557 Kern River														
Above Lake Isabella	•				•	•	•	•	•	•	•	•		•
Lake Isabella					•	•	•	•	•	•				•
Lake Isabella to KR-1[b]					•	•	•	•	•	•	•			
Below KR-1[b]	•	•	•	•	•	•	•	•		•	•		•	
555, 558 Poso Creek		•				•	•	•	•	•			•	•
552 Mill Creek, Source to Kings River	•					•	•	•		•			•	•
552, 553, 554, 555 Other East Side Streams	•	•				•	•	•	•	•			•	
556, 559 West Side Streams		•	•	•		•	•	•		•	•		•	
551, 557, 558 Valley Floor Waters		•	•	•		•	•	•		•	•		•	

Notes: Table is a partial reproduction of the Basin Plan Table II-1 for the Tulare Lake Hydrologic Basin (CA RWQCB 2004).

(a) **Bold** indicates surface waters that are in the Project Area.
(b) KR-1: Southern California Edison Kern River Powerhouse No. 1.

Table 3-3: Groundwater Designated Beneficial Uses in the Project Area

Hydrologic Unit	DAU[(a)]	MUN	AGR	IND	PRO	REC-1	REC-2	WILD
Kern County Basin								
	245	•	•	•				
	254[(b)]	•	•	•	•	•	•	•
	255	•	•	•				•
	256	•	•	•	•			
	257	•	•	•		•		
	258	•	•	•	•			
	259[(c)]	•	•	•				
	260	•		•				
	261	•	•	•				
All Other Ground Waters[(d)]		•						

Notes: Table is a partial reproduction of the Basin Plan Table II-2 for the Tulare Lake Hydrologic Basin (CA RWQCB 2004).

DAU = detailed analysis unit

(a) Ground water contained in the lower Transition Zone and Santa Margarita formation within 3,000 feet of the Kern Oil and Refining Company proposed injection wells in Section 25, T30S, R28E, MDB&M, is not suitable, or potentially suitable, for municipal or domestic supply (MUN).

(b) Ground water contained in the basal Etchegoin formation, Chanac formation, and Santa Margarita formation within, and extending to one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the State of California, Department of Conservation, Division of Oil and Gas in *Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act*, dated April 1981, is not suitable, or potentially suitable, for municipal or domestic supply (MUN). However, the upper ground water zone (ground water to a depth of 3,000 feet) retains the MUN beneficial use.

(c) Ground water and spring water within 1/2 mile radius of the McKittrick Waste Treatment (formerly Liquid Waste Management) site in Section 29, T30S, R22E, MDB&M, have no beneficial uses.

(d) Ground water in the San Joaquin, Etchegoin, and Jacalitos Formations within one-half mile of existing surface impoundments P-1, P-2, P-3, P-4, P-4 1/2, P-5, P-6, P-7, P-8, P-9, P-10, P-11, P-12/12A, P-13, P-14, P-15, P-16, P-17, P-18, P- 19, and P-20, and proposed surface impoundments P-21, P-24, P-25, P-27, P-28, and P-29 at the Kettleman Hills Facility (Sections 33 and 34, T22S, R18E, and Section 3, T23S, R18E, MDB&M) of Chemical Waste Management is not a municipal or domestic supply (MUN).

Table 3-4: Summary of Kern River Water Quality from SWRCB SWAMP, 2002-2004

Water Quality Parameters	Units	Station Name: Ker MM14/MM15 (Station Code 554KER070)						Station Name: Rancheria Road (Station Code 554KER080)					
		Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range
General Water Quality													
Alkalinity, Total	mg/L as $CaCO_3$	38				1	06/26/03	40	40	39	40	2	6/26/03 - 06/26/03
Ammonium	mg/L as N	0.024	0.019	0.0086	0.053	8	12/12/02 - 05/26/04	0.065	0.018	ND	0.232	7	12/12/02 - 05/26/04
Calcium	mg/L	10				1	06/26/03	11				1	06/26/03
Chloride	mg/L	3.7				1	06/26/03	3.7				1	06/26/03
Dissolved oxygen	mg/L	11	11	10	13	9	03/27/02 - 05/26/04	11	11	10	12	9	03/27/02 - 05/26/04
Magnesium	mg/L	1.6				1	06/26/03	1.6				1	06/26/03
Nitrate + Nitrite	mg/L as N	0.11	0.073	0.026	0.28	6	12/12/02 - 05/26/04	0.12	0.088	0.037	0.28	6	12/12/02 - 05/26/04
Nitrate	mg/L as N	ND				1	06/26/03	ND				1	06/26/03
Nitrite	mg/L as N	ND				1	06/26/03	ND				1	06/26/03
Nitrogen, Total Kjeldahl (TKN)	mg/L	0.36	0.33	ND	0.50	6	03/27/02 - 05/26/04	0.46	0.51	ND	0.57	6	12/12/02 - 05/26/04
Orthophosphate, Dissolved	mg/L as P	0.036	0.034	0.01	0.073	5	12/12/02 - 05/26/04	0.037	0.034	0.0076	0.076	5	12/12/02 - 05/26/04
pH	pH units	8.4	8.5	8.1	8.6	9	03/27/02 - 05/26/04	8.4	8.5	8.1	8.6	9	03/27/02 05/26/04
Phosphorus, Total	mg/L as P	0.076	0.050	0.045	0.13	5	12/12/02 - 05/26/04	0.079	0.050	0.046	0.15	5	12/12/02 - 05/26/04
Potassium	mg/L	1.6				1	06/26/03	1.6				1	06/26/03
Sodium	mg/L	7.7				1	06/26/03	8.3	8.3	8.2	8.3	2	06/26/03 - 06/26/03
Specific conductivity	uS/cm	139	130	96	178	9	03/27/02 - 05/26/04	150	137	114	195	8	06/20/02 - 05/26/04
Sulfate	mg/L	5.2				1	06/26/03	6.5				1	06/26/03
Temperature	°C	15	15	8.7	22	9	03/27/02 - 05/26/04	16	14	10	22	9	03/27/02 - 05/26/04
Total dissolved solids (TDS)	mg/L	76				1	06/26/03	71				1	06/26/03
Metals													
Iron, Total	ug/L	220				1	06/26/03	185	185	171.5	198.5	2	06/26/03 - 06/26/03
Manganese, Total	ug/L	46				1	06/26/03	44				1	06/26/03
Other Water Quality Parameters													
Boron	mg/L	0.75				1	06/26/03	0.0775	0.0775	0.0771	0.078	2	06/26/03 - 06/26/03
Microbial Indicators													
Coliform, Fecal	MPN/100 mL	20	8.0	ND	83	9	03/27/02 - 05/26/04	30	5.5	2.0	140	10	03/27/02 - 05/26/04
Coliform, Total	MPN/100 mL	130	80	28	276	9	03/27/02 - 05/26/04	133	125	8.0	273	10	03/27/02 - 05/26/04
E. Coli	MPN/100 mL	19	4.0	ND	83	9	03/27/02 - 05/26/04	32	7.0	2.0	151	9	03/27/02 - 05/26/04
Fecal Streptococci	MPN/100 mL	47	47	17	77	2	03/27/02 - 06/20/02	89	89	16	162	2	03/27/02 - 06/20/02

Table 3-4: Summary of Kern River Water Quality from SWRCB SWAMP, 2002-2004

Water Quality Parameters	Units	Station Name: Hart Park (Station Code 554KER090)						Station Name: Calloway Weir (Station Code 554KER110)					
		Average	Median	Min[(a)]	Max[(b)]	N	Date Range	Average	Median	Min[(a)]	Max[(b)]	N	Date Range
General Water Quality													
Alkalinity, Total	mg/L as $CaCO_3$												
Ammonium	mg/L as N	0.026	0.017	0.011	0.057	7	12/12/02 - 05/26/04	0.016	0.007	0.0036	0.039	4	12/12/02 - 05/26/04
Calcium	mg/L												
Chloride	mg/L												
Dissolved oxygen	mg/L	11	11	9.9	12	8	03/27/02 - 05/26/04	9.8	9.8	9.1	11	5	03/27/02 - 05/26/04
Magnesium	mg/L												
Nitrate + Nitrite	mg/L as N	0.12	0.080	0.028	0.29	6	12/12/02 - 05/26/04	0.08	0.031	0.005	0.21	4	12/12/02 - 05/26/04
Nitrate	mg/L as N												
Nitrite	mg/L as N												
Nitrogen, Total Kjeldahl (TKN)	mg/L	0.44	0.51	0.25	0.57	5	12/12/02 - 05/26/04	0.43	0.41	0.32	0.55	4	12/12/02 - 05/26/04
Orthophosphate, Dissolved	mg/L as P	0.039	0.036	0.011	0.076	5	12/12/02 - 05/26/04	0.036	0.036	0.017	0.056	3	12/12/02 - 05/26/04
pH	pH units	8.5	8.6	8.1	8.7	8	03/27/02 - 05/26/04	8.5	8.6	8.0	8.8	4	03/27/02 - 05/26/04
Phosphorus, Total	mg/L as P	0.082	0.062	0.048	0.15	5	12/12/02 - 05/26/04	0.061	0.051	0.033	0.10	4	12/12/02 - 05/26/04
Potassium	mg/L												
Sodium	mg/L												
Specific Conductivity	uS/cm	167	156	119	227	7	06/20/02 - 05/26/04	163	157	139	195	4	09/18/02 - 05/26/04
Sulfate	mg/L												
Temperature	°C	17	17	11	23	8	03/27/02 - 05/26/04	17	15	11	24	5	03/27/02 - 05/26/04
Total dissolved solids (TDS)	mg/L												
Iron, Total	ug/L												
Manganese, Total	ug/L												
Other Water Quality Parameters													
Boron	mg/L												
Microbial Indicators													
Coliform, Fecal	MPN/100 mL	54	30	9.2	154	9	03/27/02 - 05/26/04	88	22	8.8	260	4	03/27/02 - 05/26/04
Coliform, Total	MPN/100 mL	159	110	38	420	9	03/27/02 - 05/26/04	200	235	51	300	4	03/27/02 - 05/26/04
E. Coli	MPN/100 mL	44	13	4.4	154	9	03/27/02 - 05/26/04	87	22	5.4	260	4	03/27/02 - 05/26/04
Fecal Streptococci	MPN/100 mL	175	175	63	288	2	03/27/02 - 06/20/02	17				1	03/27/02

Notes: Source – SWRCB SWAMP, data available from CEDEN (CA SWRCB 2012a) and STORET Data Warehouse (STORET 2014)

N = number of results; ND = not detected above the method reporting limit; SWRCB = State Water Resources Control Board; SWAMP = Surface Water Ambient Monitoring Program

Where "ND", average, median, minimum, and maximum are calculated assuming a value equal to one-half the reporting limit (RL).

(a) Minimum value calculated as the 5th percentile. When one or more result is ND, the minimum is reported as ND.

(b) Maximum value calculated as the 95th percentile.

Table 3-5: Summary of Deer Creek, Poso Creek, and El Paso Creek Water Quality from Central Valley RWQCB ILRP, 2009-2012

		Station Name: Deer Creek at Road 120 (Station Code 558DCR120)						Station Name: Deer Creek at Road 176 (Station Code 558DCR178)					
Water Quality Parameters	**Units**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**
General Water Quality													
Ammonia, Total	mg/L as N	ND				18	5/12/2009 - 4/18/2012	ND	ND	ND	0.16	19	5/12/2009 - 4/18/2012
Calcium	mg/L	8.0	4.3	2.0	21	18	5/12/2009 - 4/18/2012	7.2	4.0	1.9	19	19	5/12/2009 - 4/18/2012
Color	color units	41	15	8.4	108	18	5/12/2009 - 4/18/2012	33	13	7.7	150	19	5/12/2009 - 4/18/2012
Dissolved Oxygen	mg/L	8.7	8.4	7.7	10	19	5/12/2009 - 4/18/2012	8.9	8.5	7.7	11	19	5/12/2009 - 4/18/2012
Hardness	mg/L as $CaCO_3$	26	14	6.5	70	18	5/12/2009 - 4/18/2012	24	13	6.0	66	19	5/12/2009 - 4/18/2012
Magnesium, Total	mg/L	1.54	ND	ND	4.4	18	5/12/2009 - 4/18/2012	1.5	ND	ND	4.36	19	5/12/2009 - 4/18/2012
Nitrate + Nitrite, Total	mg/L as N	0.15	0.050	ND	0.50	18	5/12/2009 - 4/18/2012	0.19	0.050	ND	0.56	19	5/12/2009 - 4/18/2012
Nitrogen, Total Kjeldahl	mg/L	ND	ND	ND	1.0	18	5/12/2009 - 4/18/2012	ND	ND	ND	0.83	19	5/12/2009 - 4/18/2012
OrthoPhosphate as P, Dissolved	mg/L	0.069	0.060	ND	0.16	18	5/12/2009 - 4/18/2012	0.062	0.041	0.011	0.15	19	5/12/2009 - 4/18/2012
pH	pH units	7.8	7.7	7.1	8.8	19	5/12/2009 - 4/18/2012	7.6	7.6	7.1	8.2	19	5/12/2009 - 4/18/2012
Phosphorus, Total	mg/L as P	0.041	0.018	ND	0.14	18	5/12/2009 - 4/18/2012	0.05	0.02	ND	0.20	19	5/12/2009 - 4/18/2012
Specific Conductivity, Total	uS/cm	74	50	21	200	19	5/12/2009 - 4/18/2012	76	49	20	192	19	5/12/2009 - 4/18/2012
Temperature	°C	21	22	15	29	19	5/12/2009 - 4/18/2012	18	19	11	25	19	5/12/2009 4/18/2012
Total Dissolved Solids (TDS)	mg/L	62	37	21	152	18	5/12/2009 - 4/18/2012	52	36	14	132	19	5/12/2009 - 4/18/2012
Total organic carbon (TOC)	mg/L	3.3	2.5	1.1	8.3	18	5/12/2009 - 4/18/2012	3.0	2.4	1.0	6.8	19	5/12/2009 - 4/18/2012
Total Suspended Solids	mg/L	8.2	6.3	ND	20	18	5/12/2009 - 4/18/2012	13	13	ND	33	19	5/12/2009 - 4/18/2012
Turbidity, Total	NTU	6.6	5.3	1.2	13	18	5/12/2009 - 4/18/2012	5.7	4.4	1.3	13	19	5/12/2009 - 4/18/2012
Metals													
Arsenic, Total	ug/L	1.5	1.7	ND	1.9	7	5/12/2009 - 8/17/2010	1.6	1.6	1.1	2.2	8	5/12/2009 - 8/17/2010
Cadmium, Dissolved	ug/L	ND				7	5/12/2009 - 8/17/2010	ND	ND	ND	0.10	8	5/12/2009 - 8/17/2010
Cadmium, Total	ug/L	ND	ND	ND	0.14	7	5/12/2009 - 8/17/2010	ND				8	5/12/2009 - 8/17/2010
Copper, Dissolved	ug/L	3.6	4.2	1.6	4.5	7	5/12/2009 - 8/17/2010	6.5	3.2	1.7	18	8	5/12/2009 - 8/17/2010
Copper, Total	ug/L	8.4	5.8	4.1	20	7	5/12/2009 - 8/17/2010	6.9	6.2	2.9	14	8	5/12/2009 - 8/17/2010
Lead, Dissolved	ug/L	ND				7	5/12/2009 - 8/17/2010	0.24	ND	ND	0.80	8	5/12/2009 - 8/17/2010
Lead, Total	ug/L	0.57	0.60	0.40	0.79	7	5/12/2009 - 8/17/2010	1.3	0.68	0.37	4.2	8	5/12/2009 - 8/17/2010
Molybdenum, Total	ug/L	1.6	ND	ND	4.6	7	5/12/2009 - 8/17/2010	1.3	ND	ND	3.9	8	5/12/2009 - 8/17/2010
Nickel, Dissolved	ug/L	ND				7	5/12/2009 - 8/17/2010	ND	ND	ND	1.6	8	5/12/2009 - 8/17/2010
Nickel, Total	ug/L	1.0	ND	ND	2.8	7	5/12/2009 - 8/17/2010	ND	1.0	ND	1.5	8	5/12/2009 - 8/17/2010
Selenium, Total	ug/L	ND				7	5/12/2009 - 8/17/2010	ND				8	5/12/2009 - 8/17/2010
Zinc, Dissolved	ug/L	ND				7	5/12/2009 - 8/17/2010	ND	ND	ND	11	8	5/12/2009 - 8/17/2010
Zinc, Total	ug/L	11	11.2	ND	18	7	5/12/2009 - 8/17/2010	13	ND	ND	24	8	5/12/2009 - 5/12/2009
Microbial Indicators													
Coliform, Fecal	MPN/100 mL	165	80.0	22	500	20	5/12/2009 - 4/18/2012	138	80	13	300	21	5/12/2009 - 4/18/2012
Coliform, Total	MPN/100 mL	1667	2200	300	2420	35	5/12/2009 - 4/18/2012	1775	1700	166	2420	39	5/12/2009 - 4/18/2012
E. coli	MPN/100 mL	100	56	8.4	302	17	5/12/2009 - 4/18/2012	120	64	14	353	20	5/12/2009 - 4/18/2012
Other Water Quality Parameters													
Boron, Total	ug/L	17	ND	ND	43	7	5/12/2009 - 8/17/2010	13	10	ND	27	8	5/12/2009 - 8/17/2010
Pesticides[c]													
Chlorpyrifos, Total	ug/L	ND	ND	ND	0.020	6	5/12/2009 - 8/17/2010	ND				7	5/12/2009 - 8/17/2010
Diazinon, Total	ug/L	ND				9	5/12/2009 - 8/17/2010	ND				10	5/12/2009 - 8/17/2010
Dichlorvos, Total	ug/L	ND				6	5/12/2009 - 8/17/2010	ND				7	5/12/2009 - 8/17/2010
Phosmet, Total	ug/L	ND				6	5/12/2009 - 8/17/2010	ND				7	5/12/2009 - 8/17/2010
Trifluralin, Total	ug/L	ND				6	5/12/2009 - 8/17/2010	ND				7	5/12/2009 - 8/17/2010

Table 3-5: Summary of Deer Creek, Poso Creek, and El Paso Creek Water Quality from Central Valley RWQCB ILRP, 2009-2012

Water Quality Parameters	Units	Station Name: Poso Creek at Zerker Road (Station Code 558PSCZKR)						Station Name: El Paso Creek (Station Code 557ELPCRK)					
		Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range
General Water Quality													
Ammonia, Total	mg/L as N	ND	ND	ND	0.20	9	3/24/2010 - 4/4/2012	0.53	0.53	0.22	0.827	2	3/26/2011 - 4/18/2011
Calcium	mg/L	27	26	22	33	9	3/24/2010 - 4/4/2012	62	62	57	67	2	3/26/2011 - 4/18/2011
Color	color units												
Oxygen, Dissolved, Total	mg/L	8.8	9	7.8	9.7	9	3/24/2010 - 4/4/2012	8.3	8.3	7.6	8.9	2	3/26/2011 - 4/18/2011
Hardness	mg/L as $CaCO_3$	92	88	76	111	9	3/24/2010 - 4/4/2012	234	234	218	250	2	3/26/2011 - 4/18/2011
Magnesium, Total	mg/L	5.9	5.7	5.0	7.0	9	3/24/2010 - 4/4/2012	19	19	18	20	2	3/26/2011 - 4/18/2011
Nitrate + Nitrite, Total	mg/L as N	0.41	0.20	0.07	0.92	9	3/24/2010 - 4/4/2012	2.6	2.6	1.9	3.4	2	3/26/2011 - 4/18/2011
Nitrogen, Total Kjeldahl	mg/L	ND	ND	ND	1.10	9	3/24/2010 - 4/4/2012	1.3	1.3	0.61	1.9	2	3/26/2011 - 4/18/2011
OrthoPhosphate as P, Dissolved	mg/L	0.50	0.54	0.25	0.62	9	3/24/2010 - 4/4/2012	0.64	0.64	0.51	0.77	2	3/26/2011 - 4/18/2011
pH	pH units	8.2	8.2	7.4	8.6	9	3/24/2010 - 4/4/2012	8.6	8.6	8.5	8.7	2	3/26/2011 - 4/18/2011
Phosphorus, Total	mg/L as P	0.14	0.16	0.020	0.21	9	3/24/2010 - 4/4/2012	0.61	0.61	0.37	0.85	2	3/26/2011 - 4/18/2011
SpecificConductivity, Total	uS/cm	269	262	223	332	18	3/24/2010 - 4/4/2012	448	450	411	481	4	3/26/2011 - 4/18/2011
Temperature	°C	21	18	15	29	9	3/24/2010 - 4/4/2012	20	20	14	26	2	3/26/2011 - 4/18/2011
Total Dissolved Solids (TDS)	mg/L	191	184	155	226	9	3/24/2010 - 4/4/2012	297	297	282	312	2	3/26/2011 - 4/18/2011
Total organic carbon (TOC)	mg/L	5.6	5.8	4.0	7.0	9	3/24/2010 - 4/4/2012	6.0	6.0	5.9	6.1	2	3/26/2011 - 4/18/2011
Total Suspended Solids, Particulate	mg/L	29	28	ND	50	9	3/24/2010 - 4/4/2012	212	212	138	286	2	3/26/2011 - 4/18/2011
Turbidity, Total	NTU	17	16	3.3	33	9	3/24/2010 - 4/4/2012	171	171	97	245	2	3/26/2011 - 4/18/2011
Metals													
Arsenic, Total	ug/L	8.2	8.2	8.1	8.3	2	3/24/2010 - 4/27/2010						
Cadmium, Dissolved	ug/L	ND				2	3/24/2010 - 4/27/2010						
Cadmium, Total	ug/L	ND				2	3/24/2010 - 4/27/2010						
Copper, Dissolved	ug/L	7.1	7.1	4.3	9.9	2	3/24/2010 - 4/27/2010						
Copper, Total	ug/L	5.7	5.7	4.9	6.5	2	3/24/2010 - 4/27/2010						
Lead, Dissolved	ug/L	ND				2	3/24/2010 - 4/27/2010						
Lead, Total	ug/L	0.78	0.78	0.64	0.93	2	3/24/2010 - 4/27/2010						
Molybdenum, Total	ug/L	8.9				1	4/27/2010						
Nickel, Dissolved	ug/L	1.9	1.9	ND	3.1	2	3/24/2010 - 4/27/2010						
Nickel, Total	ug/L	1.2	1.2	1.1	1.4	2	3/24/2010 - 4/27/2010						
Selenium, Total	ug/L	ND				2	3/24/2010 - 4/27/2010						
Zinc, Dissolved	ug/L	ND				2	3/24/2010 - 4/27/2010						
Zinc, Total	ug/L	11	11	ND	12	2	3/24/2010 - 4/27/2010						
Microbial Indicators													
Coliform, Fecal	MPN/100 mL	578	500	23	1700	9	3/24/2010 - 4/4/2012	2650	2650	535	4765	2	3/26/2011 - 4/18/2011
Coliform, Total	MPN/100 mL	2360	2419	331	5450	18	3/24/2010 - 4/4/2012	9960	3710	2419	26250	4	3/26/2011 - 4/18/2011
E. coli	MPN/100 mL	568	454	33	1760	9	3/24/2010 - 4/4/2012	833	833	412	1253	2	3/26/2011 - 4/18/2011
Other Water Quality Parameters													
Boron, Total	ug/L	63	63	54	73	2	3/24/2010 - 4/27/2010						
Pesticides[c]													
Chlorpyrifos, Total	ug/L	0.036	ND	ND	0.084	3	3/24/2010 - 4/27/2010						
Diazinon, Total	ug/L	0.026	ND	ND	0.053	3	3/24/2010 - 4/27/2010						
Dichlorvos, Total	ug/L	ND	ND	ND	0.14	3	3/24/2010 - 4/27/2010						
Phosmet, Total	ug/L	ND	ND	ND	0.10	3	3/24/2010 - 4/27/2010						
Trifluralin, Total	ug/L	ND	ND	ND	0.047	3	3/24/2010 - 4/27/2010						

Table 3-5: Summary of Deer Creek, Poso Creek, and El Paso Creek Water Quality from Central Valley RWQCB ILRP, 2009-2012

Notes: Source – Central Valley RWQCB ILRP, data available from CEDEN (CA SWRCB 2012a) and STORET Data Warehouse (STORET 2014)

N = number of results; ND = not detected above the method reporting limit; RWQCB = Regional Water Quality Control Board; ILRP = Irrigated Lands Regulatory Program

Where "ND", average, median, minimum, and maximum are calculated assuming a value equal to one-half the reporting limit (RL).

(a) Minimum value calculated as the 5th percentile. When one or more result is ND, the minimum is reported as ND.

(b) Maximum value calculated as the 95th percentile.

(c) For Deer Creek at Road 120 and Deer Creek at Road 176, 76 additional pesticides were measured (N = 2 to 9) between 2009 and 2010 and were not detected. For Poso Creek at Zerker Road, 53 additional pesticides were measured (N = 1 to 3) in 2010 and were not detected. No pesticides data is reported for El Paso Creek.

Table 3-6: Summary of Water Quality for Surface Water in the Project Area by Geographic Sub-area, 2002-2012

Water Quality Parameters	Units	WEST					CENTRAL					EAST				
		Average	Median	Min	Max	N[(a)]	Average	Median	Min	Max	N[(a)]	Average	Median	Min	Max	N[(a)]
General Water Quality																
Alkalinity, Total	mg/L as $CaCO_3$	*(no data available from SWAMP or ILRP for rivers and creeks in this sub-area)*					61	63	57	64	1	39	39	38	40	2
Ammonia, Total	mg/L as N						0.16	0.10	ND	0.8	4	0.033	0.018	ND	0.23	5
Calcium	mg/L						28	20	2.0	67	4	9.4	10	1.9	19	3
Chloride	mg/L						5.0	5.1	3.5	6.4	1	3.7	3.7	3.7	3.7	2
Color	color units						31	18	8.4	108	2	33	13	7.7	150	1
Dissolved oxygen	mg/L						8.8	8.7	7.7	10	2	10	10	7.6	13	6
Hardness	mg/L as $CaCO_3$						100	68	6.5	250	4	24	13	6.0	66	1
Magnesium, Total	mg/L						7.3	5.7	ND	20	4	1.6	1.6	ND	4.4	3
Nitrate	mg/L as N						ND				1	ND	ND	ND	ND	2
Nitrate + Nitrite	mg/L as N						0.80	0.13	ND	3.4	4	0.12	0.07	ND	0.56	5
Nitrogen, Total Kjeldahl (TKN)	mg/L						0.25	0.25	0.25	1.1	2	0.53	0.46	ND	1.90	6
Orthophosphate, Dissolved	mg/L as P						0.29	0.30	ND	0.62	2	0.141	0.036	ND	0.77	6
pH	pH units						8.0	7.9	7.1	8.8	3	8.3	8.5	7.1	8.8	6
Phosphorus, Total	mg/L as P						0.26	0.16	ND	0.85	3	0.070	0.050	ND	0.20	5
Sodium	mg/L						14	14	12	17	1	8.0	8.0	7.7	8.3	2
Specific conductivity	uS/cm						171	165	21	332	3	190	146	20	481	6
Temperature	°C						21	20	15	29	2	17	16	9	26	6
Total dissolved solids (TDS)	mg/L						118	101	21	226	3	124	167	14	312	4
Total organic carbon (TOC)	mg/L						4.4	4.2	1.1	8.3	4	3.0	2.4	1.0	6.8	1
Total Suspended Solids	mg/L						83	28	ND	286	3	13	13	ND	33	1
Turbidity	NTU						50	11	1.2	245	4	5.7	4.4	1.3	13	1
Metals[(b)]																
Arsenic, Total	ug/L						4.5	4.0	ND	8.3	3	1.6	1.6	1.1	2.2	1
Cadmium, Dissolved	ug/L						ND	ND	ND	ND	3	ND	ND	ND	0.10	1
Cadmium, Total	ug/L						ND	ND	ND	0.14	2	ND				1
Copper, Dissolved	ug/L						3.6	4.2	ND	9.9	3	6.5	3.2	1.7	18.3	1
Copper, Total	ug/L						7.0	5.8	4.1	20.3	2	6.9	6.2	2.9	13.8	1
Iron, Total	ug/L											203	203	172	220	2
Lead, Dissolved	ug/L						ND	ND	ND	ND	3	0.24	ND	ND	0.80	1
Lead, Total	ug/L						0.7	0.7	0.4	0.9	2	1.3	0.68	0.37	4.2	1
Manganese, Total	ug/L											45	45	44	46	2
Molybdenum, Total	ug/L						5.2	4.5	ND	8.9	2	1.3	ND	ND	3.9	1
Nickel, Dissolved	ug/L						0.9	0.9	ND	3.1	3	ND	ND	ND	1.6	1
Nickel, Total	ug/L						1.1	1.2	1.1	2.8	2	ND	1.0	ND	1.5	1
Selenium, Total	ug/L						ND	ND	ND	ND	3	ND				1
Zinc, Dissolved	ug/L						ND	ND	ND	ND	3	ND	ND	ND	11	1
Zinc, Total	ug/L						10.6	10.9	ND	18.3	2	13	ND	ND	24	1
Microbial Indicators																
Coliform, Fecal	MPN/100 mL						372	290	22	1,700	2	496	26	2	4,765	5
Coliform, Total	MPN/100 mL						2,013	2,310	300	5,450	2	2,059	180	8	26,250	5
E. Coli	MPN/100 mL						334	255	8	1,760	2	189	17	2	1,253	5
Other Water Quality Parameters																
Boron	ug/L						62	63	ND	156	3	4.8	0.75	ND	27	3

Notes: Source – SWAMP and ILRP monitoring data available from CEDEN database; KCWA (2010, 2011, 2012, 2013)

Statistics are calculated based on the composite historical results for each monitoring location, e.g., AVERAGE(average alkalinity for Station No. 1, average alkalinity for Station No. 2, etc.), MIN(minimum alkalinity for Station No. 1, minimum alkalinity for Station No. 2), etc.

For calculating statistics, ND is assumed to equal 1/2 RL if known or zero if unknown.

Blank cells indicate data is not available.

(a) N is the number of monitoring stations on rivers or creeks in this geographic sub-area that have information on the indicated water quality parameter. In cases where N = 1, the average, median, minimum, and maximum are based on the historic results for the site from multiple sampling events. If N = 1 and there has been only one sampling event at the site, the (single) result is shown in place of the average (with no value for median, min, or max).

(b) Metals concentrations for Kern River reported by KCWA (2010, 2011, 2012, 2013) are assumed to be dissolved metals except arsenic is assumed to be total arsenic (site located in Central Groundwater Basin sub-area).

Table 3-7: Summary of Water Quality for Surface Water in the Project Area by Geographic Sub-area, 1951-1991

Water Quality Parameters	Units	WEST					CENTRAL					EAST				
		Average	Median	Min	Max	N[(a)]	Average	Median	Min	Max	N[(a)]	Average	Median	Min	Max	N[(a)]
General Water Quality																
Alkalinity, Total	mg/L as $CaCO_3$	190	192	99	305	8	139				1	151	123	29	523	12
Ammonia, Total	mg/L as N	0.12	0.0	0.0	0.99	2						0.0004	0.0002	0.0	0.001	3
Calcium	mg/L	339	469	14	591	8	45				1	46	26	0.0	288	11
Chloride	mg/L	226	108	38	922	9	229				1	76	41	2.0	382	11
Dissolved oxygen	mg/L	0.2	0.2	0.1	0.4	2										
Hardness	mg/L as $CaCO_3$	1282	1620	59	3590	9	135				1	198	92	24	1102	11
Magnesium, Total	mg/L	136	80	4.4	589	8	5.7				1	18	6.0	1.0	115	11
Nitrate	mg/L as N	4.2	1.3	0.2	21	8	0.1				1	0.62	0.23	0.0	3.6	11
Nitrate + Nitrite	mg/L as N											0.16	0.17	0.01	0.47	5
Nitrogen, Total Kjeldahl (TKN)	mg/L	0.19	0.17	0.10	0.38	2						0.38	0.30	0.21	0.60	3
Orthophosphate, Dissolved	mg/L as P	0.007	0.005	0.002	0.018	2						0.04	0.03	0.0	0.13	5
pH	pH units	7.2	7.1	6.7	7.8	9	8.3				1	7.7	7.7	7.0	8.4	12
Phosphorus, Total	mg/L as P	5.4	0.1	0.0	22	2						0.10	0.05	0.02	0.27	5
Sodium	mg/L	519	422	96	1170	8	96				1	84	28	6.3	365	11
Specific conductivity	uS/cm	3923	3875	628	8320	8	1050				1	665	368	81	2652	12
Temperature	°C	6.1	6.2	-0.6	12.9	2						16	16	3.0	26	9
Total dissolved solids (TDS)	mg/L	49	43	10	108	2										
Turbidity	NTU	5.2	2.6	1.0	22	2										
Metals																
Arsenic, Dissolved	ug/L						*(no metals data available from USEPA STORET for rivers and creeks in this sub-area)*					5.0	0.0	0.0	16	1
Arsenic, Total	ug/L	2.9	2.5	0.0	6.8	3										
Cadmium, Dissolved	ug/L											0.0	0.0	0.0	0.0	1
Cadmium, Total	ug/L	0.49	0.49	0.34	0.73	2										
Copper, Dissolved	ug/L											0.9	0.0	0.0	5.0	1
Copper, Total	ug/L	1.4	0.85	0.29	4.7	2						0.0				1
Iron, Dissolved	ug/L											34	20	0.0	90	1
Iron, Total	ug/L	126	160	0.0	274	3						335	335	331	340	1
Lead, Dissolved	ug/L											0.0	0.0	0.0	0.0	1
Lead, Total	ug/L	0.33	0.39	0.0	0.73	3										
Manganese, Dissolved	ug/L											6.0	5.0	0.0	16	1
Selenium, Total	ug/L											6.0	0.0	0.0	20	1
Zinc, Dissolved	ug/L											3.3	0.0	0.0	15	1
Zinc, Total	ug/L											10				1
Other Water Quality Parameters																
Boron	ug/L	1500	1600	400	3200	8	900				1	404	200	0.0	1560	11

Notes: Source – USEPA STORET Legacy Data Center (for data before January 1, 1999)

Statistics are calculated based on the composite historical results for each monitoring location, e.g., AVERAGE(average alkalinity for Station No. 1, average alkalinity for Station No. 2, etc.), MIN(minimum alkalinity for Station No. 1, minimum alkalinity for Station No. 2, etc).

Values of "0.0" are as shown in the data source and likely indicate non-detect (ND).

Blank cells indicate data is not available.

(a) N is the number of monitoring stations on rivers or creeks in this geographic sub-area that have information on the indicated water quality parameter. In cases where N = 1, the average, median, minimum, and maximum are based on the historic results for the site from multiple sampling events. If N = 1 and there has been only one sampling event at the site, the (single) result is shown in place of the average (with no value for median, min, or max).

Table 3-8: Central Valley Project Water Quality in Friant-Kern Canal and Kern River Water Quality near Bakersfield, CA, 2010-2013

Water Quality Parameters	Units	Friant-Kern Canal, 2010 - 2013[a]					Kern River, 2010 - 2013[a]				
		Average	Median	Min[b]	Max[c]	N[d]	Average	Median	Min[b]	Max[c]	N[d]
General Water Quality											
Alkalinity, Total	mg/L as $CaCO_3$	49	45	20	83	4	61	63	57	64	4
Ammonia	mg/L as N	ND				4	0.019	0.012	ND	0.050	4
Bicarbonate	mg/L	56	47	25	99	4	75	76	69	78	4
Calcium	mg/L	17	13	4.9	34	4	14	15	13	16	4
Carbonate	mg/L	3.0	ND	ND	10	4	ND				4
Chloride	mg/L	25	16	2.2	61	4	5.0	5.1	3.5	6.4	4
Color	Units	17	15	11	24	4	21	20	16	29	4
Hardness, Total	mg/L as $CaCO_3$	51	46	13	94	4	47	48	42	51	4
Magnesium	mg/L	2.2	1.5	0.16	5.1	4	2.7	2.7	2.5	3.0	4
Nitrate + Nitrite	mg/L as N	0.66	0.31	ND	1.8	4	ND				4
Nitrate	mg/L as N	0.7	0.3	ND	1.8	4	ND				4
Nitrite	mg/L as N	ND				4	ND				4
pH	Units	8.1	8.0	7.6	8.9	4	7.9	7.9	7.8	7.9	4
Phosphate	mg/L	ND				4	ND				4
Potassium	mg/L	1.3	1.2	1.1	1.7	4	1.9	1.9	1.8	2.0	4
Sodium	mg/L	20	15	4.5	41	4	14	14	12	17	4
Specific Conductance	uS/cm	213	198	54	393	4	169	165	156	189	4
Sulfate	mg/L	16	14	1.3	34	4	13	13	8.5	18	4
Total Dissolved Solids (TDS)	mg/L	129	122	40	227	4	102	101	96	109	4
Total Organic Carbon	mg/L	2.0	2.3	0.72	2.8	4	2.6	2.5	2.1	3.3	4
Turbidity	NTU	1.6	1.4	0.56	3.0	4	6.1	6.4	3.4	8.4	4
Metals											
Aluminum	ug/L	87	91	10	160	4	335	299	235	485	4
Antimony	ug/L	ND				4	ND				4
Arsenic	ug/L	1.0	ND	ND	3.4	4	3.8	4.0	3.2	4.0	4
Barium	ug/L	ND				4	ND				4

Table 3-8: Central Valley Project Water Quality in Friant-Kern Canal and Kern River Water Quality near Bakersfield, CA, 2010-2013

		Friant-Kern Canal, 2010 - 2013[a]					Kern River, 2010 - 2013[a]				
Water Quality Parameters	**Units**	**Average**	**Median**	**Min[b]**	**Max[c]**	**N[d]**	**Average**	**Median**	**Min[b]**	**Max[c]**	**N[d]**
Beryllium	ug/L	ND				4	ND				4
Cadmium	ug/L	ND				4	ND				4
Chromium	ug/L	0.25	ND	ND	0.85	4	0.25	ND	ND	0.85	4
Chromium (Hexavalent)	ug/L	0.25	ND	ND	0.85	4	ND				4
Copper	ug/L	ND				4	ND				4
Iron	ug/L	79	69	ND	172	4	436	408	208	701	4
Lead	ug/L	ND				4	ND				4
Manganese	ug/L	ND				4	37	38	33	41	4
Mercury	ug/L	ND				4	ND				4
Nickel	ug/L	ND				4	ND				4
Selenium	ug/L	ND				4	ND				4
Silver	ug/L	ND				4	ND				4
Thallium	ug/L	ND				4	ND				4
Zinc	ug/L	ND				4	ND				4
Other Water Quality Parameters											
Asbestos	MFL	ND				4	ND				4
Boron	mg/L	0.078	0.075	ND	0.16	4	0.11	0.13	0.02	0.16	4
Bromide	mg/L	0.088	0.055	ND	0.22	4	0.013	0.015	0.0015	0.020	4
Cyanide	mg/L	ND				4	ND				4
Fluoride	mg/L	0.10	0.08	ND	0.21	4	0.24	0.24	0.21	0.28	4
Foaming Agents (MBAS)	mg/L	ND				4	ND				4
Methyl tert-butyl ether	mg/L	ND				4	ND				4
Odor	Units	5.3	6.0	3.5	6.0	4	4.8	5.0	3.2	6.0	4
Perchlorate	mg/L	ND				4	ND				4
Silica	mg/L	15	15	12	19	4	8.2	5.7	4.2	16	4
Thiobencarb	mg/L	ND				4	ND				4
Unregulated Volatile Organics[e]	mg/L	ND				4	ND				4

Table 3-8: Central Valley Project Water Quality in Friant-Kern Canal and Kern River Water Quality near Bakersfield, CA, 2010-2013

Water Quality Parameters	Units	Friant-Kern Canal, 2010 - 2013[a]					Kern River, 2010 - 2013[a]				
		Average	Median	Min[b]	Max[c]	N[d]	Average	Median	Min[b]	Max[c]	N[d]
Unregulated Non-Volatile Synthetic Organics [f]	mg/L	ND				4	ND				4
Radionuclides											
Gross Alpha	pCi/L	0.91	ND	ND	3.1	4	0.60	ND	ND	2.0	4
Gross Beta	mrem/yr	ND				4	ND				4
Radium 226	pCi/L	0.36	ND	ND	1.2	4	0.26	ND	ND	0.88	4
Radium 226 + Radium 228	pCi/L	ND				4	ND				4
Radium 228	pCi/L	ND				4	0.46	ND	ND	1.5	4
Strontium-90	pCi/L	ND				4	ND				4
Tritium	pCi/L	ND				4	ND				4
Uranium	pCi/L	0.77	ND	ND	2.6	4	1.6	1.5	1.5	1.9	4
SDWA Regulated Constituents[g]											
Regulated Volatile Organics[h]	mg/L	ND				4	ND				4
Regulated Non-Volatile Synthetic Organics[i]	mg/L	ND				4	ND				4

Notes: Source – KCWA (2010; 2011; 2012; 2013)

ND = not detected; MFL = million fibers per liter; mrem/yr = millirems per year; NTU = nephelometric turbidity units; pCi/L = picocuries per liter; SDWA = Safe Drinking Water Act

(a) Statistics calculated based on four years of reported data. Where "ND", average, median, minimum, and maximum assume a concentration of zero (no reporting limit provided by data source).
(b) Minimum values calculated as 5th percentile. When one or more result is ND, the minimum is reported as ND.
(c) Maximum values calculate as 95th percentile.
(d) N = 4 based on four reports (KCWA 2010; 2011; 2012; 2013) that each reported a single value for each parameter. The reports did not indicate whether the result was based on multiple measurements.
(e) 35 compounds were measured and were not detected. Complete list available from KCWA (2010; 2011; 2012; 2013).
(f) 20 compounds were measured and were not detected. Complete list available from KCWA (2010; 2011; 2012; 2013).
(g) Some parameters listed under above categories are also regulated by the SDWA.
(h) 27 compounds were measured and were not detected. Complete list available from KCWA (2010; 2011; 2012; 2013).
(i) 33 compounds were measured and were not detected. Complete list available from KCWA (2010; 2011; 2012; 2013).

Table 3-9: State Water Project Water Quality in California Aqueduct at Kettleman City, CA, 2004-2014

Water Quality Parameters	Units	Station Code: KA017226 / Kettleman CK-21				
		Average	Median	Min[(a)]	Max[(b)]	N
General Water Quality						
Alkalinity, Total	mg/L as $CaCO_3$	72	73	47	90	124
Ammonium	mg/L as N	0.016	0.010	ND	0.040	118
Calcium	mg/L	19	19	13	27	121
Chloride	mg/L	72	74	27	114	123
Dissolved Organic Carbon	mg/L	3.4	3.1	2.2	5.6	122
Dissolved oxygen (field)	mg/L	9.3	9.3	7.3	11.6	121
Hardness	mg/L as $CaCO_3$	99	101	60	140	121
Magnesium	mg/L	12	13	7	18	121
Nitrate + Nitrite	mg/L as N	0.57	0.51	0.09	1.30	121
Nitrate	mg/L as N	0.56	0.53	0.11	1.26	123
Nitrogen, Total Kjeldahl	mg/L as N	0.37	0.40	0.200	0.70	118
Orthophosphate, Dissolved	mg/L as P	0.067	0.060	0.05	0.100	121
pH (field)	pH units	NA	7.8	7.0	8.4	123
Phosphorus, Total	mg/L as P	0.092	0.090	0.060	0.14	118
Sodium	mg/L	51	52	23	76	121
Specific Conductivity	uS/cm	455	477	244	623	124
Sulfate	mg/L	36	35	19	61	123
Temperature (field)	° C	18	17	9.5	25	123
Total dissolved solids (TDS)	mg/L	257	272	142	361	127
Total organic carbon	mg/L	3.6	3.3	2.3	6.1	192
Total suspended solids	mg/L	5.4	4.0	ND	15.0	128
Turbidity (field)	NTU	5.0	3.9	1.0	13	123
Metals						
Aluminum, Total	ug/L	104	87	24	248	33
Antimony, Dissolved	ug/L	ND				118
Antimony, Total	ug/L	ND				33
Arsenic, Dissolved	ug/L	2.1	2.0	ND	3.0	121
Arsenic, Total	ug/L	2.0	2.0	ND	3.0	33
Barium, Total	ug/L	30	29	25	39	33
Beryllium, Dissolved	ug/L	ND				118
Beryllium, Total	ug/L	ND				33
Cadmium, Total	ug/L	ND				33
Chromium, Dissolved	ug/L	1.1	ND	ND	3.0	121
Chromium, Total	ug/L	ND				33
Copper, Dissolved	ug/L	1.6	2.0	ND	2.0	121
Copper, Total	ug/L	1.7	2.0	ND	2.0	33
Iron, Dissolved	ug/L	9.7	ND	ND	30	121
Iron, Total	ug/L	153	122	32	382	33

Table 3-9: State Water Project Water Quality in California Aqueduct at Kettleman City, CA, 2004-2014

Water Quality Parameters	Units	Station Code: KA017226 / Kettleman CK-21 Average	Median	Min[a]	Max[b]	N
Lead, Dissolved	ug/L	ND				121
Lead, Total	ug/L	ND				33
Manganese, Dissolved	ug/L	ND	ND	ND	5.0	121
Manganese, Total	ug/L	20	16	6	49	33
Nickel, Dissolved	ug/L	1.1	ND	ND	2.0	118
Nickel, Total	ug/L	1.6	2.0	1.0	2.0	33
Selenium, Dissolved	ug/L	ND	ND	ND	2.0	122
Selenium, Total	ug/L	ND	ND	ND	2.0	33
Silver, Total	ug/L	ND				33
Zinc, Dissolved	ug/L	ND				121
Zinc, Total	ug/L	ND	ND	ND	8.2	33
Other Water Quality Parameters						
Boron	mg/L	0.16	0.20	0.05	0.30	121
Bromide	mg/L	0.23	0.22	0.07	0.40	123
Fluoride	mg/L	ND				48
SDWA Regulated Constituents[c]						
Primary drinking water standards						
Disinfection Byproducts (DBPs)[d]	ug/L	ND				30
Organics[e]	ug/L	ND				30
2,4-D	ug/L	ND	ND	ND	0.16	30
Simazine	ug/L	0.029	ND	ND	0.097	30

Notes: Source – CA DWR Water Data Library (2014)

N = number of results; NA = not applicable; ND = not detected above the method reporting limit; SDWA = Safe Drinking Water Act

Where "ND", average, median, minimum, and maximum are calculated assuming a value equal to one-half the reporting limit (RL).

(a) Minimum value calculated as the 5th percentile. When one or more result is ND, the minimum is reported as ND.
(b) Maximum value calculated as the 95th percentile.
(c) Some parameters listed under General Water Quality and Metals are regulated by the SDWA.
(d) Trihalomethanes only.
(e) Results from regulated organics were below reporting limit except 2,4-D and Simazine.

Table 3-10: Range of Drinking Water Contaminant Concentrations for Community Water Systems in the Project Area

Primary City[a]	Public Water System Name[b]	System Wells[c]	Wells with Cont.[d]	Well Number[e]	Contaminant[f]	Units[g]	Date of Most Recent Det. >MCL[h]	Number of Results >MCL[i]	Avg. Conc.[j]	Max Conc.[k]	N[l]
Arvin city	ARVIN COMMUNITY SERVICES DIST	6	5	1510001-001	Arsenic	ug/L	7/14/2010	30	27.71	53	30
				1510001-005	Arsenic	ug/L	7/14/2010	21	29.53	56	22
				1510001-006	Arsenic	ug/L	7/14/2010	12	20.25	32	12
				1510001-009	Arsenic	ug/L	7/14/2010	17	23.45	53	19
				1510001-010	Arsenic	ug/L	10/7/2009	14	18.57	29	13
				1510001-009	Benzene	ug/L	8/20/2009	22	3.79	18	33
				1510001-010	Nitrate	mg/L as N	10/7/2009	12	8.26	13	40
				1510001-010	Tetrachloroethylene (PCE)	ug/L	6/13/2002	3	3.32	5.7	28
Bakersfield city	CWS - NORTH GARDEN		1	1510055-005	Nitrate	mg/L as N	9/20/2010	66	9.71	12	174
Bakersfield city, Greenacres CDP, Rosedale CDP	VAUGHN WC INC F	12	2	1510029-016	1,2-Dibromo-3-chloropropane (DBCP)	ug/L	11/23/2010	98	0.61	1.53	103
				1510029-009	Arsenic	ug/L	9/8/2009	8	9.03	13	21
				1510029-009	Ethylene dibromide (EDB)	ug/L	2/13/2007	32	0.05	0.19	104
				1510029-016	Nitrate	mg/L	1/3/2005	2	33.16	50.7	104
Bakersfield city, Greenfield CDP	GREENFIELD COUNTY WD	5	3	1510024-003	Arsenic	ug/L	2/3/2009	2	9.31	12	8
				1510024-004	Arsenic	ug/L	5/17/2010	9	10.53	13	10
				1510024-009	Arsenic	ug/L	7/26/2010	6	9.98	12	11
				1510024-003	Gross alpha particle activity	pCi/L	8/7/2007	2	13.71	17.9	6
City of Bakersfield	SOUTH KERN MUTUAL WATER COMPANY	1	1	1500344-001	Gross alpha particle activity	pCi/L	3/6/2007	4	18.01	20.6	5
				1500344-001	Uranium	pCi/L	7/11/2006	2	22.42	25.9	3
City of Bakersfield	SEVENTH STANDARD MUTUAL	1	1	1500373-002	Nitrate	mg/L as N	4/23/2010	11	10.66	18	15
City of Bakersfield	ENOS LANE PUBLIC UTILITY DISTRICT	2	2	1500544-002	Arsenic	ug/L	5/11/2010	3	10.45	16	6
				1500544-001	Nitrate	mg/L as N	8/14/2007	3	6.16	12.5	18
City of Bakersfield	ROUND MOUNTAIN WATER COMPANY	2	1	1500561-002	Gross alpha particle activity	pCi/L	10/26/2010	4	19.42	27.1	6
				1500561-002	Uranium	pCi/L	10/26/2010	7	20.92	28.8	13
City of Bakersfield	SAN JOAQUIN ESTATES MUTUAL	1	1	1500575-001	Nitrate	mg/L as N	8/17/2010	17	11.14	20	25
City of Bakersfield	OASIS PROPERTY OWNERS ASSOCIATION	1	1	1500585-003	Arsenic	ug/L	7/21/2009	3	9.88	13	14
City of Bakersfield	SON SHINE PROPERTIES	1	1	1500588-002	1,2-Dibromo-3-chloropropane (DBCP)	ug/L	10/12/2010	13	0.67	1.2	14
				1500588-002	Nitrate	mg/L as N	1/26/2010	4	6.99	62	35
City of Delano	KERN VALLEY STATE PRISON	2	2	1510802-001	Arsenic	ug/L	10/5/2010	15	15.08	23	17
				1510802-002	Arsenic	ug/L	10/5/2010	18	20.83	24	18
				1510802-001	Nitrite	ug/L as N[m]	10/5/2010	8	1027.85	7600	23
				1510802-002	Nitrite	ug/L as N[m]	10/5/2010	17	1081.72	1600	24
City of Lost Hills	LOST HILLS UTILITY DISTRICT	2	2	1510046-002	Arsenic	ug/L	4/24/2007	12	16.68	48	26
				1510046-003	Arsenic	ug/L	4/12/2010	22	29.89	51	23

Table 3-10: Range of Drinking Water Contaminant Concentrations for Community Water Systems in the Project Area

Primary City[a]	Public Water System Name[b]	System Wells[c]	Wells with Cont.[d]	Well Number[e]	Contaminant[f]	Units[g]	Date of Most Recent Det. >MCL[h]	Number of Results >MCL[i]	Avg. Conc.[j]	Max Conc.[k]	N[l]
City of Taft	WEST KERN WATER DISTRICT	11	3	1510022-001	Arsenic	ug/L	10/6/2010	14	10.77	14	19
				1510022-004	Gross alpha particle activity	pCi/L	9/30/2009	6	15.36	30.3	13
				1510022-005	Gross alpha particle activity	pCi/L	5/13/2008	4	18.93	25.8	6
				1510022-004	Uranium	pCi/L	12/9/2008	3	15.17	28.8	13
				1510022-005	Uranium	pCi/L	4/20/2005	2	18.00	26	6
Delano city	DELANO, CITY OF	11	9	1510005-004	1,2-Dibromo-3-chloropropane (DBCP)	ug/L	7/13/2010	6	0.15	0.3	32
				1510005-004	Arsenic	ug/L	10/5/2010	17	13.72	19	18
				1510005-012	Arsenic	ug/L	10/5/2010	23	18.78	25	23
				1510005-016	Arsenic	ug/L	10/5/2010	20	15.96	25	23
				1510005-017	Arsenic	ug/L	4/13/2010	8	10.10	25	23
				1510005-018	Arsenic	ug/L	10/19/2010	19	21.15	37	20
				1510005-019	Arsenic	ug/L	10/21/2010	30	27.77	56	30
				1510005-020	Arsenic	ug/L	10/19/2010	40	33.80	54	40
				1510005-021	Arsenic	ug/L	10/5/2010	23	23.70	33	23
				1510005-031	Arsenic	ug/L	10/5/2010	24	19.13	28	24
Fuller Acres CDP	FULLER ACRES MUTUAL WATER COMPANY	2	1	1500296-002	Arsenic	ug/L	10/26/2005	2	8.64	13	5
Lamont CDP, Weedpatch CDP	LAMONT PUBLIC UTILITY DIST	7	2	1510012-006	Arsenic	ug/L	1/27/2010	7	12.47	50	18
				1510012-010	Arsenic	ug/L	5/12/2008	3	9.49	11	15
McFarland city	CITY OF MCFARLAND	3	1	1510013-011	Arsenic	ug/L	8/11/2009	7	12.88	16	8
Rosedale CDP	MAHER MUTUAL WATER COMPANY	1	1	1500378-001	Arsenic	ug/L	9/21/2010	8	21.25	24	8
Rosedale CDP	BROCK MUTUAL WATER COMPANY	2	1	1500409-002	Nitrate	mg/L as N	11/14/2008	2	6.36	14	22
Rosedale CDP	GOOSELAKE WATER COMPANY	1	1	1500584-001	Gross alpha particle activity	pCi/L	10/16/2009	3	15.75	26.9	6
				1500584-001	Nitrate	mg/L as N	12/19/2008	2	6.87	12	31
Wasco city	WASCO, CITY OF	8	3	1510021-007	Nitrate	mg/L as N	6/2/2010	4	9.03	14.2	41
				1510021-008	Nitrate	mg/L as N	12/11/2007	6	6.98	13	42
				1510021-009	Nitrate	mg/L as N	9/13/2005	10	5.98	13.3	100
Bakersfield city	BAKERSFIELD, CITY OF	59	5	1510031-038	1,2-Dibromo-3-chloropropane (DBCP)	ug/L	1/7/2008	47	0.20	0.4	93
				1510031-005	Arsenic	ug/L	10/6/2010	3	7.56	10.7	19
				1510031-048	Arsenic	ug/L	10/14/2009	7	10.28	15	16
				1510031-102	Arsenic	ug/L	10/6/2010	2	4.06	14.8	14
				1510031-103	Arsenic	ug/L	12/5/2007	4	6.26	12.2	27
Oildale	OILDALE MWC	6	2	1510015-009	Gross alpha particle activity	pCi/L	10/11/2010	8	14.73	25.4	8
				1510015-010	Gross alpha particle activity	pCi/L	9/21/2009	2	12.31	24.2	2
				1510015-010	Tetrachloroethylene (PCE)	ug/L	5/24/2010	3	3.64	5.3	3
Bakersfield city	CWS - BAKERSFIELD			1510003-100	Arsenic	ug/L	1/22/2007	2	6.29	12	31
				1510003-103	Arsenic	ug/L	9/20/2010	31	12.70	19.2	41
				1510003-114	Trichloroethylene (TCE)	ug/L	10/13/2010	28	4.28	9.8	75

Table 3-10: Range of Drinking Water Contaminant Concentrations for Community Water Systems in the Project Area

Primary City[a]	Public Water System Name[b]	System Wells[c]	Wells with Cont.[d]	Well Number[e]	Contaminant[f]	Units[g]	Date of Most Recent Det. >MCL[h]	Number of Results >MCL[i]	Avg. Conc.[j]	Max Conc.[k]	N[l]
Bakersfield city	EAST NILES CSD	7	5	1510006-005	Arsenic	ug/L	8/26/2009	11	24.55	45	11
				1510006-006	Arsenic	ug/L	9/2/2010	10	9.78	11	21
				1510006-010	Arsenic	ug/L	11/2/2010	21	31.43	47	21
				1510006-024	Arsenic	ug/L	2/9/2010	3	7.20	13	21
				1510006-029	Arsenic	ug/L	11/1/2010	45	23.44	78	49
Bakersfield	QUAIL VALLEY WATER DIST-WESTSIDE SYSTEM	2	1	1503226-001	Antimony	ug/L	9/27/2010	13	9.95	13	13
				1503226-001	Fluoride	mg/L	9/27/2010	12	7.85	29	13
Arvin city	ARVIN COMMUNITY SERVICES DIST	6	1	1510001-016	Arsenic	ug/L	7/14/2010	6	12.63	15	8
Bakersfield	FOURTH STREET WATER SYSTEM	2	2	1500449-001	Arsenic	ug/L	7/2/2010	6	14.50	18	6
				1500449-002	Arsenic	ug/L	7/2/2010	12	14.33	23	12
Bakersfield city	CASA LOMA WATER CO, INC.	3	1	1510004-003	Tetrachloroethylene (PCE)	ug/L	3/11/2002	2	2.37	9.1	26
City of Bakersfield	OLD RIVER MUTUAL WATER COMPANY	1	1	1500096-001	Gross alpha particle activity	pCi/L	1/31/2008	2	17.40	19	2
				1500096-001	Uranium	pCi/L	10/29/2010	9	29.12	52	9
City of Bakersfield	EL ADOBE POA, INC.	2	2	1500493-001	Arsenic	ug/L	4/19/2010	3	9.13	21	10
				1500493-002	Arsenic	ug/L	10/12/2010	11	20.40	24	12
City of Bakersfield	ROUND MOUNTAIN WATER COMPANY	2	1	1500561-001	Gross alpha particle activity	pCi/L	10/26/2010	8	39.71	50.1	7
				1500561-001	Uranium	pCi/L	10/26/2010	21	36.09	64.4	21
City of Bakersfield	WHEELER FARMS HEADQUARTERS	1	1	1502017-001	Nitrate	mg/L as N	10/5/2010	35	27.59	36	36
City of Bakersfield	PANAMA ROAD PROPERTY OWNERS ASSOC	1	1	1502465-002	Arsenic	ug/L	3/19/2008	4	9.54	13	14
City of Bakersfield	DEL SOL WATER CO-OP	1	1	1502597-001	Gross alpha particle activity	pCi/L	12/6/2007	7	22.00	26.9	7
				1502597-001	Uranium	pCi/L	6/8/2010	4	19.80	24.8	11
City of Bakersfield	GOSFORD ROAD WATER COMPANY	2	1	1502622-001	Arsenic	ug/L	7/1/2010	10	12.16	14	11
City of Bakersfield	EAST WILSON ROAD WATER COMPANY	1	1	1502699-001	Nitrate	mg/L as N	10/12/2010	25	15.76	27	25
City of Bakersfield	QUAIL VALLEY WATER DIST-EASTSIDE SYSTEM	2	2	1502724-001	Arsenic	ug/L	9/27/2010	15	87.80	120	15
				1502724-002	Arsenic	ug/L	9/27/2010	11	56.45	70	11
McFarland city	CITY OF MCFARLAND	3	2	1510013-014	Arsenic	ug/L	9/1/2009	2	9.20	11	5
Rosedale CDP	NORD ROAD WATER	1	1	1502383-001	Arsenic	ug/L	10/15/2010	12	15.25	17	12

Table 3-10: Range of Drinking Water Contaminant Concentrations for Community Water Systems in the Project Area

Notes: Source – Adapted from California SWRCB *Report to the Legislature on Communities that Rely on a Contaminated Groundwater Source for Drinking Water* (CA SWRCB 2013a). Data were collected from the California Department of Public Health (CDPH) Division of Drinking Water and Environmental Management's water quality monitoring database for community water systems for the period 2002 to 2010.

(a) Primary city that is served by the water system. Service areas outside an incorporated area are identified as a Census-designated place (CDP) and a nearby city.
(b) Name of the community water system that provides the water.
(c) Number of groundwater public drinking water supply sources operated by the water system.
(d) The number of groundwater sources (prior to any treatment) with a principal contaminant detection above the MCL in two or more sampling events in the 2002-2010 time period.
(e) Corresponds to the source identification in the California Department of Public Health database.
(f) Chemical detected on two or more sampling events between 2002-2010.
(g) mg/L = milligrams per liter, ug/L = micrograms per liter, pCi/L = picocuries per liter
(h) Date of the most recent detection in the 2002-2010 time period above the drinking water Maximum Contaminant Level (MCL).
(i) Number of samples collected between 2002-2010 with detections above the MCL.
(j) Average concentration in the groundwater source during the 2002-2010 time period.
(k) Maximum concentration detected during the 2002-2010 time period.
(l) Number of samples collected and evaluated from the source during the 2002-2010 time period.
(m) Units erroneously reported in the source publication as mg/L.

Table 3-11: Summary of Water Quality from the GAMA Database for Wells in the Project Area, 2006

Water Quality Parameter	Units	Average	Median	Min[(a)]	Max[(b)]	N
General Water Quality						
Alkalinity, Bicarbonate	mg/L	86	84	26	144	14
Ammonia	mg/L as N	0.004	ND	ND	0.02	14
Calcium	mg/L	55	35	14	136	14
Chloride	mg/L	53	33	9	158	14
Dissolved oxygen	mg/L	3.4	3.0	0.1	8.2	14
Magnesium	mg/L	8.6	1.2	0.05	38	14
Nitrite	mg/L as N	0.05	ND	ND	0.27	14
Nitrite + Nitrate	mg/L as N	4.3	2.4	0.4	13	14
pH	pH units	8.2	8.0	7.7	9.3	14
Phosphate	mg/L as P	0.005	0.004	ND	0.01	14
Potassium	mg/L	3.0	1.8	0.5	8.3	14
Silicon	mg/L	19	20	14	23	14
Sodium	mg/L	71	42	21	180	14
Specific Conductivity	uS/cm	667	417	208	1,669	14
Sulfate	mg/L	151	42	20	649	14
Temperature	C	23	22	18	28	14
Total Dissolved Solids	mg/L	448	250	171	1,238	14
Total Nitrogen	mg/L as N	27	17	0.4	93	14
Total Organic Carbon	mg/L	0.5	0.4	0.3	0.8	14
Metals						
Antimony	ug/L	0.2	0.2	ND	0.8	14
Arsenic	ug/L	5.5	2.3	1.3	18	14
Barium	ug/L	51	48	16	107	14
Beryllium	ug/L	0.03	ND	ND	0.2	14
Cadmium	ug/L	0.02	ND	ND	0.07	14
Chromium, Total	ug/L	1.2	1.0	0.03	3.2	14
Cobalt	ug/L	0.07	0.05	ND	0.16	14
Copper	ug/L	1.3	0.8	0.3	3.5	14
Iron, Total	ug/L	5.3	2.0	ND	16.2	14
Lead	ug/L	0.5	0.2	ND	1.6	14
Lithium	ug/L	10.6	5.0	2.5	46	14
Manganese	ug/L	5.9	0.5	ND	69	14
Molybdenum	ug/L	7.0	3.0	0.8	25	14
Nickel	ug/L	0.7	0.8	0.1	1.9	14
Selenium	ug/L	1.4	0.6	ND	6.7	14
Strontium	ug/L	599	391	155	2,360	14
Tungsten	ug/L	0.7	0.2	0.1	6.2	14
Uranium	ug/L	5.7	5.5	0.4	15	14
Vanadium	ug/L	11.8	6.5	1.3	53	14
Zinc	ug/L	8.4	7.5	0.9	19	14
Other Water Quality Parameters						

Table 3-11: Summary of Water Quality from the GAMA Database for Wells in the Project Area, 2006

Water Quality Parameter	Units	Average	Median	Min[(a)]	Max[(b)]	N
1,2,3-Trichloropropane	ug/L	0.03	ND	ND	0.2	14
Boron	ug/L	223	139	23	626	14
Bromide	mg/L	0.2	0.1	0.03	0.7	14
Fluoride	mg/L	0.3	0.2	0.1	0.8	14
Iodide	mg/L	0.01	0.002	ND	0.04	14
Isopropylbenzene	ug/L	ND	ND	ND	0.01	14
Radionuclides						
Gross Alpha; 72-hour Count	pCi/L	6.2	5.2	1.4	11.5	10
Gross Alpha; 30-day Count	pCi/L	2.9	1.9	0.5	7.9	10
Gross Beta; 72-hour Count	pCi/L	3.2	2.1	1.1	8.9	10
Gross Beta; 30-day Count	pCi/L	4.1	3.0	1.3	8.9	10
Radium-226	pCi/L	0.1	0.1	0.04	0.4	10
Radium-228	pCi/L	2.5	0.4	0.2	12.1	10
Radon-222	pCi/L	761	672	331	1,428	10
Uranium-234	pCi/L	2.1	1.9	0.1	4.4	14
Uranium-235	pCi/L	3.0	0.2	0.02	13.7	14
Uranium-238	pCi/L	1.7	1.6	0.1	3.9	14
SDWA Regulated Constituents[(c)]						
Primary drinking water standards						
Disinfection Byproducts (DBPs)	ug/L					
Chloroform	ug/L	0.1	ND	ND	0.7	14
Organics	ug/L					
1,2-Dichloropropane	ug/L	0.1	0.1	ND	0.4	14
Benzene	ug/L	0.01	ND	ND	0.02	14
Dibromochloropropane	ug/L	0.02	ND	ND	0.04	14
Tetrachloroethene	ug/L	0.04	ND	ND	0.15	14

Notes: Source – Shelton et al. (2008)

N = number of results (reported for a subset of grid wells as defined by Shelton et al., 2008); ND = not detected above the method reporting limit, refer to Burton and Belitz (2012); pCi/L = picocuries per liter

Where "ND", average, median, minimum, and maximum are calculated assuming a value equal to one-half the reporting limit (RL), or equal to zero if result reported as 0.0, i.e., no detection limit provided.

(a) Minimum value calculated as the 5th percentile. When one or more result is ND, the minimum is reported as ND.
(b) Maximum value calculated as the 95th percentile.
(c) Some parameters listed under above categories are also regulated by the SDWA.

Table 3-12: Summary of Water Quality for Shallow Groundwater in the Project Area by by Geographic Sub-area, 2007-2013

		WEST							CENTRAL							EAST						
Water Quality Parameters	**Units**	**Average**	**Median**	**Min[a]**	**Max[b]**	**Number of Wells**	**Number of Samples**	**Number of Non-detects**	**Average**	**Median**	**Min[a]**	**Max[b]**	**Number of Wells**	**Number of Samples**	**Number of Non-detects**	**Average**	**Median**	**Min[a]**	**Max[b]**	**Number of Wells**	**Number of Samples**	**Number of Non-detects**
General Water Quality																						
Alkalinity, Bicarbonate	mg/L	2,002	2,650	69	11,342	11	186	0	239	220	55	647	23	39	0	222	240	93	443	18	113	0
Chloride	mg/L	3,880	3,700	981	10,100	23	203	0	201	180	41	576	40	223	0	292	200	39	946	20	121	0
Magnesium	mg/L	184	110	21	600	23	203	0	24	20	5.1	64	39	224	0	171	170	10	838	19	117	1
Nitrite	mg/L	0.0	ND	ND	0.0	12	12	7	0.1	ND	0.2	2.1	30	298	278	-	-	-	-	0	-	0
Nitrate	mg/L	50	ND	0.6	370	27	125	65	3.0	0.1	0.1	20	40	348	160	ND	-	-	-	1	5	5
Potassium	mg/L	35	28	5.8	109	23	203	0	4.9	4.7	2.7	8.1	39	225	0	38	38	3.5	171	19	116	6
Sodium	mg/L	3,541	4,200	684	10,361	23	203	0	59	54	30	100	39	225	0	2,127	580	42	7,679	19	117	0
Conductivity	uS/cm	17,000	17,768	6,083	39,299	11	191	0	-	-	-	-	0	-	0	9,300	10,171	2,120	28,039	6	7	0
Sulfate	mg/L	2,825	2,000	634	7,017	33	217	0	141	64	7.6	558	41	225	1	4,203	2,500	55	25,877	20	121	0
Total Organic Carbon	mg/L	-	-	-	-	0	-	0	-	-	-	-	0	-	0	-	-	-	-	0	-	0
Total Dissolved Solids	mg/L	12,433	12,000	4,458	26,827	23	198	0	961	830	273	2,274	40	203	0	5,793	4,050	341	21,485	20	120	0
Metals																						
Antimony	ug/L	0.0	ND	0.0	0.0	12	12	0	0.0	0.0	-	-	6	4.0	0	ND	0.0			6	16	0
Arsenic	ug/L	10	7.8	4.7	38	18	19	7	19	5.0	2.5	97	46	62	38	173	5.9	0.7	494	10	31	11
Barium	ug/L	29	11	3.3	83	18	19	6	179	180	49	441	40	189	1	33	29	13	97	7	20	4
Cadmium	ug/L	0.7	0.4	0.2	3.0	18	19	8	0.7	ND	-	-	20	21	21	3.3	1.0	1.6	17	6	16	8
Copper	ug/L	2.1	3.0	2.5	4.4	18	19	7	2.5	ND	2.3	15	23	30	21	1.9	ND	3.1	15	6	16	12
Chromium, Total	ug/L	4.0	ND	5.5	12	18	19	10	2.3	2.5	1.5	7	46	62	50	0.2	ND	0.6	1.3	6	16	13
Iron, Total	ug/L	ND	ND	-	-	12	12	12	610	15	30	2,748	39	224	111	1,275	160	61	4,942	19	113	47
Lead	ug/L	ND	ND	-	-	18	19	19	2.0	ND	2.0	23	48	162	149	ND	ND			6	16	16
Manganese	ug/L	18	3.2	0.4	42	12	12	1	955	180	31	6,370	39	224	60	401	30	7.5	4,982	5	19	6
Nickel	ug/L	78	27	10	235	18	19	1	4.1	2.5	1.2	10	28	44	34	21	5.5	10	117	6	16	8
Selenium	ug/L	168	180	13	1,238	18	19	5	7.1	ND	5.9	53	20	21	15	39	4.4	4.4	341	6	16	8
Uranium	pCi/L	-	-	-	-	0	0	0	-	-	-	-	0	0	0	-	-	-	-	0	0	0
Vanadium	ug/L	7.5	ND	3.2	41	18	19	10	1.1	ND	2.3	3.0	20	21	18	-	-	-	-	0	0	0
Zinc	ug/L	13	19	13	32	18	19	7	35	24	8.8	153	23	30	9	3.3	ND	4.1	30	6	16	12
Other Water Quality Parameters																						
1,2-Dichloroethane	mg/L	0.0	ND	0.0	0.0	35	278	235	0.0	ND	0.0	0.2	43	413	223	0.0	ND	0.0	0.2	16	102	82
Boron	mg/L	-	-	-	-	5	-	0	1.2	1.3	0.3	3.1	15	9	0	-	-	-	-	0	-	0
Bromide	mg/L	14	7.0	2.7	35	0	87	0	0.2	0.2	0.1	0.2	0	17	0	-	-	-	-	0	-	0
Fluoride	mg/L	-	-	-	-	0	-	0	-	-	-	-	3	-	0	-	-	-	-	0	-	0
SDWA Regulated Constituents																						
Primary drinking water standards																						
Disinfection Byproducts (DBPs)																						
Trihalomethanes	mg/L	-	-	-	-	0	-	0	-	-	-	-	0	-	0	-	-	-	-	0	-	0
Organics																						
Benzene	mg/L	0.1	ND	0.0	1.2	42	456	332	0.2	ND	0.0	0.4	292	3,070	2,367	0.0	ND	0.0	0.7	26	228	155

Notes: Source - GAMA Database, Dataset EDF - assumed to be environmental monitoring wells screened above the Corcoran Clay (CA SWRCB 2014b)

ND = not detected above the method reporting limit; pCi/L = picocuries per liter

Where "ND", average, median, minimum, and maximum are calculated assuming a concentration of zero (no reporting limit provided by data source).

(a) Minimum value calculated as the 5th percentile. When one or more result is ND, the minimum is reported as ND.

(b) Maximum value calculated as the 95th percentile.

(c) Some of the constituents and parameters listed above (e.g., General Water Quality) may also be regulated under the SDWA

Table 3-13: Summary of Water Quality for Deep Groundwater in the Project Area by Geographic Sub-area, 2007-2013

		WEST							CENTRAL							EAST						
Water Quality Parameters	**Units**	**Average**	**Median**	**Min[a]**	**Max[b]**	**Number of Wells**	**Number of Samples**	**Number of Non-detects**	**Average**	**Median**	**Min[a]**	**Max[b]**	**Number of Wells**	**Number of Samples**	**Number of Non-detects**	**Average**	**Median**	**Min[a]**	**Max[b]**	**Number of Wells**	**Number of Samples**	**Number of Non-detects**
General Water Quality																						
Alkalinity, Bicarbonate	mg/L	89	83	19	270	22	38	3	96	90	33	218	223	446	2	157	150	76	279	71	117	0
Calcium	mg/L	64	36	12	180	22	38	2	37	30	8	103	225	461	0	72	52	15	189	72	122	0
Chloride	mg/L	118	39	8.3	366	22	38	2	34	23	7.4	85	224	466	1	81	41	10	252	73	130	0
Magnesium	mg/L	6.3	0.7	0.0	26	22	38	3	3.5	2.3	0.1	22	225	459	66	12	8.4	0.8	51	72	122	0
Nitrite	mg/L	0.0	0.0	0.0	0.2	25	43	40	0.0	ND	0.0	0.8	252	582	522	0.0	0.0	0.0	0.3	81	146	137
Nitrate	mg/L	12.4	6.9	0.4	85	28	150	33	20	16	1.3	109	285	2,665	182	22	16	1.3	127	90	1,146	49
Potassium	mg/L	1.7	0.7	0.2	4.8	22	38.0	15	1.5	1.4	0.6	3.9	216	430	178	3.8	3.3	1.4	8.5	69	112	8
Sodium	mg/L	107	76	25	274	22	38	2	43	31	14	90	225	451	0	63	52	23	131	72	122	0
Conductivity	uS/cm	603	946	233	2,362	22	42	1	360	434	186	797	229	566	0	588	693	268	1,375	75	190	0
Sulfate	mg/L	165	89	18	561	22	38	2	56	26	8.1	132	225	458	3	108	55	16	304	71	122	0
Total Organic Carbon	mg/L	-	-	-	-	0	-	0	1.0	0.4	0.1	1.3	94	219	90	0.2	0.1	0.1	1.0	12	12	7
Total Dissolved Solids	mg/L	593	510	138	1,568	22	36	0	266	210	105	491	224	454	0	449	310	138	985	73	125	0
Metals																						
Antimony	ug/L	0.0	0.0	0.0	0.0	22	37.0	36	0.0	0.0	0.0	0.0	243	488	441	0.0	0.0	0.0	0.0	77	127	118
Arsenic	ug/L	9.0	4.9	1.6	28	27	253	37	8.0	4.9	0.9	35	251	1,228	317	8.7	6.4	1.3	30	83	929	73
Barium	ug/L	33	24	10	90	22	37	5	33	6.8	4.5	293	244	489	262	77	62	32	228	77	130	39
Cadmium	ug/L	0.2	0.1	0.3	0.8	22	37	37	0.2	ND	0.1	1.5	244	489	485	0.3	0.1	0.2	1.1	77	130	129
Copper	ug/L	3.6	1.0	0.9	17	21	47	40	6.2	0.6	0.9	40	228	500	421	11	5.0	1.3	46	72	135	115
Chromium, Total	ug/L	3.0	4.0	1.4	11	22	37	32	2.4	0.5	0.8	17	244	492	421	2.9	1.5	1.4	14	77	134	125
Iron, Total	ug/L	195	25	6.1	589	19	35	27	64	0.0	5.8	338	225	521	432	533	25	5.9	2,038	73	143	95
Lead	ug/L	0.5	0.5	0.2	1.7	21	42	36	0.9	0.1	0.1	4.2	237	508	418	1.0	0.5	0.1	4.5	76	138	117
Manganese	ug/L	9.2	5.0	1.9	48	19	35	28	5.8	0.1	0.5	49	225	513	453	18	5.0	1.0	98	73	136	103
Nickel	ug/L	2.7	5.0	1.5	12	22	37	36	2.2	ND	0.5	20	244	491	467	3.4	0.5	1.0	18	77	132	122
Selenium	ug/L	2.1	1.0	0.3	8.6	23	41	34	1.1	0.4	0.3	5.1	244	489	380	1.5	1.0	0.5	6.7	77	130	87
Uranium	pCi/L	15	15	4.5	36	9	22	0	7.6	2.4	0.2	49	109	304	26	15	7.6	0.3	129	27	82	3
Vanadium	ug/L	6.6	4.9	2.5	14	3	3	0	8.4	4.8	0.9	25	67	94	12	11	9.0	1.8	39	10	11	0
Zinc	ug/L	18	10	8.7	83	19	35	30	12	ND	2.6	83	224	453	396	25	10	3.1	180	71	119	100
Other Water Quality Parameters																						
1,2-Dichloroethane	mg/L	0.0	0.0	-	-	20	28	28	0.0	ND	0.0	0.0	241	1,439	1,439	0.0	ND	0.0	0.0	68	167	167
Boron	mg/L	1.6	0.3	0.0	8.3	10	62	4	0.2	0.1	0.0	0.4	26	487	10	0.2	0.2	0.1	0.5	8	131	0
Bromide	mg/L	0.1	0.1	0.0	4.4	1	16	0	0.1	0.1	0.0	3.1	10	47	0	0.2	0.2	0.1	0.3	0	8	0
Fluoride	mg/L	0.1	0.1	-	-	22	1	5	0.1	0.1	0.0	0.2	244	18	73	-	-	-	-	77	-	15
SDWA Regulated Constituents																						
Primary drinking water standards																						
Disinfection Byproducts (DBPs)																						
Trihalomethanes	mg/L	0.0	0.0	0.0	0.0	20	32	27	0.0	ND	0.0	0.0	233	1,434	1,252	0.0	ND	0.0	0.0	68	170	159
Organics																						
Benzene	mg/L	0.0	0.0	-	-	20	28	28	0.0	ND	0.0	0.0	241	1,440	1,440	0.0	ND	0.0	0.0	68	191	186

Notes: Source - GAMA Database, Dataset CDPH - assumed to be deep wells screened below the Corcoran Clay (CA SWRCB 2014b)

CDPH = California Department of Public Health; ND = not detected above the method reporting limit; pCi/L = picocuries per liter

Where "ND", average, median, minimum, and maximum are calculated assuming a concentration of zero (no reporting limit provided by data source).

(a) Minimum value calculated as the 5th percentile. When one or more result is ND, the minimum is reported as ND.

(b) Maximum value calculated as the 95th percentile.

(c) Some of the constituents and parameters listed above (e.g., General Water Quality) may also be regulated under the SDWA

Table 4-1: Oil and Gas Fields in Project Area

Administrative Oil Field [a][b]	Area in Square Miles	Area in Acres	Field No. in NOP
West Sub-area			
Antelope Hills	4.4	2,823.70	2
Antelope Hills, North	3.9	2466.8	51
Antelope Plains Gas (Abd)[c]	0.3	160.50	3
Asphalto	4.6	2,975.50	4
Beer Nose	1.0	644.80	5
Belgian Anticline	15.4	9,864.90	6
Belridge, North	9.1	5800.9	52
Belridge, South	25.3	16218.0	80
Blackwells Corner	3.6	2,308.10	8
Buena Vista	46.9	29,993.30	10
Cal Canal Gas	5.50	3,515.20	12
Capitola Park (DOGGR - Abd)[d]	1.0	651.50	16
Carneros Creek	1.5	967.30	17
Chico Martinez	2.6	1,634.80	18
Cienaga Canyon	0.6	402.40	19
Coles Levee, North	15.1	9671.0	53
Coles Levee, South	17.7	11328.4	81
Cymric	21.5	13,757.80	21
Devils Den	12.8	8,175.40	22
Eagle Rest (DOGGR - Abd)	0.5	309.30	24
Elk Hills	72.9	46,630.70	27
Gonyer Anticline (Abd)	0.50	344.9	31
Landslide	2.1	1373.9	41
Los Lobos	6.1	3892.3	42
Lost Hills	33.2	21273.1	43
Lost Hills, Northwest	8.6	5507.7	57
McDonald Anticline	3.7	2372.4	45
McKittrick	10.6	6776.8	46
Midway Sunset** [f]	99.7	63,832.80	47
Monument Junction	3.3	2085.6	48
Paloma	29.7	18985.0	59
Pioneer	1.0	642.8	60
Pleito	3.0	1927.3	61
Railroad Gap	1.7	1101.2	63
Rio Viejo	4.1	2641.7	65
San Emidio Nose	7.6	4880.5	71
San Emigdio (Abd)	0.5	306.1	72
San Emigdio Creek (Abd)	0.5	340.70	73
Shale Flats Gas (Abd)	1.0	647.10	78
Shale Point Gas (DOGGR - Abd)	0.6	387.2	79
Temblor Hills	1.0	643.9	88
Temblor Ranch	0.5	318.4	89
Temblor, East (Abd)	0.20	154.6	25
Welcome Valley	0.8	490.4	95
Wheeler Ridge	8.1	5203.7	98
White Wolf	1.3	846.3	99
Yowlumne	10.1	6446.8	100
Central Sub-area			
Bellevue	3.6	2326.40	7
Bellevue, West	2.0	1248.3	96
Bowerbank	16.2	10352.40	9
Buttonwillow Gas (Abd)	10.00	6,378.70	11
Calders Corner	1.5	970.00	13
Canal	3.9	2476.70	14
Canfield Ranch	13.3	8,536.40	15

Table 4-1: Oil and Gas Fields in Project Area

Administrative Oil Field [(a)(b)]	Area in Square Miles	Area in Acres	Field No. in NOP
English Colony (DOGGR - Abd)	1.1	681.50	28
Garrison City Gas (Abd)	4.7	3,017.40	30
Goosloo (DOGGR - No current production)[(e)]	3.0	1935.40	32
Greeley	9.4	6,022.40	33
Jerry Slough (Abd)	0.50	318	35
Lakeside (DOGGR - Abd)	1.3	804.0	40
Lakeside, South (Abd)	0.3	160.4	82
McClung (Abd)	0.5	319.6	44
Rio Bravo	6.1	3925.0	64
Rose	5.5	3522.1	66
Rosedale	3.6	2321.0	67
Rosedale Ranch	5.0	3213.3	68
Semitropic	25.1	16077.3	74
Semitropic Gas, Northwest (Abd)	0.5	322.50	58
Seventh Standard (DOGGR - No current production)	0.5	320.3	75
Shafter (Abd)	0.5	321.2	76
Shafter Southeast Gas (Abd)	1.0	641.50	77
Shafter, North	7.5	4768.3	54
Stockdale	2.4	1567.5	83
Strand	7.9	5068.5	84
Ten Section	7.4	4725.9	90
Trico Gas**	6.8	4359.4	91
Wasco	4.0	2575.6	94
East Sub-area			
Ant Hill	1.7	1,098.00	1
Comanche Point	1.9	1,202.70	20
Dyer Creek	0.4	239.90	23
Edison	34.0	21742.30	26
Edison, Northeast	0.6	408.8	56
Fruitvale	18.3	11714.20	29
Jasmin	10.3	6,607.40	34
Jasmin, West (Abd)	0.5	321.6	97
Kern Bluff	4.2	2,668.60	37
Kern Front	19.0	12136.1	38
Kern River	25.8	16,532.60	36
Kernsumner (Abd)	0.2	159.7	39
Mount Poso	45.9	29360.5	50
Mountain View	28.5	18251.2	49
Poso Creek	30.9	19806.9	62
Round Mountain	19.2	12265.9	69
Round Mountain South	0.4	276.7	70
Tejon	11.3	7227.8	85
Tejon Flats (Abd)	0.3	161.0	86
Tejon Hills	6.7	4283.2	87
Tejon, North	9.2	5914.3	55
Union Ave.	1.0	655.3	92
Valpredo	0.3	163.1	93

Table 4-1: Oil and Gas Fields in Project Area

Administrative Oil Field [(a)(b)]	Area in Square Miles	Area in Acres	Field No. in NOP

Notes:

(a) Field Names, Size in Acres and Square Miles from: Initial Study/Notice of Preparation, Amendment to Title 19 Kern County Zoning Ordinance, focused on Chapter 19.98 (Oil and Gas Production) of the Kern County Zoning Ordinance for Oil and Gas Local Permitting. Kern County Planning and Community Development Department. August 2013.

(b) Kern County cites California Division of Oil, Gas, and Geothermal Resources (DOGGR) Field Boundaries, 6 March 2013.

(c) Abd = Abandoned

(d) DOGGR - Abd: Not shown as Abandoned on NOP, but listed as 'Abandoned' in DOGGR website, accessed 20 February 2014.

(e) DOGGR website 20 February 2014 shows no production after 1990, but field is not listed as "Abandoned".

(f) ** Field is located on the border of Kern and an adjacent county. Area in Kern County is approximate.

Table 4-2: Drilling Activity in Project Area, 1995 - 2009

Year	Well Activity				Notices Filed			Permits Issued				Inspections	
	Drilled	Completed	Redrilled	Plugged & Abandoned	Drill	Rework	Plug & Abandon	New Wells	Rework	Plug & Abandon	Supple-mentary	Performed	Reported
1995	1,470	1,040	157	1,114	1,617	2,181	1,695	1,576	2,141	1,690	365	19,468	1,293
1996	1,913	1,316	45	1,391	2,300	2,036	1,640	3,180	1,919	1,550	371	16,415	1,559
1997	2,508	1,996	42	1,500	2,935	2,035	1,658	2,639	1,907	1,598	336	14,702	1,989
1998	2,571	1,905	33	915	2,662	1,733	897	2,213	1,648	933	401	16,415	1,341
1999	1,550	1,256	18	764	1,870	1,573	1,034	1,656	1,478	919	315	28,580	1,034
2000	2,385	1,956	85	1,132	2,834	2,112	1,357	2,680	1,090	1,339	435	22,953	1,794
2001	2,348	1,914	74	1,488	2,175	2,063	1,373	2,095	1,967	2,193	402	20,583	2,347
2002	2,060	1,618	137	2,279	1,894	1,445	2,105	1,771	1,399	1,845	535	44,316	2,838
2003	2,038	1,536	120	1,774	2,348	1,763	1,580	2,266	1,750	1,410	385	48,130	2,161
2004	2,178	1,722	85	1,400	2,501	1,719	1,784	2,407	1,760	709	387	30,118	1,815
2005	2,249	1,726	75	1,903	2,719	1,845	1,339	2,507	1,701	2,228	472	29,863	2,940
2006	1,811	1,328	90	1,884	2,896	1,941	2,125	2,759	1,890	1,932	436	24,167	2,374
2007	2,795	1,058	101	1,646	2,717	1,891	2,073	2,446	1,727	1,864	475	33,778	2,254
2008	2,812	1,470	82	1,473	3,283	1,396	1,680	3,133	2,160	1,664	601	38,192	2,262
2009	1,518	1,130	64	1,176	1,600	1,513	1,420	1,580	1,433	1,360	383	36,021	3,283

Year	Footage Drilled	
	New Wells (feet)	Redrilled or Deepened (feet)
1995	2,867,800	37,900
1996	3,421,000	17,000
1997	4,529,918	21,737
1998	4,967,658	10,024
1999	3,130,240	13,955
2000	4,640,850	77,730
2001	589,400	91,740
2002	4,625,173	142,248
2003	4,386,990	130,478
2004	4,956,980	87,800
2005	5,108,306	58,180
2006	4,352,284	53,018
2007	5,992,821	53,441
2008	6,145,653	41,471
2009	3,042,435	27,523

Source: California Division of Oil, Gas, and Geothermal Resources, 2009 Annual Report of the State Oil & Gas Supervisor, PR06, pp. 40, 41.

Table 4-3: Active Production Wells in the Project Area, 1995 - 2009

Year	Oil Wells		Dry Gas Wells	
	Producing	Shut in	Producing	Shut in
1995	32,566	12,448	120	127
1996	33,172	14,985	125	122
1997	34,429	14,730	115	126
1998	35,539	13,746	125	124
1999	35,269	16,431	152	110
2000	36,509	16,173	153	119
2001	37,032	16,200	159	114
2002	37,031	16,275	147	130
2003	37,329	15,518	151	144
2004	38,000	15,402	144	154
2005	38,593	15,708	169	141
2006	39,883	14,972	183	141
2007	40,640	14,518	180	149
2008	42,153	13,844	194	124
2009	41,879	14,216	188	128

Source: California Division of Oil, Gas, and Geothermal Resources, 2009 Annual Report of the State Oil & Gas Supervisor, PR06, p. 37.

Table 4-4: Well Stimulation Treatment Notices, November 2013 - March 2014

Field Name	Sub-area	Notices Filed	Drilling			Stimulation Treatment Type		
			Vertical	Horizontal	Directional	Hydraulic Fracturing	Acid Fractuirng	Acid Matrix Stimulation
Asphalto	West	1	0	0	1	0	0	1
Belridge, North	West	41	0	0	41	41	0	0
Belridge, South	West	131	11	0	120	131	0	0
Elk Hills	West	54	9	0	45	18	0	36
Lost Hills	West	10	0	0	10	10	0	0
Rose	Central	9	0	9	0	9	0	0
Project Area Total		**246**	**20**	**9**	**217**	**209**	**0**	**37**

1. Source: California Division of Oil, Gas, and Geothermal Resources, Interim Well Stimulation Treatment Notices Index, http://maps.conservation.ca.gov/doggr/iwst_index.html
last accessed 3/3/2014.
2. Operators have been required to file Well Stimulation Treatment Notices since release of the Department of Conservation's Notice to Operators, dated November 20, 2013

Table 4-5: 2013 Oilfield Production Totals In Project Area

Field Name	Oil or Condensate (bbl)[a]	Gas (Mcf)[b]	Water (bbl)	Water Cut	Oil Cut
Any Field[c]	155,997	383,828	5,176,739	97.1%	2.9%
West Sub-area					
Antelope Hills	133,377	1,940	1,101,811	89.2%	10.8%
Antelope Hills, North	242,962	20,087	2,031,303	89.3%	10.7%
Asphalto	235,228	4,569,063	10,560,620	97.8%	2.2%
Beer Nose	37,159	52,869	2,659	6.7%	93.3%
Belgian Anticline	42,247	114,834	214,238	83.5%	16.5%
Belridge, North	2,496,210	2,965,417	26,995,944	91.5%	8.5%
Belridge, South	23,517,782	8,494,522	310,099,162	93.0%	7.0%
Blackwells Corner	9,527	0	224,623	95.9%	4.1%
Buena Vista	1,231,160	8,484,457	38,548,673	96.9%	3.1%
Cal Canal Gas	23,778	74,447	141,338	85.6%	14.4%
Capitola Park (ABD)	-	-	-	-	-
Carneros Creek	20,545	29,251	26,884	56.7%	43.3%
Chico-Martinez	178,824	0	258,400	59.1%	40.9%
Cienaga Canyon	28,348	75,876	402,579	93.4%	6.6%
Coles Levee, North	149,101	92,431	912,960	86.0%	14.0%
Coles Levee, South	74,596	923,814	75,820	50.4%	49.6%
Cymric	13,569,760	3,147,883	90,457,256	87.0%	13.0%
Devils Den	18,908	2,771	70,186	78.8%	21.2%
Eagle Rest (ABD)	-	-	-	-	-
Elk Hills	11,367,400	101,022,987	143,098,523	92.6%	7.4%
Gonyer Anticline (ABD)	-	-	-	-	-
Landslide	33,929	31,272	1,229,604	97.3%	2.7%
Los Lobos	0	0	0	-	-
Lost Hills	10,381,109	8,661,738	126,335,896	92.4%	7.6%
Lost Hills, Northwest	24,983	4,604	344,635	93.2%	6.8%
McDonald Anticline	54,787	80,781	1,176,546	95.6%	4.4%
McKittrick	2,414,933	1,933,097	28,664,206	92.2%	7.8%
Midway-Sunset	28,030,836	5,010,480	228,245,269	89.1%	10.9%
Monument Junction	120,059	407,024	733,889	85.9%	14.1%
Paloma	22,861	66,129	36,947	61.8%	38.2%
Pioneer	1,856	3,300	395	17.5%	82.5%
Pleito	586,827	279,301	780,456	57.1%	42.9%
Railroad Gap	123,261	1,484,203	2,075,272	94.4%	5.6%
Rio Viejo	73,224	13,348	107,579	59.5%	40.5%
San Emidio Nose	7,110	2,292	17,845	71.5%	28.5%
Shale Flats Gas (ABD)	-	-	-	-	-
Shale Point Gas (ABD)	-	-	-	-	-
Temblor East (ABD)	-	-	-	-	-
Temblor Hills	-	-	-	-	-
Temblor Ranch	974	-	48,405	98.0%	2.0%
Welcome Valley	0	0	0	-	-
Wheeler Ridge	68,613	41,664	558,242	89.1%	10.9%
White Wolf	9,821	0	2,488	20.2%	79.8%
Yowlumne	230,670	242,111	9,220,431	97.6%	2.4%
West Sub-area Subtotal	**95,562,765**	**148,333,993**	**1,024,801,084**		
Central Sub-area					
Bellevue	19,625	14,177	509,470	96.3%	3.7%
Bellevue, West	10,026	5,929	126,478	92.7%	7.3%
Bowerbank	0	0	0	-	-
Buttonwillow Gas (ABD)[d]	-	-	-	-	-
Calders Corner	43	20	405	90.4%	9.6%
Canal	27,682	18,312	227,937	89.2%	10.8%
Canfield Ranch	112,614	131,181	757,830	87.1%	12.9%
English Colony (ABD)	-	-	-	-	-

Table 4-5: 2013 Oilfield Production Totals In Project Area

Field Name	Oil or Condensate (bbl)[a]	Gas (Mcf)[b]	Water (bbl)	Water Cut	Oil Cut
Goosloo	-	-	-	-	-
Greeley	101,792	152,731	2,606,484	96.2%	3.8%
Jerry Slough (ABD)	-	-	-	-	-
Lakeside (ABD)	-	-	-	-	-
Lakeside, South (ABD)	-	-	-	-	-
Rio Bravo	355,578	488,012	4,333,995	92.4%	7.6%
Rose	463,643	185,159	1,234,267	72.7%	27.3%
Rosedale	14,719	0	72,260	83.1%	16.9%
Rosedale Ranch	159,361	146,632	6,503,088	97.6%	2.4%
Semitropic	38,247	16,707	39,390	50.7%	49.3%
Seventh Standard	0	0	0	-	-
Shafter, North	940,893	669,244	3,008,135	76.2%	23.8%
Shafter, SE Gas (ABD)	-	-	-	-	-
Stockdale	109,144	37,387	54,946	33.5%	66.5%
Strand	8,474	8,198	17,531	67.4%	32.6%
Ten Section	94,873	40,746	2,054,759	95.6%	4.4%
Trico Gas	-	-	-	-	-
Wasco	120	0	518	81.2%	18.8%
Central Sub-area Subtotal	**2,456,834**	**1,914,435**	**21,547,493**		
East Sub-area					
Ant Hill	51,053	17,772	4,380,059	98.8%	1.2%
Comanche Point	28,680	0	505,802	94.6%	5.4%
Dyer Creek	3,658	0	51,876	93.4%	6.6%
Edison	757,080	4,744	11,611,337	93.9%	6.1%
Edison, Northeast	2,217	0	4,084	64.8%	35.2%
Fruitvale	426,694	108,031	6,096,413	93.5%	6.5%
Jasmin	123,904	0	10,465,922	98.8%	1.2%
Jasmin, West (ABD)	-	-	-	-	-
Kern Bluff	4,122	0	707,902	99.4%	0.6%
Kern Front	3,445,279	0	97,226,091	96.6%	3.4%
Kern River	23,672,400	44,633	276,643,771	92.1%	7.9%
Mount Poso	1,106,869	14,041	48,962,854	97.8%	2.2%
Mountain View	98,046	34,158	396,481	80.2%	19.8%
Poso Creek	2,792,301	11,818	141,926,984	98.1%	1.9%
Round Mountain	4,175,605	0	137,902,879	97.1%	2.9%
Tejon	487,593	131,420	18,955,653	97.5%	2.5%
Tejon Hills	15,359	0	224,257	93.6%	6.4%
Tejon, North	44,017	394,321	134,075	75.3%	24.7%
Union Avenue	13,455	9,125	131,426	90.7%	9.3%
Valpredo	-	-	-	-	-
East Sub-area Subtotal	**37,248,332**	**770,063**	**756,327,866**		
Project Area Totals	**135,423,928**	**151,402,319**	**1,807,853,182**		

Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Notes:

(a) bbl - barrels

(b) Mcf - million cubic feet

(c) Any Field - wells located outside administrative boundaries of defined fields.

(d) ABD - abandoned field

Table 4-6: 2013 Active Production and Injection Wells in Project Area

Field Name	Number of Well Types	Well Types Having Production	Well Types Having Injection	Operating Well Days
Any Field[a]	2,400	1,041	69	11,852
West Sub-area				
Antelope Hills	149	143	3	30,708
Antelope Hills, North	314	153	111	28,387
Asphalto	231	188	22	35,484
Beer Nose	15	12	0	827
Belgian Anticline	246	231	9	13,439
Belridge, North	3,475	2,250	1,029	251,138
Belridge, South	37,373	22,717	13,325	1,815,433
Blackwells Corner	55	48	6	9,169
Buena Vista	2,859	2,556	194	140,786
Cal Canal Gas	26	23	2	6,105
Capitola Park (ABD)	-	-	-	-
Carneros Creek	55	54	0	7,003
Chico-Martinez	347	184	135	14,453
Cienaga Canyon	43	36	4	9,781
Coles Levee, North	331	220	109	18,667
Coles Levee, South	222	159	57	11,787
Cymric	10,848	5,615	4,874	525,508
Devils Den	353	278	10	14,356
Eagle Rest (ABD)	-	-	-	-
Elk Hills	6,474	5,324	651	1,023,385
Gonyer Anticline (ABD)	-	-	-	-
Landslide	29	18	11	1,450
Los Lobos	40	26	13	0
Lost Hills	11,002	6,980	3,397	963,787
Lost Hills, Northwest	73	59	4	9,194
McDonald Anticline	199	140	43	10,942
McKittrick	5,486	2,787	2,403	162,548
Midway-Sunset	52,407	26,791	23,621	3,605,016
Monument Junction	75	64	1	14,687
Paloma	196	178	6	6,414
Pioneer	4	4	0	361
Pleito	77	61	8	9,785
Railroad Gap	178	134	36	14,690
Rio Viejo	28	23	2	2,449
San Emidio Nose	43	31	11	730
Shale Flats Gas (ABD)	-	-	-	-
Shale Point Gas (ABD)	-	-	-	-
Temblor East (ABD)	-	-	-	-
Temblor Hills	-	-	-	-
Temblor Ranch	34	33	1	883
Welcome Valley	55	54	0	0
Wheeler Ridge	288	218	53	7,924
White Wolf	25	23	1	1,426
Yowlumne	187	138	45	11,121
West Sub-area Subtotal	**133,842**	**77,953**	**50,197**	**8,779,823**
Central Sub-area				
Bellevue	44	36	8	2,321
Bellevue, West	47	35	10	1,147
Bowerbank	78	76	1	0
Buttonwillow Gas (ABD)[b]	-	-	-	-
Calders Corner	4	4	0	185
Canal	62	44	18	3,492
Canfield Ranch	227	186	27	10,617
English Colony (ABD)	-	-	-	-
Goosloo	-	-	-	-
Greeley	139	119	18	6,166
Jerry Slough (ABD)	-	-	-	-
Lakeside (ABD)	-	-	-	-
Lakeside, South (ABD)	-	-	-	-

Table 4-6: 2013 Active Production and Injection Wells in Project Area

Field Name	Number of Well Types	Well Types Having Production	Well Types Having Injection	Operating Well Days
Rio Bravo	194	162	27	7,087
Rose	80	45	7	9,840
Rosedale	79	69	9	4,320
Rosedale Ranch	170	116	25	15,565
Semitropic	119	111	3	17,851
Seventh Standard	7	5	2	0
Shafter, North	125	87	13	22,624
Shafter, SE Gas (ABD)	-	-	-	-
Stockdale	17	15	0	3,836
Strand	82	70	10	928
Ten Section	256	218	47	12,697
Trico Gas	-	-	-	-
Wasco	4	4	0	183
Edison	2,847	1,794	955	335,510
Fruitvale	903	615	277	61,788
Jasmin, West (ABD)	-	-	-	-
Mountain View	464	421	30	39,226
Tejon	448	375	59	44,228
Tejon, North	115	108	3	8,675
Union Avenue	18	9	8	1,061
Valpredo	-	-	-	-
Central Sub-area Subtotal	**6,529**	**4,724**	**1,557**	**609,347**
East Sub-area				
Ant Hill	68	50	13	2,546
Comanche Point	80	59	14	12,385
Dyer Creek	5	5	0	923
Edison	2,847	1,794	955	335,510
Edison, Northeast	41	19	19	3,050
Fruitvale	903	615	277	61,788
Jasmin	139	120	15	13,016
Jasmin, West (ABD)	-	-	-	-
Kern Bluff	336	244	84	4,217
Kern Front	4,369	2,533	1,645	310,881
Kern River	35,874	16,674	18,513	3,493,262
Mount Poso	2,213	1,709	457	203,432
Mountain View	464	421	30	39,226
Poso Creek	2,901	1,689	966	237,262
Round Mountain	1,315	912	217	140,623
Tejon	448	375	59	44,228
Tejon Hills	300	269	23	10,491
Tejon, North	115	108	3	8,675
Union Avenue	18	9	8	1,061
Valpredo	-	-	-	-
East Sub-area Subtotal	**52,436**	**27,605**	**23,298**	**4,922,576**
Project Area Totals	**195,207**	**111,323**	**75,121**	**14,323,598**

Source: California Division of Oil, Gas, and Geothermal Resources, Online Production and Injection Query, http://opi.consrv.ca.gov/opi/opi.dll, last accessed 2/26/2014.

Notes:

(a) Any Field - wells located outside administrative boundaries of defined fields.

(b) ABD - abandoned field

Table 4-7: 2013 Water/Steam Injection Totals In Project Area

Field Name	Steam or Water Injected (bbl)[a]	Gas or Air Injected (Mcf)[b]	Produced Water (bbl)	Ratio of Water produced to injected
Any Field[c]	572,096	0	5,176,739	9.05
West Sub-area				
Antelope Hills	0	65,986	1,101,811	0.00
Antelope Hills, North	2,529,549	0	2,031,303	0.80
Asphalto	5,312,969	0	10,560,620	1.99
Beer Nose	-	-	2,659	0.00
Belgian Anticline	160,049	0	214,238	1.34
Belridge, North	30,913,433	0	26,995,944	0.87
Belridge, South	323,866,674	0	310,099,162	0.96
Blackwells Corner	224,622	0	224,623	1.00
Buena Vista	30,522,476	0	38,548,673	1.26
Cal Canal Gas	134,036	0	141,338	1.05
Capitola Park (ABD)	-	-	-	-
Carneros Creek	-	-	26,884	0.00
Chico-Martinez	1,351,603	0	258,400	0.19
Cienaga Canyon	0	0	402,579	0.00
Coles Levee, North	1,226,314	51	912,960	0.74
Coles Levee, South	119,826	0	75,820	0.63
Cymric	57,041,567	205,594	90,457,256	1.59
Devils Den	21,650		70,186	3.24
Eagle Rest (ABD)	-	-	-	-
Elk Hills	150,518,023	21,545,208	143,098,523	0.95
Gonyer Anticline (ABD)	-	-	-	-
Landslide	1,248,593	0	1,229,604	0.98
Los Lobos	-	-	0	-
Lost Hills	130,325,497	0	126,335,896	0.97
Lost Hills, Northwest	456,037	0	344,635	0.76
McDonald Anticline	1,160,584	0	1,176,546	1.01
McKittrick	12,679,449	0	28,664,206	2.26
Midway-Sunset	232,493,970	3,464,932	228,245,269	0.98
Monument Junction	-	-	733,889	0.00
Paloma	30,509	0	36,947	1.21
Pioneer	-	-	395	0.00
Pleito	761,487	0	780,456	1.02
Railroad Gap	-	-	2,075,272	0.00
Rio Viejo	110,937	0	107,579	0.97
San Emidio Nose	0	0	17,845	0.00
Shale Flats Gas (ABD)	-	-	-	-
Shale Point Gas (ABD)	-	-	-	-
Temblor East (ABD)	-	-	-	-
Temblor Hills	-	-	-	-
Temblor Ranch	48,796	0	48,405	0.99
Welcome Valley	-	-	0	-
Wheeler Ridge	547,662	0	558,242	1.02
White Wolf	-	-	2,488	0.00
Yowlumne	7,947,259	0	9,220,431	1.16
West Sub-area Subtotal	**991,753,571**	**25,281,771**	**1,024,801,084**	**1.03**
Central Sub-area				
Bellevue	456,629	0	509,470	1.12
Bellevue, West	-	-	126,478	0.00
Bowerbank	0	0	0	-
Buttonwillow Gas (ABD)[d]	-	-	-	-
Calders Corner	-	-	405	0.00
Canal	136,568	0	227,937	1.67
Canfield Ranch	524,924	0	757,830	1.44
English Colony (ABD)	0	0	-	-

Table 4-7: 2013 Water/Steam Injection Totals In Project Area

Field Name	Steam or Water Injected (bbl)[a]	Gas or Air Injected (Mcf)[b]	Produced Water (bbl)	Ratio of Water produced to injected
Goosloo	-	-	-	-
Greeley	2,613,509	0	2,606,484	1.00
Jerry Slough (ABD)	-	-	-	-
Lakeside (ABD)	-	-	-	-
Lakeside, South (ABD)	-	-	-	-
Rio Bravo	4,380,985	0	4,333,995	0.99
Rose	435,706	0	1,234,267	2.83
Rosedale	131,590	0	72,260	0.55
Rosedale Ranch	6,633,672	0	6,503,088	0.98
Semitropic	4,168	0	39,390	9.45
Seventh Standard	0	0	0	-
Shafter, North	2,298,587	0	3,008,135	1.31
Shafter, SE Gas (ABD)	-	-	-	-
Stockdale	-	-	54,946	0.00
Strand	2,470	0	17,531	7.10
Trico Gas	-	-	-	-
Wasco	-	-	518	0.00
Central Sub-area Subtotal	**17,618,808**	**0**	**19,492,734**	**1.11**
East Sub-area				
Ant Hill	4,355,902	0	4,380,059	1.01
Comanche Point	505,821	0	505,802	1.00
Dyer Creek	-	-	51,876	0.00
Edison	7,738,275	0	11,611,337	1.50
Edison, Northeast	10,024	0	4,084	0.41
Fruitvale	8,276,775	0	6,096,413	0.74
Jasmin	378,183	0	10,465,922	27.67
Jasmin, West (ABD)	-	-	-	-
Kern Bluff	707,350	0	707,902	1.00
Kern Front	41,814,251	0	97,226,091	2.33
Kern River	85,757,914	28,348	276,643,771	3.23
Mount Poso	28,395,357	0	48,962,854	1.72
Mountain View	173,694	0	396,481	2.28
Poso Creek	116,123,331	0	141,926,984	1.22
Round Mountain	135,035,635	0	137,902,879	1.02
Tejon	18,767,799	0	18,955,653	1.01
Tejon Hills	119,748	0	224,257	1.87
Tejon, North	133,578	0	134,075	1.00
Ten Section	2,256,525	0	2,054,759	0.91
Union Avenue	131,426	0	131,426	1.00
Valpredo	-	-	-	-
East Sub-area Subtotal	**450,681,588**	**28,348**	**758,382,625**	**1.68**
Project Area Totals	**1,460,626,063**	**25,310,119**	**1,807,853,182**	**1.58**

Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Notes:

(a) bbl - barrels

(b) Mcf - million cubic feet

(c) Any Field - wells located outside administrative boundaries of defined fields.

(d) ABD - abandoned field

Table 4-8: Fluid Injection Volumes in Project Area, 1995 - 2009

Year	Cyclic Steam (bbl)[a]	Steamflood (bbl)	Waterflood (bbl)	Water Disposal (bbl)	Air Injection (Mcf)[b]	Pressure Maintenance (Mcf)
1995	101,970,252	375,299,347	135,404,383	314,714,087	2,433,283	86,682,704
1996	111,450,034	373,142,041	150,036,685	317,490,319	3,325,729	90,546,275
1997	116,945,107	381,600,642	159,919,337	314,759,745	3,672,450	77,441,152
1998	115,368,226	386,892,207	153,455,000	273,096,121	1,128,184	45,500,111
1999	114,997,092	385,458,966	151,919,519	230,009,462	0	14,067,768
2000	118,164,701	379,777,138	163,171,497	224,631,708	204,271	7,784,355
2001	80,845,041	297,933,451	190,145,125	252,987,852	1,156,575	5,156,645
2002	105,146,640	334,257,742	232,810,692	270,036,025	253,475	5,854,957
2003	101,684,439	338,891,701	245,335,158	277,103,620	0	5,510,759
2004	106,656,480	328,442,032	273,982,719	298,441,625	0	7,086,278
2005	114,674,067	319,329,384	294,619,582	320,247,955	0	11,055,462
2006	126,387,060	307,105,677	312,317,226	399,562,811	0	17,951,189
2007	119,610,409	312,213,926	338,938,660	427,362,357	0	16,458,755
2008	132,845,728	304,544,159	407,602,064	425,132,988	0	15,492,074
2009	130,652,046	297,180,055	408,610,883	509,786,949	125,751	13,729,713

Year	Cyclic Steam (active wells)	Steamflood (active wells)	Waterflood (active wells)	Water Disposal (active wells)	Air Injection (active wells)	Pressure Maintenance (active wells)
1995	9,842	4,257	1,071	381	11	66
1996	10,602	4,423	1,121	385	12	68
1997	10,560	4,438	1,166	372	11	70
1998	9,974	4,766	1,275	370	9	48
1999	9,676	4,431	1,336	346	0	40
2000	9,705	4,524	1,609	357	2	38
2001	4,267	3,970	1,918	406	6	33
2002	7,877	3,779	2,112	416	6	31
2003	9,985	3,763	2,200	435	0	31
2004	10,267	3,572	2,313	491	0	31
2005	10,719	3,604	2,351	497	0	44
2006	11,875	3,610	2,634	530	0	45
2007	12,499	3,383	2,848	542	0	58
2008	14,355	3,413	2,888	601	0	63
2009	13,826	3,304	2,039	585	2	59

Source: California Division of Oil, Gas, and Geothermal Resources, 2009 Annual Report of the State Oil & Gas Supervisor, PR06, pp. 38, 39.

Table 5-1 Volume of Produced Water Disposed or Reused in 2012

Process	2012 Volume (AF)[a]			
	West	Central	East	Total
Water produced during Oilfield Operations	131,341	2,884	100,734	234,959
Total Annual Water Demand	83,776	883	12,931	97,590
Produced Water Injected into Class II Wells	40,482	2,170	41,919	84,571
Produced Water Provided to Third Party for Beneficial Reuse[b]	0	0	38,658	38,658
Produced Water Disposed to Land	19,545	189	11,197	30,931

[a] Water Supply Assessment (Kennedy/Jenks 2015)

[b] includes water delivered to Cawelo Water District, Jasmine Fields, and Concordia Fields for agricultural use

Table 5-2: Oilfield Fluid Handling Processes

Process	Description
WELL DRILLING OPERATIONS	
Fluid mixing	Trucks deliver fresh water to the drilling site. Water is pumped into a mixing tank and mixed with bentonite clay and a variety of additives to form a drilling fluid or drilling mud. The purposes of the drilling mud are to keep the drill bit cool and clean during drilling, carry out drill cuttings, suspend drill cuttings while drilling is paused, provide hydrostatic pressure in the formation, seal permeable formations, and control corrosion. As downhole conditions change during drilling, other additives are mixed in to adjust the viscosity, density, and pH of the drilling mud. The additives generally include barium sulfate (barite), calcium carbonate (chalk), or hematite. Thickeners may be added such as xanthan gum, guar gum, glycol, carboxymethylcellulose, or starch. Deflocculants may be also used such as polyelectrolytes, polyphosphates, lignosulfonates, or tannic acid derivatives. Other common additives may include lubricants, scale inhibitors, and corrosion inhibitors.
Fluid circulation	The mixed drilling mud is stored at the surface either in steel above ground storage tanks or in a lined earthen pit adjacent to the drilling rig. Pumps, hoses, and pipelines convey the mud to the top of the drill string. The mud travels inside the drill pipe down the drill string and comes out at openings in the drill bit at the bottom of the hole. The mud then travels up the borehole along the backside of the drill pipe. As the mud travels up it carries drill cuttings with it, and it forms a cake on the walls of the open borehole. The mud returns to the surface, passes through a screen to remove drill cuttings, and discharges into the mud pit or tank.
Flowback (comingled with drilling fluid)	Flowback focuses on the return trip of the drilling mud to the surface along the backside of the drill pipe. Along with the drilling mud, the flowback consists of fluids (oil, gas, water) released by the formation . Mudcake on the walls of the open borehole and conductor casings are designed to keep these fluids from entering shallower formations as the drilling mud travels upward to the surface.
Cementing casing	Multiple conductor casings are installed in a telescoping fashion to seal off progressively deeper formations, in accordance with DOGGR field rules. During casing installation, drilling stops at the target depth and the drill string is pulled out of the well. The casing is assembled in segments with a valve assembly at the bottom and is lowered downhole. A calculated quantity of fresh water and cement are mixed at the surface and pumped through the inside of the casing, pushing a lower rubber wiper plug in front of it. When the calculated volume of cement has entered the casing, an upper rubber wiper plug is pushed by drilling fluid behind the plug. When the lower plug, cement column, and upper plug reach the bottom of the hole, the driller applies pressure with drilling fluid. The lower plug seats in the valve assembly, the upper plug is pressed downward, and the cement column is forced through a breakable membrane in the lower plug, out of the casing and up the backside of the casing. A sudden increase in downhole pressure indicates to the driller that the upper plug has reached the lower plug, and all of the cement volume has been pushed into the annulus up to the depth required by DOGGR's field rules. The cement is allowed to cure for 12 to 24 hours before drilling resumes.

Table 5-2: Oilfield Fluid Handling Processes

Process	Description
Treatment and disposal of drilling fluids	Spend drilling mud is generally stored for a period of time in settling tanks or lined settling ponds to allow the water to separate from the clays and other additives. The separation may also be accomplished using a centrifuge. The separated water is decanted off, treated as necessary, and is generally recycled. Solids generated from the separation are generally landfarmed or used as landfill cover.
WELL SERVICING AND FIELD DEVELOPMENT	
Well recompletion using pulling unit	Well recompletion involves mobilizing a drilling rig to the well site. The Christmas tree or pump jack are removed, and the sucker rods and tubing are pulled from the well. The drilling rig seals off the existing producing zones with casing and advances the well into deeper producing zones. During well completion, the same drilling processes are used as in the initial Well Drilling Operations described above.
Mixing and pouring concrete for surface facilities.	Surface facilities would include secondary containments for tank batteries and steam generators, saddles and foundations for tanks, foundations for field offices and outbuildings, and foundations for pump jacks.
Chemical mixing	Trucks deliver fresh water to the completed well site. The christmas tree or pump jack is removed from the wellhead, and sometimes the sucker rod and tubing are pulled from the well. Water is pumped into a mixing tank and mixed with a variety to chemicals to suit the well servicing task at hand, which could include cleaning production casing and tubing, replacing tubing or sucker rods, repairing seals, and reperforating. The chemicals may include corrosion inhibitors, scale inhibitors, lubricants, or surfactants. Alternatively, trucks may arrive on site with chemicals already mixed in the water.
Mix and pump cement downhole to repair casing leaks or seal off unproductive zone	Same procedure as Cementing described above.
Fluid circulation	Fluids mixed at the well site are pumped downhole by a workover rig and may be circulated back to the surface for drilling out plugs, cleaning, or deepening the well.
Pump / remove development fluids	Same procedure as Flowback described above.
Treatment and disposal of development fluids	Same procedure as described in Drilling Operations above.

Table 5-2: Oilfield Fluid Handling Processes

Process	Description
WELL STIMULATION OPERATIONS	
Chemical mixing	The fracturing fluid is a precisely and specifically designed mix of mainly water and proppants, with chemicals added to serve several purposes. Chemical additives include acids, surfactants, biocides, bactericides, pH stabilizers, gel breakers, clay and iron inhibitors, corrosion and scale inhibitors. Some hazardous substances, such as benzene, ethylene glycol, naphthalene may also be added in small amounts
Pressurized fluid injection	To conduct the fracturing, a tool is inserted into the cased well beyond the casing into the open target formation. A device seals the casing against the pressure and the fluid is injected under high pressure into the target formation. The process may be repeated multiple times to extend fractures.
Capture flowback and produced water	Much of the fluid injected into the formation returns to the well after the fracturing procedure has been conducted and the pressure imposed on the fluid is reduced. According to API (2010), the vast majority of injected hydraulic fracturing fluid is recovered within a short time.
Disposal of flowback water	In Kern County, stimulation notices indicate all flowback water is contained in closed systems (tanks) at the drill site. The fluid is transported for treatment in field treatment systems (e.g. Elk Hills or Lost Hills), or "commercial disposal" (e.g. Rose Field). The treated fluid may be re-used (e.g. for enhanced recovery operations in the Elk Hills Field), or injected into permitted Class II wastewater disposal wells.
PRODUCED WATER HANDLING OPERATIONS	
Capture produced water	Production consisting of water, oil, and gas, enters the well through perforations in the production casing or through the liner, and is brought up to the surface through tubing. Under high reservoir pressures, the production will flow naturally up the tubing to the surface, and the pressure and flow will be regulated by a Christmas tree at the wellhead. If reservoir pressures are not sufficient to permit flowing, the production is lifted mechanically using a pump jack at the surface or occasionally a submersible pump at depth. Once it reaches the surface, production is conveyed by above-ground or shallow underground piping to a tank battery.
Oil and gas separation	Production pipelines from the field join at a field header, which conveys the production into the tank battery. The production is initially routed through a tall tank called a stripper, which separates the gas from the oil and water. Oil and water are then routed via pipelines to a series of tanks in which the oil is separated from the water. The separation vessels may include a free-water knockout tank, a heater-treater, or a wash tank, or a combination of these. Emulsion breakers are often added to enhance the separation of the oil from the water. Separated oil is routed to oil stock tanks, and then through a Lease Automated Custody Transfer (LACT) unit, where it is sold and enters the transportation phase via either regional pipelines or trucks.

Table 5-2: Oilfield Fluid Handling Processes

Process	Description
Produced water treatment	After oil/water separation is complete, produced water is routed through a treatment system that usually includes a sand filter and/or an induced gas flotation unit. Chemicals including scale inhibitors and corrosion inhibitors may be added during the treatment. Following treatment, the water is collected in a produced water tank. From the produced water tank, the water may be routed to a disposal well, a waterflood well, or a steam generator; or it may be transported off the lease via pipeline or truck to a produced water disposal facility.
Steam generation	Either treated produced water or fresh water is fed into a steam generator or a cogen. The water is heated to boiling, and the steam is conducted through insulated above-ground pipelines to steam injection wells in the field.
Water flooding / steam injection	In water flooding, treated produced water is conveyed from the produced water tank to waterflood injection wells. The water enters the injection well and is injected into an oil-bearing formation. Because of the well's position in the field, the injected water is intended to migrate downgradient through the formation and push oil and gas to the active production wells in the field. In steam injection, the steam is delivered via insulated pipelines to the well and into an oil-bearing formation. The steam provides both heat, to decrease the viscosity of low-gravity oil and establish flow, and pressure, to push the oil and gas to the production wells in the field.
Disposal of produced water	For onsite disposal, treated produced water is routed to one or more Class II disposal wells, usually located at the downgradient edge of the field. The water enters the disposal well and is injected into the oil-bearing formation whence it came. Because of the disposal well's position in the field, the injected water is not intended to push oil and gas to the production wells in the field. For offsite disposal, treated produced water is metered into a pipeline or to trucks and transported off the lease to a produced water disposal facility. These facilities usually consist of large bermed percolation ponds, evaporation ponds, and a large number of large water tanks.

Table 5-3: Chemicals Commonly Used in Drilling Fluid in Project Area

Ingredients[(a)]
Water
Asphsol Supreme
Barite
Calcium Carbonates
CF Desco II
Citric Acid
CleanFaze
Cottonseed Hulls and Pellets
Defoam X and A
DrilZone L
D-Solver
DualFlo
DuoVis
FloVis Plus
Gelex
Gelite
G-Seal Plus
KlaStop
Kwik-Seal
Lime
MagmaFiber
MagOx
Marble White
MDC
MI Gel
MI Wate
Mix II F, M, C
PolyPac
PolyPlus
PolySwell
Potasium Chloride
PowerVis
PrimaSeal
SafeCarb
SAPP
Sawdust
Soda Ash
Sodium Bicarbonate
Sodium Chloride
SP-101
Tannathin
ThruTrol
VinSeal
Walnut Shell
WellZyme A

[a] As reported by Chevron USA

Table 5-4: Water Sources for Well Stimulation Treatments

Field Name	Number of Approved Hydraulic Fracture Notices[a]	Number of Approved Acid Matrix Stimulation Notices	Number of Notices Proposing Use of Fresh Water	Number of Notices Proposing Use of Produced Water	Average for Field of Water Volumes for Proposed Well Treatment, as reported on notices (bbl)[b]	Fresh Water Source as Reported on Notice
Asphalto	0	1	1	0	3,452	West Kern Water District
Belridge, North	38	0	38	0	4,800	California Aqueduct via Beldridge Water Storage District or well(s) in T28S/R22E/sec10
Belridge, South	131	0	131	0	5,703[c]	California Aqueduct via Beldridge Water Storage District or well(s) in T28S/R22E/sec10
Elk Hills	18	25	32[d]	11	2,779	West Kern Water District
Lost Hills	10	0	10	0	5,700	Canal water/Tulare water (Operator's wells)
Rose	9	0	9	0	11,030	"District Water"

Total volume of **fresh** water to be used as reported on approved notices for well stimulations (bbl): 1,077,112

Total volume of **produced** water to be used as reported on approved notices for well stimulations (bbl): 53,400

Notes:

(a) Notices were viewed at http://maps.conservation.ca.gov/doggr/iwst_index.html on 12-13 March 2014. Notices were posted between 3 December 2013 and 6 March 2014. Each posted notice has a status of "Approved" or "Withdrawn". Only "Approved" notices are counted in this table.

(b) bbl = Barrel. Some notices report "estimated volume" of water for treatment while others report "maximum volume" of water.

(c) If the water volume for the hydraulic fracture of one well (SOSA FOD SB 2086-18) is excluded, the average water volume for well stimulations for this field is 4,800 bbl.

(d) Both "fresh" water and "produced" water are marked for well 72-9G. It is counted with Fresh Water.

Table 5-5: Representative Chemicals Listed in DOGGR Hydraulic Fracture Notices

Ingredients[a]	CAS	Estimated Ingredient Concentration in Fluid (% by mass)[b]
Water	7732-18-5	55.41%
Crystalline Silica	14808-60-7	41.80%
Guar Gum	9000-30-0	0.4387%
Petroleum Distillates	64742-47-8	0.2193%
Paraffinic Petroleum Distillates	64742-55-8	0.2193%
Isotridecanol, ethoxylated	9043-30-5	0.0366%
1-buloxy-2-propanol	5131-66-8	0.0366%
Crystalline Silica-Quartz	14808-60-7	0.0366%
Hemicellulase Enzyme Concentrate	9025-56-3	0.0021%
Sodium Tetraborate Decahydrate	1303-96-4	0.0732%
Ethylene Glycol	107-21-1	0.0732%
Sodium Hydroxide	1310-73-2	0.0244%
Oxyakylated Amine Quat	138879-94-4	0.397%
Ammonium persulphate	7727-54-0	0.0083%
Diatomaceous Earth, Calcined	91053-39-3	0.01%
5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	0.0020%
Magensium Nitrate	10377-60-3	0.0020%
Magensium Chloride	7786-30-3	0.001%
2-Methyl-4-Isothiazolin-3-One	2682-20-4	0.001%
Crystalline Silica: Cristobalite	14464-46-1	0.0002%
Crystalline Silica: Quartz (SiO2)	14808-60-7	0.0002%
Citric Acid	77-92-9	0.109049%
Ethylene glycol monobutyl ether	111-76-2	0.060756%
Xylene	1330-20-7	0.357930%
Ethyl Benzene	100-41-4	0.107938%
Hydrochloric Acid	7647-01-0	0.576579%
Hydrogen fluroide (hydrofluoric acid)	7664-39-3	0.27228%
Formic Acid	64-18-6	0.10553%
Carboxylic Acid Salt	127-08-2	0.00009%
Methanol	67-56-1	0.003482%
Morpholine	110-91-8	0.000769%
Organic Acid	64-19-7	0.000006%
Organic sulfonic acid amine salt	12068-08-5	0.030652%
oxyalkylated Alcohole	66455-15-0	0.025637%
Isopropanol	67-63-0	0.013346%
Oxyakylated alkylphenolic resin	63428-92-2	0.005358%
Polyoxyalkylenes	68439-45-2	0.001076%
Light aromatic naphtha	64742-95-6	0.000837%
1,2,4-TMB	95-63-6	0.000544%
1,3,5-TMB	108-67-8	0.00017%
1,2,3-TMB	526-73-8	0.000085%
Xylene	1330-20-7	0.000043%
Alkylaryl sulfonate	68584-27-0	0.000034%
Cumene	98-82-8	0.000019%
Potassium hydroxide	1310-58-3	0.000011%
Cocamidopropyl betaine	61789-40-0	Not Reported
Caprylamidopropyl betaine	73772-46-0	Not Reported
Sodium Chloride	7647-14-5	Not Reported
Glycerol	56-81-5	Not Reported
Isotridecanol, ethoxylated	9043-30-5	0.016542%
1-Butoxy-2-Propanol	5131-66-8	0.016542%
2-Butoxy -1-Propanol	15821-83-7	0.000331%
Potassium carbonate	584-08-7	0.144146%

Table 5-5: Representative Chemicals Listed in DOGGR Hydraulic Fracture Notices

Ingredients[a]	CAS	Estimated Ingredient Concentration in Fluid (% by mass)[b]
Potassium Bicarbonate	298-14-6	0.004805%
Methyl Borate	121-43-7	0.010093%
Boric Acid	10043-35-3	0.010093%
Ammonium chloride	12125-02-9	0.087395%
Erythorbic Acid	89-65-6	0.610957%
Phenolic resin	9003-35-7	0.16499%
Potassium borate	1332-77-0	0.06493%
2,2,2"-nitrilotriethanol	102-71-6	0.03495%
Zirconium dichlooride oxide	7699-43-6	0.01888%
Polyethylene glycol monhexyl ether	31726-34-8	0.01575%
Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.01404%
2-Propenoic acid, polymer with sodium phosphinate	129898-01-7	0.00864%
Crosslinked PO/EO-block polymer	68123-18-2	0.00615%
Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.0047%
Non-crystalline silica	7631-86-9	0.00245%
Alcohol, C11-14, ethoxylated	78330-21-9	0.00204%
Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00203%
Methyl oxirane polymer with oxirane	9003-11-6	0.00203%
Dioctyl sulfosuccinate sodium salt	577-11-7	0.00096%
Calcium chloride	10043-52-4	0.00082%
Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00069%
Magnesium silicate hydrate (talc)	14807-96-6	0.00025%
Propylene glycol	57-55-6	0.0002%
2,2'-oxydiethanol	111-46-6	0.00009%
2-ethylhexan-1-ol	104-76-7	0.00003%
Potassium oleate	143-18-0	0.00001%
Oleic acid	112-80-1	0.00001%
Alcohols, C10-12, ethoxylated	67254-71-1	0.00155%
Monoethanolamine borate	26038-87-9	0.09738%
2,2 Dibromo-3-nitrilopropionamide	10222-01-2	0.00122%
2-Monobromo-3-nitrilopropionamide	1113-55-9	0.00006%
Bentonite, benyzl(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4	0.00773%
Sodium Persulfate	7775-27-1	0.00782%
disodium octaborate tetrahydrate	12008-41-2	0.1623%
Sodium polyacrylate	9003-04-7	0.15451%
Sodium bisulfite	7631-90-5	0.00097%
Hemicellulase enzyme	9012-54-8	0.00315%
Lactose	63-42-3	0.01051%
Polydimethyl diallyl ammonium chloride	26062-79-3	0.07228%
Polyethelene glycol oleate ester	56449-46-8	0.00155%
Silica gel	112926-00-8	0.00155%
Sodium sulfate	7757-82-6	0.00001%

Notes:

(a) Chemicals lists were observed on DOGGR Interim Well Stimulation Notices, accessed 13 March 2014. This listing shows chemicals found in a sampling of hydraulic fracture notices from different fields. A chemical is only listed once, even if it shown on multiple notices.

(b) The estimated concentration listed is representative of a "typical" use, based on the information reviewed, and will vary between wells.

Table 5-6: Representative Chemicals Listed in DOGGR Acid Matrix Stimulation Notices

Ingredients[a]	CAS	Max Ingredient Concentration in Fluid (% by mass)[b]
Fresh water	7732-18-5	44.83%
Acetic acid	64-19-7	1.63806%
Citric acid	77-92-9	1.38132%
Hydrochloric acid	7647-01-0	25.5402%
Methanol	67-56-1	0.2650%
Diethylene glycol	111-46-6	0.5226%
Cinnamaldehyde	104-55-2	0.5226%
Formic acid	64-18-6	0.8317%
Isopropanol	67-63-0	0.2678%
Dodecylbenzene sulfonic acid	27176-87-0	0.4780%
Isopropanol	67-63-0	0.1434%
Ethylene glycol monobutyl ether	111-76-2	1.6826%
Ethoxylated hexanol	68439-45-2	0.5048%
Ethylene glycol monobutyl ether	111-76-2	0.5282%
Ethylene glycol	107-21-1	0.0440%
Poly(oxy-12-ethandiyl) a-(nonylphenyl)-w-hydroxy-	9016-45-9	0.0880%
2-Ethyl hexanol	104-76-7	Not Reported
Alcohols C12-16 ethoxylated	68551-12-2	Not Reported
Amine oxides cocoalkyldimethyl	61788-90-7	Not Reported
Benzaldehyde	100-52-7	Not Reported
Copper dichloride	7447-39-4	Not Reported
Ethylene oxide	75-21-8	Not Reported
Methanol	67-56-1	Not Reported
Poly(oxy-1,2-ethanediyl); alpha-hexyl-omega-hydroxy(C2H4O)N(C6H14O)	31726-34-8	Not Reported
Sodium iodide	7681-82-5	Not Reported
Ammonium bifluoride	1341-49-7	2.21%
Hydroxylamine hydrochloride	5470-11-01	0.07%
Silica amorphous fumed	7631-86-9	0.01%
Hydrofluoric acid	7664-39-3	<1%
Tetrasodium Ethylenediaminetetraacetate	64-2-8	<0.1%
Sodium Erythorbate	6381-77-7	<0.1%
Fatty acids, tall-oil	61790-12-3	<0.1%
Thiourea, polymer with formaldehyde and 1-Phenylethanone	68527-49-1	<0.1%
Linear/branched alcohol ethoxylate	127036-24-2	<0.1%
Alcohols, C14-15, ethoxylated	68951-67-7	<0.1%
Prop-2-yn-1-ol	107-19-7	<0.1%
Sodium glycolate	2836-32-0	<0.01%
Alkenes	64743-02-8	<0.01%
Alcohols, C11-14-iso, ethoxylated	78330-20-8	<0.01%
Alcohols, C7-9-iso, ethoxylated	78330-19-5	<0.01%
Glycerol	56-81-5	<0.01%
Ethoxylated resin	30846-35-6	<0.01%
Alcohol, C11-14, ethoxylated	78330-21-9	<0.01%
Crosslinked PO/EO Polymer	68123-18-2	<0.01%
Alcohol, C11 linear	34398-01-1	<0.01%
Heavey aromatic naphtha	64742-94-5	<0.01%

Table 5-6: Representative Chemicals Listed in DOGGR Acid Matrix Stimulation Notices

Ingredients[(a)]	CAS	Max Ingredient Concentration in Fluid (% by mass)[(b)]
Quaternary ammonium compounds	68989-00-4	<0.01%
Sodium hydroxide	1310-73-2	<0.01%
Disodium Ethylene Diamine tetra acetate (impurity)	139-33-3	<0.01%
Trisodium Ethylene Diamine tetra acetate (impurity)	150-38-9	<0.01%
Alcohol, C9-C11, ehoxylated	68949-46-3	<0.01%
Alkyl (c10-c14) alcohols, ethoxylated	66455-15-0	<0.01%
Methyl oxirane polymer	9003-11-6	<0.01%
Poly(oxy-1,2-ethaediyl)	25322-68-3	<0.01%
Trisodium nitrilotriacetate (impurity)	5064-31-3	<0.01%
Coco-amido-proplyamine oxide	68155-09-9	<0.01%
Diatomaceous earth, calcined	91053-39-3	<0.001%
Dicoco dimethyl quaternary ammonium chloride	61789-77-3	<0.001%
Dioctyl sulfosuccinate sodium salt	577-11-7	<0.001%
Naphthale (impurity)	91-20-3	<0.001%
Dodecyl benzene	123-01-3	<0.001%
Sulfuric acid (impurity)	7664-93-9	<0.001%
Magnesium nitrate	10377-60-3	<0.001%
Propylene glycol	57-55-6	<0.001%
5-chloro2-2methyl-2h-isothiazol-3-one	26172-55-4	<0.001%
Magnesium chloride	7786-30-3	<0.0001%
2-ethylhexan-1-ol	2682-20-4	<0.0001%
Crystalline silica	14808-60-7	<0.0001%
Cristobalite	14464-46-1	<0.0001%

Notes:

(a) Chemicals lists were observed on DOGGR Interim Well Stimulation Notices, accessed 13 March 2014. This listing shows chemicals found in a sampling of hydraulic fracture notices from different fields. A chemical is only listed once, even if it shown on multiple notices.
(b) The estimated concentration listed is representative of a "typical" use, based on the information reviewed, and will vary between wells.

Table 5-7: Produced Water Summary Statistics for Oilfields in the Project Area

Field		TDS[a] (ppm)[c]	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Barium (ppm)	Bicarbonate (ppm)	Chloride (ppm)	Sulfate (ppm)	Boron (ppm)	Iodide (ppm)	pH
Antelope Hills	Average	7,142	2,431	14	10	2	2,162	2,291	58	20	-	8.3
	Median	7,807	2,485	11	10	-	2,379	2,048	29	20	-	8.4
	Minimum	2,394	710	5	4	-	1,098	483	0	12	-	8.0
	Maximum	10,699	3,784	29	15	-	3,223	4,300	173	27	-	8.4
	N [b]	*5*	*5*	*5*	*4*	*1*	*5*	*5*	*5*	*2*	-	*5*
Asphalto	Average	24,282	8,587	86	28	9	3,611	11,604	61	-	6	7.9
	Median	27,605	9,957	104	21	5	3,908	13,330	36	-	-	7.9
	Minimum	15,296	3,674	15	11	5	2,001	5,510	15	-	-	7.2
	Maximum	29,293	10,949	149	61	17	4,652	15,602	218	-	-	8.6
	N	*9*	*9*	*9*	*9*	*3*	*9*	*9*	*9*	-	*1*	*9*
Belgian Ant	Average	13,043	4,663	200	44	-	1,291	6,203	25	159	-	7.9
	Median	15,353	5,611	178	43	-	1,354	6,800	17	126	-	7.9
	Minimum	3,610	935	87	32	-	644	1,050	10	96	-	7.3
	Maximum	16,334	6,040	324	60	-	1,830	9,367	61	256	-	8.4
	N	*5*	*5*	*5*	*5*	-	*5*	*5*	*5*	*3*	-	*4*
Blackwells Corner	Average	16,276	5,877	192	269	-	3,404	8,191	19	-	-	7.3
	Median	-	-	-	-	-	-	-	-	-	-	-
	Minimum	-	-	-	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-	-	-	-
	N	*1*	*1*	*1*	*1*	-	*1*	*1*	*1*	-	-	*1*
Buena Vista (Front)	Average	30,809	9,865	980	400	9	222	17,827	202	10	-	7.7
	Median	34,623	11,695	1,107	415	9	224	21,161	4	10	-	7.6
	Minimum	22,848	6,061	685	350	8	192	10,975	2	10	-	7.5
	Maximum	34,956	11,839	1,147	434	9	249	21,345	600	10	-	7.9
	N	*3*	*3*	*3*	*3*	*2*	*3*	*3*	*3*	*1*	-	*3*
Buena Vista (Hills)	Average	14,971	4,980	349	294	18	381	8,920	29	-	-	-
	Median	-	-	-	-	-	-	-	-	-	-	-
	Minimum	-	-	-	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-	-	-	-
	N	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	-	-	-
Chico Martinez	Average	22,183	7,508	197	277	5	3,472	10,716	7	-	-	6.9
	Median	22,183	7,508	197	277	5	3,472	10,716	7	-	-	6.9
	Minimum	21,984	7,455	174	242	4	3,148	10,299	1	-	-	6.9
	Maximum	22,381	7,560	220	312	6	3,795	11,132	13	-	-	7.0
	N	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	-	-	*2*
Cymric	Average	7,541	2,362	92	102	0	2,303	2,688	31	-	-	7.1
	Median	-	-	-	-	-	-	-	-	-	-	-
	Minimum	-	-	-	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-	-	-	-
	N	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	-	-	*1*

Table 5-7: Produced Water Summary Statistics for Oilfields in the Project Area

Field		TDS[a] (ppm)[c]	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Barium (ppm)	Bicarbonate (ppm)	Chloride (ppm)	Sulfate (ppm)	Boron (ppm)	Iodide (ppm)	pH
Elk Hills	Average	25,821	8,385	877	388	5	1,287	14,652	310	17	58	7.3
	Median	29,032	10,015	934	371	5	354	16,885	67	18	55	7.3
	Minimum	952	287	24	3	4	43	520	2	4	41	6.2
	Maximum	47,074	16,104	2,446	1,114	5	5,287	29,217	2,063	29	80	8.0
	N	*21*	*21*	*21*	*21*	*2*	*21*	*21*	*21*	*3*	*4*	*20*
Lost Hills	Average	22,840	7,050	284	170	10	1,779	12,842	793	114	-	7.4
	Median	22,869	6,467	240	144	9	1,026	13,967	26	110	-	7.4
	Minimum	7,247	115	16	5	6	232	3,829	0	36	-	6.7
	Maximum	31,886	12,469	810	531	15	3,485	17,340	7,570	202	-	8.0
	N	*11*	*11*	*11*	*11*	*3*	*11*	*10*	*10*	*4*	-	*11*
McDonald Ant.	Average	8,658	3,307	40	11	-	5,189	2,386	33	12	-	8.4
	Median	8,989	3,307	40	11	-	5,189	2,386	33	-	-	8.3
	Minimum	3,350	2,650	5	10	-	2,326	1,461	27	-	-	8.1
	Maximum	13,635	3,964	74	11	-	8,052	3,310	38	-	-	8.8
	N	*3*	*2*	*2*	*2*	-	*2*	*2*	*2*	*1*	-	*3*
McKittrick	Average	13,801	4,838	85	46	-	3,789	5,510	15	72	-	7.8
	Median	11,829	3,883	80	55	-	3,638	4,505	5	72	-	7.8
	Minimum	9,052	3,379	36	7	-	2,166	2,937	2	33	-	7.8
	Maximum	26,672	9,292	148	75	-	5,694	11,300	54	111	-	7.8
	N	*6*	*5*	*5*	*5*	-	*5*	*5*	*5*	*2*	-	*2*
Midway Sunset	Average	12,008	4,426	156	143	-	2,802	5,622	153	76	-	7.9
	Median	10,829	3,438	41	54	-	2,895	4,326	38	52	-	8.0
	Minimum	4,479	1,323	5	2	-	738	300	0	10	-	6.5
	Maximum	29,702	10,391	586	525	-	4,941	16,600	441	248	-	8.6
	N	*13*	*14*	*14*	*14*	-	*14*	*14*	*11*	*7*	-	*12*
N. Antelope Hills	Average	20,722	7,800	112	64	-	2,393	11,307	-	48	-	-
	Median	20,722	-	-	-	-	2,393	11,307	-	48	-	-
	Minimum	19,924	-	-	-	-	2,393	11,109	-	34	-	-
	Maximum	21,520	-	-	-	-	2,393	11,505	-	61	-	-
	N	*2*	*1*	*1*	*1*	-	*1*	*2*	-	*2*	-	-
N. Belridge	Average	19,287	6,899	367	61	-	653	10,713	605	-	-	7.0
	Median	21,829	7,938	357	46	-	656	12,184	477	-	-	7.1
	Minimum	360	137	27	4	-	233	121	9	-	-	6.2
	Maximum	42,523	14,915	971	185	-	1,227	24,375	1,298	-	-	7.8
	N	*7*	*7*	*7*	*7*	-	*7*	*7*	*7*	-	-	*4*
Paloma	Average	18,218	6,527	184	38	-	2,265	9,139	66	-	-	6.8
	Median	19,605	7,090	188	37	-	2,471	9,780	78	-	-	6.8
	Minimum	8,920	3,067	127	26	-	659	4,895	16	-	-	6.6
	Maximum	24,742	8,862	232	51	-	3,460	12,100	92	-	-	7.2
	N	*4*	*4*	*4*	*4*	-	*4*	*4*	*4*	-	-	*4*

Table 5-7: Produced Water Summary Statistics for Oilfields in the Project Area

Field		TDS[(a)] (ppm)[(c)]	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Barium (ppm)	Bicarbonate (ppm)	Chloride (ppm)	Sulfate (ppm)	Boron (ppm)	Iodide (ppm)	pH
Pleito Ranch	Average	11,958	3,896	488	86	-	634	6,674	125	43	-	7.5
	Median	-	-	-	-	-	-	-	-	-	-	-
	Minimum	-	-	-	-	-	-	-	-	-	-	-
	Maximum	-	-	-	-	-	-	-	-	-	-	-
	N	*1*	*1*	*1*	*1*	-	*1*	*1*	*1*	*1*	-	*1*
S. Belridge	Average	19,723	7,275	232	234	-	2,434	10,524	497	47	-	7.7
	Median	13,391	4,467	177	234	-	1,976	7,135	103	47	-	7.8
	Minimum	2,034	663	24	57	-	259	516	1	33	-	7.2
	Maximum	48,262	17,244	485	407	-	5,514	25,314	2,662	61	-	8.1
	N	*7*	*7*	*7*	*7*	-	*7*	*7*	*7*	*2*	-	*4*

Notes:

Data from Mitchell (1989)

(a) TDS = Total Dissolved Solids

(b) *N* = number of analyses reported

(c) ppm = parts per million

Table 6-1: Summary of Regulations Governing Oilfield Activities

Agency	Regulated Activities
Federal Statutes and Regulations	
United States Environmental Protection Agency	
The Clean Water Act	Regulates spill prevention actions; discharge of water to waterways and land; regulates discharges to wastewater treatment plants; establishes the National Oil and Hazardous Substance Pollution Contingency Plan and Onshore Facility Discharge Rule
The Oil Pollution Act	Prescribes a prevention, response, liability and compensation program for oil pollution from vessels, offshore facilities, pipelines, and onshore facilities.
The Safe Drinking Water Act	Regulates the amount of toxic substances in sources of drinking water.
Resource Conservation and Recovery Act	Regulates the generation, storage, treatment, transportation, and disposal of hazardous wastes.
The Solid Waste Disposal Act	Establishes restrictions on the disposal of solid waste.
Comprehensive Environmental Response, Compensation, and Liability Act	Establishes regulations covering the release of hazardous substances and associated remedial actions.
National Environmental Policy Act	Provides the national policy promoting the enhancement of the environment. Applicable to federal, state, and local project that involves federal funding, work performed by the federal government, or permits issued by a federal agency.
United States Army	
US Army Corps of Engineers	Regulates dam construction projects for government funded projects
California Regulations	
California Environmental Quality Act	
Department of Conservation, Division of Oil, Gas and Geothermal Resources	
Oil & Gas Resource Regulations (AB 1960)	Establishes rules and regulations for oil and gas exploration; field rules; oil spill response actions; well construction standards; UIC program rules; discharge of waste water to sumps and surface channels; well stimulation treatments and closure activities
Well Stimulation Treatments	Establishing permitting, notification and reporting requirements; background groundwater monitoring program
Department of Toxic Substances Control	
Hazardous Waste Control Law	Characterization, handling, and disposal of

Table 6-1: Summary of Regulations Governing Oilfield Activities

Agency	Regulated Activities
	hazardous waste.
State Water Resources Control Board	
Porter-Cologne Water Quality Control Act	Primary statute governing water quality and water protection in California. Establishes the SWRCB and RWQCBs; requires development of basin plans; regulates water quality through the anti-degradation policy; regulates disposal to surface water and land.
Surface Impoundments	Regulations controlling siting and construction of surface impoundments, and storage of wastewater and produced water in surface impoundments.
Storm Water Discharge Regulations	Regulates storm water discharges from oil and gas fields, mostly through NPDES permits
Department of Fish and Wildlife	
Wildlife Protection	Regulates receiving stream alterations that could impact fish and wildlife.
Kern County Ordinances	
Environmental Health Services Department	
Groundwater Monitoring Well Permits	Kern County requires permits to install water monitoring and production wells.
Aboveground Petroleum Storage Act	Requirements for reporting of any spill or leak in excess of one barrel.

Table 7-1: Potential Impacts to Water Quality from Oil and Gas Operations

Process[a]	Potential Release	Magnitude of Potential Release[b]	Potentially Impacted Media	Description of Potential Impact	Regulatory Controls	Best Management Practices
WELL DRILLING OPERATIONS						
Drilling mud mixing at surface	Spills/leaks at the surface from ruptured or leaking tanks, pipes, valves, hoses, and other process equipment	Small release, anticipated to be less than a few hundred gallons based on awareness of the crew to shut off releases and contain spills	Surface water	Localized elevated TSS and inorganics	WDR General Order 2003-0003-DWQ AB 1960 (CCR 1722, 1722.9, 1770, 1773.1, 1777.2) DOGGR Field Rules California Accidental Release Program (CalARP)	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized elevated inorganics		
Fluid circulation	Temporary contact of the drilling fluid with aquifer prior to casing the well	Small release, anticipated to be less than a few hundred gallons based on awareness of the crew to recoginze fluid loss	Shallow and deep groundwater	Localized elevated inorganic constituents	WDR General Order 2003-0003-DWQ AB 1960 (CCR 1722, 1722.9, 1770, 1773.1, 1777.2) DOGGR Field Rules	Installation of cemented casing across water bearing zone; use of fresh-water based muds until below base of fresh water; real-time monitoring of fluid pressures and volumes; response plans and training for fluid/circulation loss
Flowback (oil and/or gas comingled with drilling fluid)	Spills/leaks at the surface from ruptured or leaking tanks, pipes, valves, hoses and other process equipment	Small release, anticipated to be less than a few hundred gallons based on awareness of the crew to shut off releases and contain spills	Surface water	Localized elevated TSS, TDS (primarily Na and Cl), hydrocarbons, inorganics	WDR General Order 2003-0003-DWQ AB 1960 (CCR 1722, 1722.9, 1770, 1773.1, 1777.2) DOGGR Field Rules	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized hydrocarbons and inorganics adsorbed to soils		
		Medium release, estimated to be a few hundered to a few thousand gallons, if mud pit is breached or blow-out protection fails	Surface water	Elevated TSS, TDS (primarily Na and Cl), hydrocarbons, inorganics	WDR General Order 2003-0003-DWQ AB 1960 (CCR 1722, 1722.9, 1770, 1773.1, 1777.2) DOGGR Field Rules	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Decrease in soil infiltration characteristics (e.g., residual clay pan); hydrocarbons and inorganics adsorbed to soils		
			Shallow groundwater	Increased TDS (primarily Na and Cl), hydrocarbons, and/or inorganics migrating to shallow groundwater		
	Mixing of flowback with drinking water aquifer from failed or improper casing seal	Small release, anticipated to be less than a few hundred gallons, to aquifer based on restricted flow between casing and borehole wall	Shallow and deep groundwater	Localized increase in TDS (primarily Na and Cl), hydrocarbon and/or inorganic concentrations in shallow and/or deep groundwater	WDR General Order 2003-0003-DWQ AB 1960 (CCR 1722, 1722.9, 1770, 1773.1, 1777.2) DOGGR Field Rules	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for seal design and placment
Cementing *(no potential impacts identified)*						
Treatment and disposal of drilling fluids	Infiltration while stored in evaporation ponds	Small release, estimated to be less than a few hundred gallons, drilling mud expected to soak into and seal permeable soils and prevent signficant migration.	Surface soils	Decrease in soil infiltration characteristics (e.g., residual clay pan); hydrocarbons and inorganics adsorbed to soils	WDR General Order DOGGR Regulation 1775	Maintain and periodically test discharge basins to ensure they meet permitted use conditions. Evaluate groundwater conditions to assess compliance
			Shallow groundwater	Increased TDS (primarily Na and Cl), hydrocarbons, and/or inorganics migrating to shallow groundwater		
WELL SERVICING AND FIELD DEVELOPMENT						
Well recompletion using pulling unit *(see Well Drilling Operations - similar potential releases)*						
Mixing and pouring concrete for surface facilities *(no potential impacts to surface water or groundwater identified)*						
	Spill/release of concentrated chemicals during transfer and mixing	Small release, tens of gallons, based on small volume of chemicals brought on-site	Surface water	Localized impact to surface waters and sediments from release	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) DOGGR Field Rules CalARP	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized adsorption of chemicals onto surface and near-surface soils		

Table 7-1: Potential Impacts to Water Quality from Oil and Gas Operations

Process[a]	Potential Release	Magnitude of Potential Release[b]	Potentially Impacted Media	Description of Potential Impact	Regulatory Controls	Best Management Practices
Chemical mixing	Spills/leaks from tanks, piping, pumps, and other equipment	Small release, less than a few hundred gallons, based on volume of mixed fluid being used and awareness of the crew to contain spills	Surface water	Localized impact to surface waters and sediments from release	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) DOGGR Field Rules CalARP	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized adsorption of chemicals onto surface and near-surface soils		
			Shallow groundwater	Possible increased constituent concentrations in shallow groundwater through vertical migration of spilled fluid		
Mix and pump cement downhole to repair casing leaks or seal off unproductive zone *(no potential impacts identified)*						
Fluid circulation	Leak downhole through failed casing	Small, a few hundered gallons, based on small volume of liquids used in process and awareness of drill crew to note lost circulation and shut down equipment	Shallow and deep groundwater	Localized impact from solutions containing dilute amounts of corrosion inhibitors, scale inhibitors, and surfactants	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) DOGGR Field Rules - well seal placement and testing.	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for seal design and placment
Pump / remove development fluids	Spills/leaks at the surface from ruptured or leaking tanks, pipes, valves, hoses, and other aboveground storage equipment	Small release, tens of gallons to less than a few hundered gallons, based on volume of liquid handled	Surface water	Localized elevated TSS, TDS (primarily Na and Cl), hydrocarbons, inorganics and other constituents used during well development	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) CalARP Aboveground Petroleum Storage Act (APSA) SPCC	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized elevated TDS (primarily Na and Cl), hydrocarbons, inorganics and other constituents used during well development		
			Shallow groundwater	Localized TDS (primarily Na and Cl), hydrocarbons, inorganics and other well development constituents migrating vertically to shallow groundwater		
Treatment and disposal of development fluids	Infiltration while stored in evaporation ponds	Small to medium release, a few hundred to a few thousand gallons, based on volume of liquid recovered during development	Surface soils	Decrease in soil infiltration characteristics (e.g., residual clay pan); TDS (primarily Na and Cl); hydrocarbons and inorganics adsorbed to soils		Maintain and periodically test discharge basins to ensure they meet permitted use conditions. Evaluate groundwater conditions to assess compliance
			Shallow groundwater	Increased TDS (primarily Na and Cl), hydrocarbon and/or inorganic concentrations from vertical migration to shallow groundwater		
	Possible casing or well seal failure during injection into Class II UIC well	Small to medium release, a few hundred to a few thousand gallons, based on volume of liquid recovered during development	Shallow and deep groundwater	Localized increase in TDS (primarily Na and Cl), hydrocarbon and/or inorganic concentrations in shallow and/or deep groundwater	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) DOGGR Field Rules - well seal placement and testing. UIC permit	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for seal design and placment
WELL STIMULATION OPERATIONS						
Chemical mixing	Spill/release of concentrated chemicals during transfer and mixing	Small to medium release, tens to hundreds of gallons, based on volume of indiviual chemicals brought on-site	Surface water	Localized impact to surface waters and sediments from chemicals used in well stimulation process	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) Field Rules CalARP	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized adsorption of process chemicals onto surface and near-surface soils		
	Spills/leaks from tanks, piping, pumps, and other equipment	Medium to large release, hundreds to thousands of gallons, based on volume of fluid storage on-site during operations	Surface water	Localized impact to surface waters and sediments from fluids used in well stimulation process	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) CalARP	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized adsorption of process fluids onto surface and near-surface soils		
			Shallow groundwater	Possible increased constituent concentrations in shallow groundwater through vertical migration of spilled fluid		

Table 7-1: Potential Impacts to Water Quality from Oil and Gas Operations

Process[a]	Potential Release	Magnitude of Potential Release[b]	Potentially Impacted Media	Description of Potential Impact	Regulatory Controls	Best Management Practices
Pressurized fluid injection	Spills/leaks at the surface from ruptured or leaking tanks, pipes, valves, or other process equipment	Small release, anticipated to be less than a few hundred gallons based on awareness of the crew to shut off releases and contain spills	Surface water	Localized impact to surface waters and sediments from fluids used in well stimulation process	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) CalARP SB-4	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized adsorption of process chemicals onto surface and near-surface soils		
			Shallow groundwater	Possible increased constituent concentrations in shallow groundwater through vertical migration of spilled fluid		
	Casing rupture, well seal rupture, bypass of conductor, surface, and intermediate casings and cement seals	Medium to large release, hundreds to thousands of gallons, depending on injection stage, pressure, and awareness of crew to recognize failure	Shallow and deep groundwater	Localized increase in concentration in groundwater of chemicals used in well stimulation process through upward vertical migration of fracturing fluid along borehole wall	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) SB-4	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for high pressure fluid injection; train operations staff; incident response planning and trainiing
	Fracture propagation; seepage along fracture or geologic feature	Small release due to low permeability and diffusion along flow path	Deep groundwater	Localized increased constituent concentrations in groundwater through upward vertical migration of fracking fluid	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) SB-4	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for high pressure fluid injection; train operations staff; incident response planning and trainiing
Capture flowback	Spills/leaks at the surface from ruptured or leaking tanks, pipes, valves, hoses and other process equipment	Minimal flowback from hydraulic fracturing activities in project area. Small surface release based on awareness of crew to shut off pumps and cleanup spills	Surface water	Localized elevated TSS, TDS (primarily Na and Cl), hydrocarbons, inorganics, and chemical constituents contained in well stimulation fluids	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) CalARP APSA SPCC SB-4	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized elevated TDS (primarily Na and Cl), hydrocarbons, inorganics, and well stimulation constituent concentrations adsorbed to soil		
			Shallow groundwater	Localized TDS (primarily Na and Cl), hydrocarbons, inorganics, and well stimulation chemical constituents adsorbed to soil		
Disposal of flowback water	Surface piping failure	Minimal flowback from hydraulic fracturing activities in project area. Small surface release based on awareness of crew to shut off pumps and cleanup spills	Surface water	Localized elevated TSS, TDS (primarily Na and Cl), hydrocarbons, inorganics, and chemical constituents contained in well stimulation fluids	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) CalARP APSA SPCC SB-4	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized elevated TDS (primarily Na and Cl), hydrocarbons, inorganics, and well stimulation constituent concentrations adsorbed to soil		
			Shallow groundwater	Localized elevated TDS (primarily Na and Cl), hydrocarbon and/or inorganic concentrations in shallow groundwater		
	Possible casing or well seal failure during injection into Class II UIC well	Minimal flowback from hydraulic fracturing activities in project area; small release based volume of fluid being disposed	Shallow and deep groundwater	Localized TDS (primarily Na and Cl), hydrocarbons, inorganics, and well stimulation constituent concentrations to shallow and/or deep groundwater	AB 1960 (CCR 1722, 1722.9, 1773.1, 1777.2) UIC SB-4	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for seal design and placment

Table 7-1: Potential Impacts to Water Quality from Oil and Gas Operations

Process[a]	Potential Release	Magnitude of Potential Release[b]	Potentially Impacted Media	Description of Potential Impact	Regulatory Controls	Best Management Practices
PRODUCED WATER HANDLING OPERATIONS						
Capture/storage of produced water	Spills/leaks at the surface from ruptured or leaking tanks, pipes, valves, hoses and other process equipment	Small surface release, less than a few hundred gallons per event, based on awareness of crew to recognize spills and quickly respond.	Surface water	Localized elevated TSS, TDS (primarily Na and Cl), hydrocarbons and inorganics in surface water and sediments	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) APSA SPCC	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized TDS (primarily Na and Cl), hydrocarbons, inorganics adsorbed to soil		
		Medium release, a few hundred to few thousand gallons, if tank or secondary containment failure occurs	Surface water	Elevated TSS, TDS (primarily Na and Cl), hydrocarbons, inorganics in surface waters and sediments	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) APSA SPCC	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Elevated TSS, TDS (primarily Na and Cl), hydrocarbons, inorganics adsorbed to soil		
			Shallow groundwater	Increased TDS (primarily Na and Cl), hydrocarbon and/or inorganic concentrations migrating to shallow groundwater		
Separation of oil and gas from produced water	Oil spill/leak at the surface from leaking tanks, pipes, valves, hoses and other process equipment	Small to medium release, estimate to be less than a few hundred gallons, at surface based on crew awareness to identify release and respond	Surface water	Hydrocarbons (crude oil or natural gas liquids) and inorganics impact surface water and sediments	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) APSA SPCC	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Hydrocarbons (crude oil or natural gas liquids) and inorganics adsorbed to sediments	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) APSA SPCC	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Shallow groundwater	No expected impact due to high viscosity of oils		
Produced water treatment	Discharge of untreated or partially-treated water	Small to medium release, estimate to be less than a few hundred gallons, at surface based on crew awareness to identify release and respond	Surface water	Elevated TDS (primarily Na and Cl), hydrocarbons, inorganics	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) APSA	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized increased TDS (primarily Na and Cl), hydrocarbons, inorganics		
	Spills/leaks from storage tanks and process equipment following treatment	Medium release, estimate to be up to a few thousand gallons, at surface based on crew awareness to identify release and respond	Surface water	Elevated TDS (primarily Na and Cl), minor hydrocarbons, inorganics in surface waters and sediments	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) APSA	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Elevated TDS (primarily Na and Cl), minor hydrocarbons and inorganics adsorbed to soil		
			Shallow groundwater	Localized increased TDS (primarily Na and Cl), inorganics		
Steam generation (enhanced oil recovery) (West and East sub-areas only)	Minor spills during water softening operations or from chemical storage	Small release, up to a few hundred gallons, based on crew ability to respond to and contain spills	Surface water	No expected impact due to containment inside treatment facility		
			Surface soils	No expected impact due to containment inside treatment facility		
Water flooding / Steam injection (enhanced oil recovery)	Surface piping failure	Small to medium release, estimate to be less than a few thousand gallons, at surface based on crew awareness to identify release and respond	Surface water	Localized elevated TDS (primarily Na and Cl) concentrations in surface water	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) Field Rules	Secondary containment, lined sumps, use of spill containment equipment and soil berms, spill reponse planning and training, control site access
			Surface soils	Localized TDS (primarily Na and Cl) adsorbed to soil		
			Shallow groundwater	Localized increase in TDS in Central and East sub-areas due to vertical migration to groundwater. No expected impact in West sub-area as groundwater currently has high TDS concentrations.		

Table 7-1: Potential Impacts to Water Quality from Oil and Gas Operations

Process[(a)]	Potential Release	Magnitude of Potential Release[(b)]	Potentially Impacted Media	Description of Potential Impact	Regulatory Controls	Best Management Practices
	Possible casing or well seal failure during injection	Medium to large release, hundreds to thousands of gallons, based on signficance of casing failure and time lapse prior to identification of failure and response.	Shallow and deep groundwater	Increased TDS (primarily Na and Cl) in shallow and deep groundwater in Central and East sub-areas. No expected impact in West sub-area as groundwater currently has high TDS concentrations.	AB 1960 (CCR 1722, 1722.9, 1773, 1773.1, 1773.2, 1773.3, 1773.4, 1774, 1774.1, 1774.2, 1777, 1777.1, 1777.2) UIC	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for seal design and placment
Disposal of produced water	Infiltration while stored in evaporation ponds	Large release, potentially thousands to millions of gallons, based on the volume of produced water sent to land disposal facilities on a daily basis.	Surface soils	Localized TDS (primarily Na and Cl), minor hydrocarbons adsorbed to soil	WDR	Maintain and periodically test discharge basins to ensure they meet permitted use conditions. Evaluate groundwater conditions to assess compliance
			Shallow groundwater	Localized increase in TDS (primarily Na and Cl), hydrocarbons due to vertical migration to groundwater		
	Possible casing or well seal failure during injection into Class II UIC well	Medium to large release, hundreds to thousands of gallons, based on signficance of casing failure and time lapse prior to identification of failure and response.	Shallow and deep groundwater	Increased TDS (primarily Na and Cl) in shallow and deep groundwater in Central and East sub-areas. No expected impact in West sub-area as groundwater currently has high TDS concentrations.	UIC	Follow API standards and Company SOPs for seal installation; establish and implement QA/QC procedures for seal design and placment

Notes:

BMPs= Best Management Practices

Cl = chloride

DOGGR = Department of Conservation - Division of Oil, Gas and Geohermal Resources

Na = sodium

SOPs = standard operating procedures

SPCC = Spill Prevention, Control and Countermeasures

TDS = toal dissolved solids

TSS = total suspended solids

UIC= Underground Injection Conrol

WDR= Waste Discharge Requirements

(a) See Table 5-5 for corresponding definitions of the listed oil and gas processes

(b) volume ranges based on water volumes used for specific processess, as reported by by WZI (WZI 2014)

Table 7-2: Solute Fluxes (kg/yr) to Groundwater for Selected Oilfields, Assuming 100% Discharge[a]

Field	Area (acres)	Produced Water Volume (bbl[b])	Treatment	Total Dissolved Solids	Sodium	Calcium	Magnesium	Barium	Bicarbonate	Chloride	Sulfate	Boron
Antelope Hills	2,820	1,100,000	Untreated[c]	1,230,000	438,000	1,940	1,680	353	420,000	361,000	5,110	3,440
			99% Evaporated[d]	595,144	259,000	0.2	0.9	0.3	24,200	304,000	4,870	3,440
Asphalto	2,980	10,600,000	Untreated	47,200,000	17,200,000	179,000	36,200	8,460	6,750,000	23,000,000	62,100	-
			99% Evaporated	5,790,000	2,230,000	1.1	6.6	2.0	240,000	3,270,000	56,200	-
Belgian Ant	9,870	214,000	Untreated	488,000	194,000	6,150	1,490	-	46,800	235,000	587	4,350
			99% Evaporated	114,000	64,300	0.1	0.3	-	4,270	43,100	587	1,450
Blackwells Corner	2,310	225,000	Untreated	653,000	214,000	6,980	9,780	-	124,000	298,000	691	-
			99% Evaporated	125,000	50,200	0.03	0.2	-	5,150	68,900	691	-
Buena Vista (Hills)	2,990	38,500,000	Untreated	167,000,000	55,900,000	5,640,000	2,410,000	59,200	1,490,000	101,000,000	104,000	61,100
			99% Evaporated	25,000,000	958,000	5,140,000	2,410,000	150	342	16,400,000	3,780	61,100
Chico Martinez	1,640	258,000	Untreated	932,000	315,000	8,280	11,600	227	146,000	450,000	294	-
			99% Evaporated	142,000	59,800	0.04	0.2	0.6	5,830	76,600	136	-
Cymric	13,800	90,500,000	Untreated	110,000,000	34,200,000	1,330,000	1,480,000	-	33,400,000	38,900,000	449,000	-
			99% Evaporated	49,500,000	20,300,000	12	62	-	2,020,000	26,700,000	449,000	-
Elk Hills	46,600	143,000,000	Untreated	671,000,000	235,000,000	21,900,000	8,690,000	108,000	8,290,000	395,000,000	1,570,000	429,000
			99% Evaporated	77,400,000	6,190,000	18,800,000	8,690,000	436	1,330	43,300,000	29,000	429,000
Lost Hills	21,300	126,000,000	Untreated	452,000,000	133,000,000	4,930,000	2,960,000	185,000	21,100,000	287,000,000	534,000	2,250,000
			99% Evaporated	103,000,000	5,610,000	2,460,000	1,220,000	328	3,340	92,000,000	2,350	1,440,000
McDonald Ant.	2,370	1,180,000	Untreated	2,080,000	625,000	7,470	1,990	-	981,000	451,000	6,150	2,310
			99% Evaporated	655,000	234,000	0.1	0.7	-	27,600	384,000	6,150	2,310
McKittrick	6,780	28,700,000	Untreated	56,500,000	17,900,000	369,000	254,000	-	16,800,000	20,800,000	23,100	331,000
			99% Evaporated	15,900,000	5,660,000	3.2	17	-	681,000	9,500,000	23,100	86,400
Midway Sunset	63,800	228,000,000	Untreated	398,000,000	126,000,000	1,500,000	1,980,000	-	106,000,000	159,000,000	1,390,000	1,910,000
			99% Evaporated	130,000,000	43,200,000	22	129	-	5,550,000	78,800,000	1,390,000	648,000
N. Belridge	5,800	27,000,000	Untreated	109,000,000	40,000,000	1,850,000	233,000	-	3,140,000	61,300,000	2,460,000	-
			99% Evaporated	13,600,000	5,380,000	110,000	156,000	-	2,770	7,860,000	129,000	-
Paloma	19,000	36,900	Untreated	118,000	42,500	1,130	222	-	14,800	58,600	467	-
			99% Evaporated	20,300	8,730	0.01	0.03	-	811	10,300	467	-
S. Belridge	16,200	310,000,000	Untreated	707,000,000	223,000,000	8,850,000	11,700,000	-	98,800,000	357,000,000	5,150,000	2,350,000
			99% Evaporated	180,000,000	60,600,000	60	214	-	4,980,000	108,000,000	5,150,000	880,000

Notes:

(a) The 100% discharge assumption corresponds to all produced water being returned to the subsurface.

(b) bbl = barrel of produced water, equivalent to 42 U.S. gallons.

(c) Untreated scenario corresponds to discharge of produced water at the average reported major cation and anion chemistry for the given oil field.

(d) 99% Evaporated scenario corresponds to the residual salt flux after salts (e.g., halite, sodium carbonate, calcite, magnesite, barite, borax) have precipitated from solution after 99% of the water volume has evaporated; estimated using the USGS's PHREEQC geochemical model.

Table 7-3: Changes in Solute Concentration (mg/L) in Fresh Groundwater Underlying Selected Oilfields, Assuming 100% Discharge[(a)]

Field	Area (acres)	Depth of Fresh Water (ft)	Produced Water Volume (bbl[b])	Treatment	Total Dissolved Solids	Sodium	Calcium	Magnes-ium	Barium	Bicarb-onate	Chloride	Sulfate	Boron
Belgian Ant	9,870	1,200	214,000	Untreated	0.2	0.07	0.002	0.001	-	0.02	0.08	0.000	0.001
				99% Evaporated	0.04	0.02	0.000	0.000	-	0.001	0.01	0.000	0.000
Blackwells Corner	2,310	600	225,000	Untreated	1.9	0.6	0.02	0.03	-	0.4	0.9	0.002	-
				99% Evaporated	0.4	0.1	0.000	0.000	-	0.02	0.2	0.002	-
Midway Sunset	63,800	500	228,000,000	Untreated	51	16	0.2	0.3	-	13	20	0.2	0.2
				99% Evaporated	16	5.5	0.00	0.00	-	0.7	10	0.2	0.1
Paloma	19,000	2,500	36,900	Untreated	0.01	0.004	0.000	0.000	-	0.001	0.01	0.000	-
				99% Evaporated	0.002	0.001	0.000	0.000	-	0.000	0.001	0.000	-

Notes:

(a) The 100% discharge assumption corresponds to all produced water being returned to the subsurface.

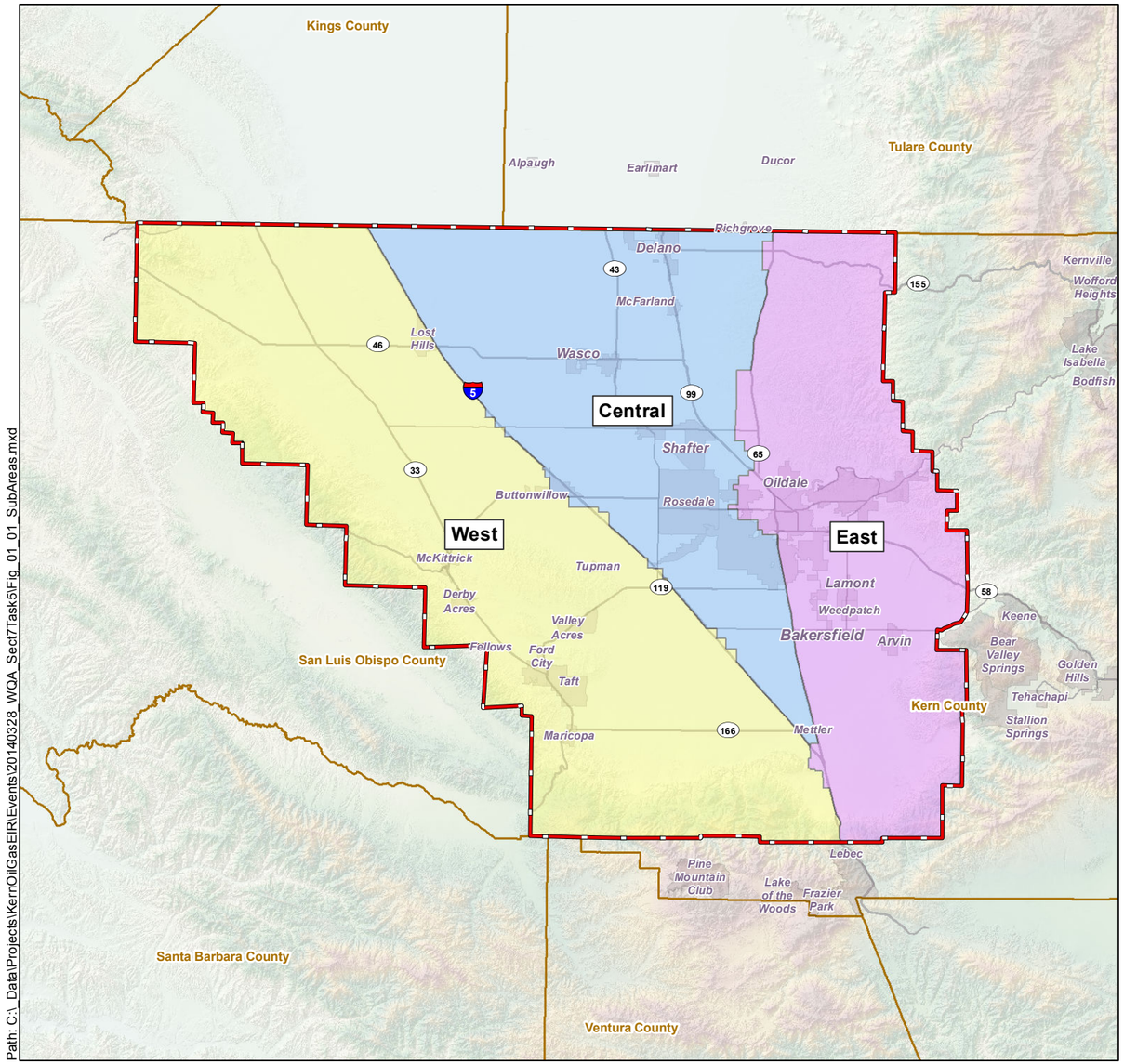
(b) bbl = barrel of produced water, equivalent to 42 U.S. gallons.

(c) Untreated scenario corresponds to discharge of produced water at the average reported major cation and anion chemistry for the given oil field.

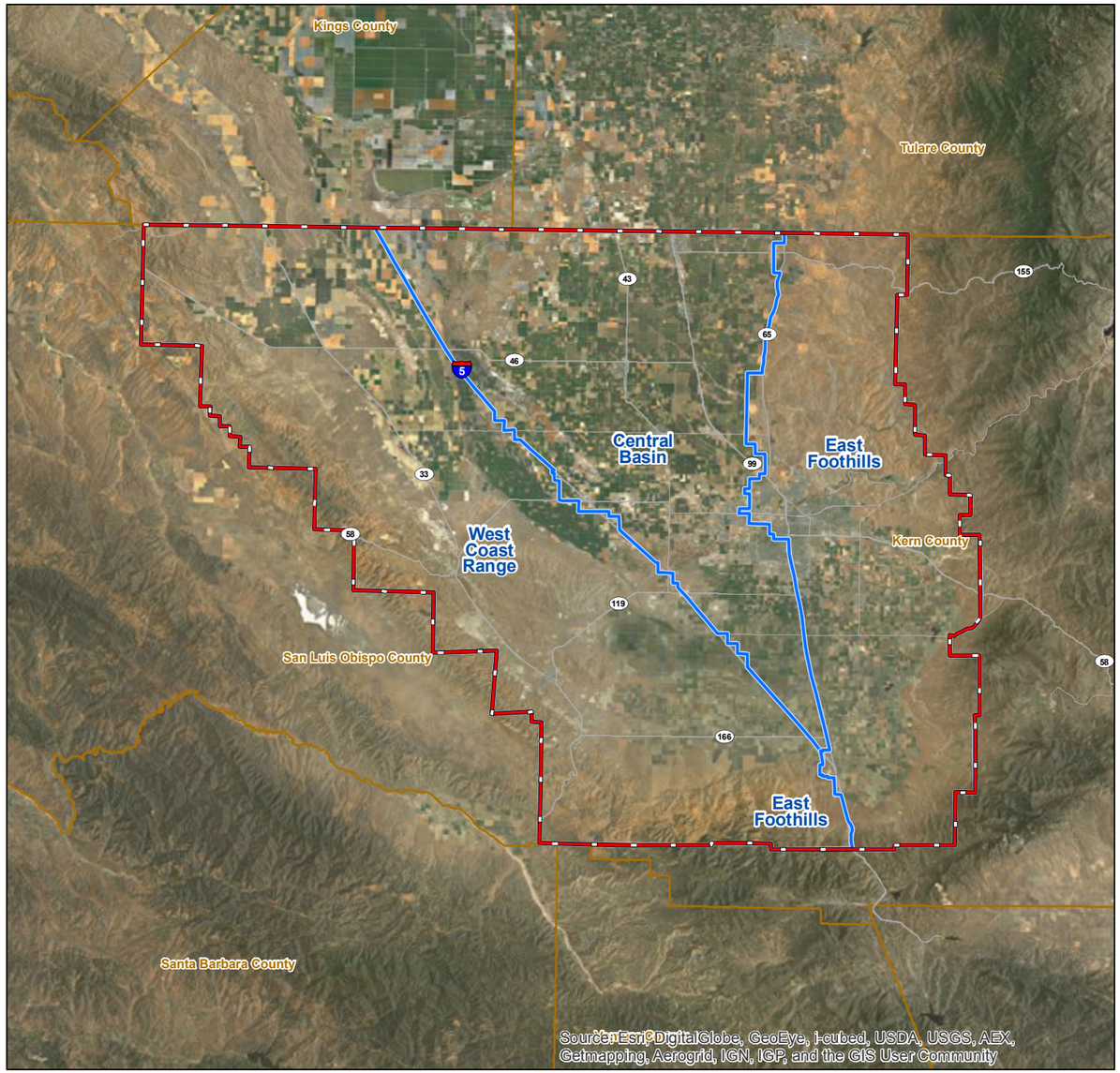
(d) 99% Evaporated scenario corresponds to the residual salt flux after salts (e.g., halite, sodium carbonate, calcite, magnesite, barite, borax) have precipitated from solution after 99% of the water volume has evaporated; estimated using the USGS's PHREEQC geochemical model.

(e) WDR Requirements scenario assumes that produced water has been treated to meet applicable waste discharge requirements for operations at the given oil field.

Figures



a) Sub-areas for the water quality assessment



b) Aerial photograph

N

0 10 20

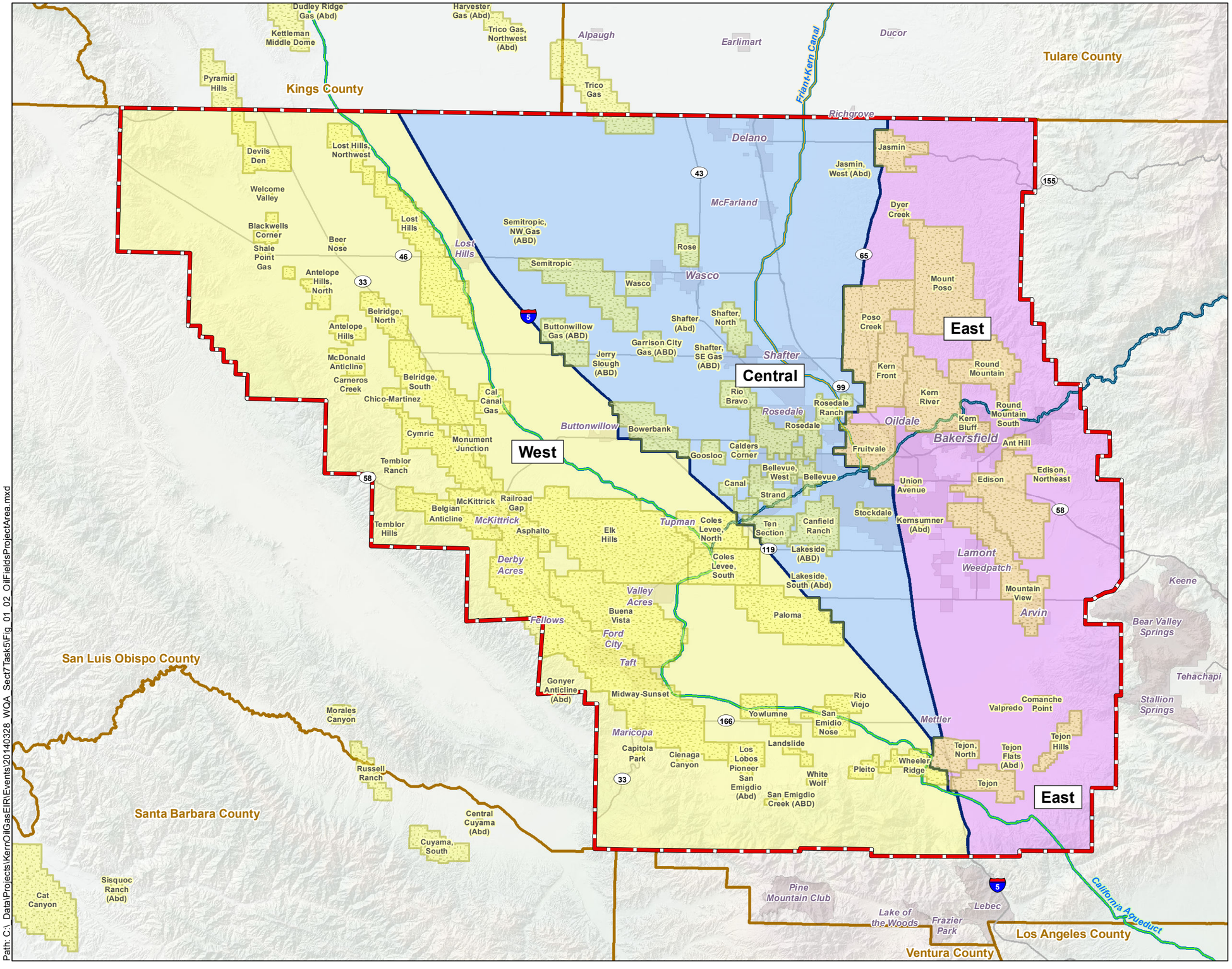
Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Geographic Sub-areas for Water Quality Assessment

May 2015

Figure 1-1



Legend

- Oil And Gas Field Boundaries

Proposed Water Quality Sub-areas

- West
- Central
- East
- Friant-Kern Canal
- Arvin-Edison Canal
- California Aqueduct
- Project Boundary
- County Boundaries

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Oil & Gas Fields in Project Area

May 2015

Figure 1-2

Path: C:_Data\Projects\KernOilGasEIR\Events\20140328_WQA_Sect7Task5\Fig_01_02_OilFieldsProjectArea.mxd

ID	OPERATORS
1	Aera Energy LLC
2	Berry Petroleum Co.
3	Chevron U.S.A. Inc.
4	Crimson Resource Management Corp.
5	E & B Natural Resources Management Corp.
6	ExxonMobil Corporation
7	Macpherson Oil Company
8	McFarland Energy, Inc.
9	Occidental of Elk Hills, Inc.
10	Oxy Petroleum, Inc.
11	Plains Exploration & Production Company
12	Valley Energy Resources, Inc.
13	Vintage Production California LLC

Legend

- Tier I Boundary
  Includes:
  -Lands where oil and gas activity are the primary use
- Tier II Boundary
  Includes:
  -Prime Agriculture Land
  -Nonprime Land
  -FSZ Land
- Tier III Boundary
  Includes:
  -Light Manufacturing
  -Light Industrial
  -Medium Industrial
  -Heavy Industrial
- Tier IV Boundary
  Includes:
  -Unincorporated cities, Airports
  -Manufacturing, Industrial
  -Residential, Commericial
  -Estate, Platted Lands
- Non-Jurisdictional Areas
  Includes:
  -BLM Lands
  -Incorporated cities
- County Sub-Areas
- Kern Co Oil And Gas Field
- Project Boundary
- County Boundary

N

0 3 6

Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Oil Field and Tier Boundary Map

May 2015

Figure 1-3

Path: C:_Data\Projects\KernOilGasEIR\Events\20140828_GISlaversReview\Fig_01_03_OilFieldAndTierBoundaryMap.mxd

Path: C:_Data\Projects\KernOilGasEIR\Events\20140306_GeologyFigures\Figure 2-01_GeologicMap.mxd

Kern County Geologic Map

Kern County Geologic Map with Administrative Boundaries of Oil and Gas Fields

Source: Jennings, C.W. and Gutierrez, C.I. 2010. Geologic Map of California. California Geological Survey, Sacramento, CA. Geologic Data Map 2 2010.; Ludington, S., Moring, B.C., Miller, R.J., Stone, P.A., Bookstrom, A.A., Bedford, D.R., Evans, J.G., Haxel, G.A., Nutt, C.J., Flyn, K.S., and Hopkins, M.J. 2007. Preliminary Integrated Geologic Map Databases for the United States, Western States: California, Nevada, Arizona, Washington, Oregon, Idaho, and Utah, Version 1.3. U.S. Geological Survey, Reston, VA. USGS Open-File Report 2005-1305.; DOGGR. 2005. Data Set: Oil and Gas Fields. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. [ftp://ftp.consrv.ca.gov/pub/oil/Data_Catalog/Oil_and_Gas/Oil_fields/, retrieved 1 May 2014]; ESRI 2010 Street Map.

Legend

- Anticline
- Syncline
- Fault
- Project Boundary
- County Boundary
- Town
- Interstate Highway
- State Highway
- Oil Field Administrative Boundary

Geology

Qp	Alluvium
Qls	Landslide deposits
QPc	Plio-Pleistocene non-marine
P	Pliocene marine
M	Miocene marine
Mc	Miocene non-marine
O	Oligocene marine
Oc	Oligocene non-marine
E	Eocene marine
Ep	Paleocene marine
Tc	Tertiary non-marine (undivided)
	Metamorphic and igneous rocks

N

0 5 10

Scale: Miles

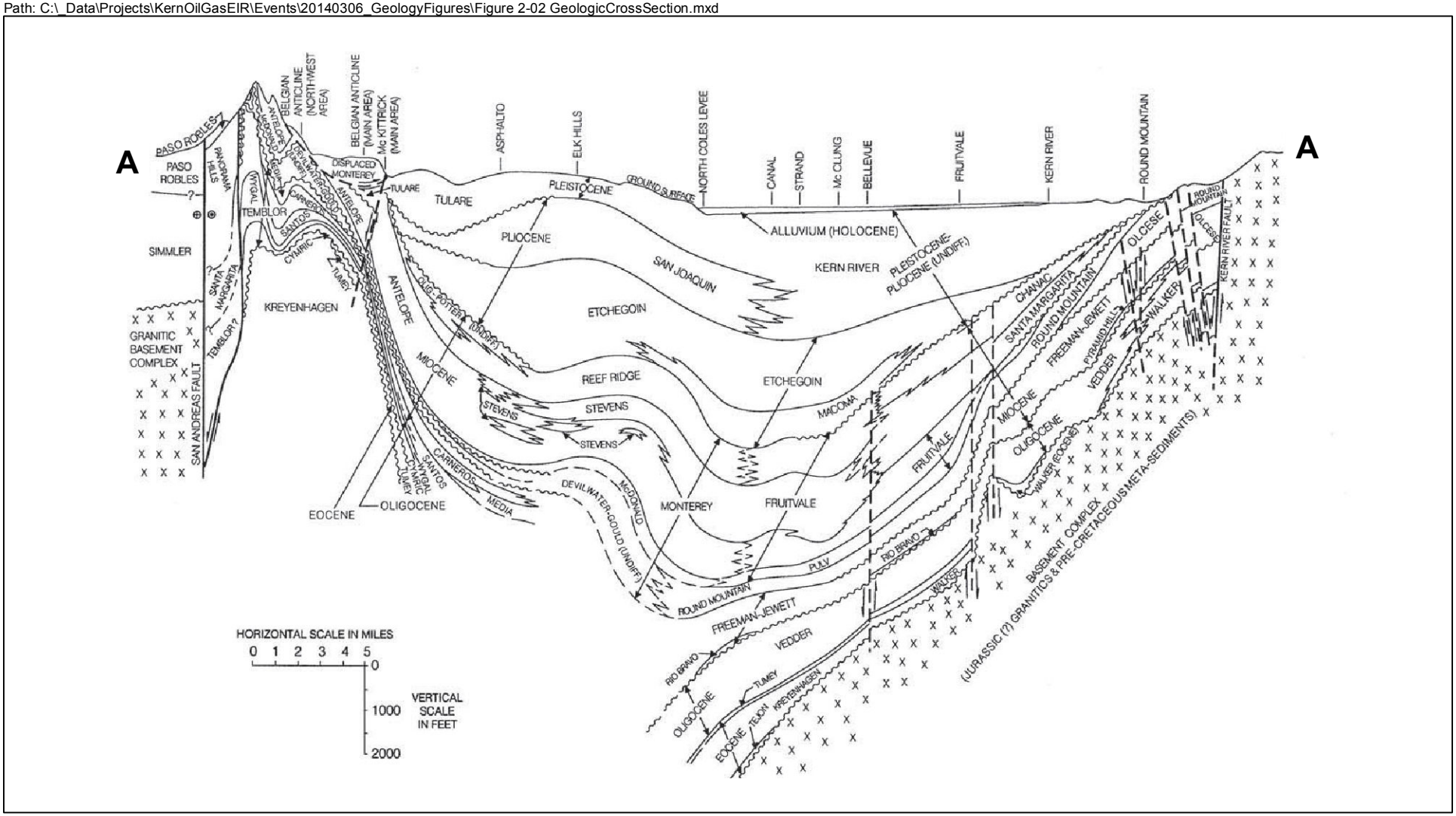
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Geologic Map with Kern County Oil and Gas Fields

May 2015

Figure 2-1

Path: C:_Data\Projects\KernOilGasEIR\Events\20140306_GeologyFigures\Figure 2-02 GeologicCrossSection.mxd



Source: Source: DOGGR. 1998. California Oil & Gas Fields, Volume 1 – Central California, contour maps, cross sections, and data sheets for California's oil and gas fields. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA.

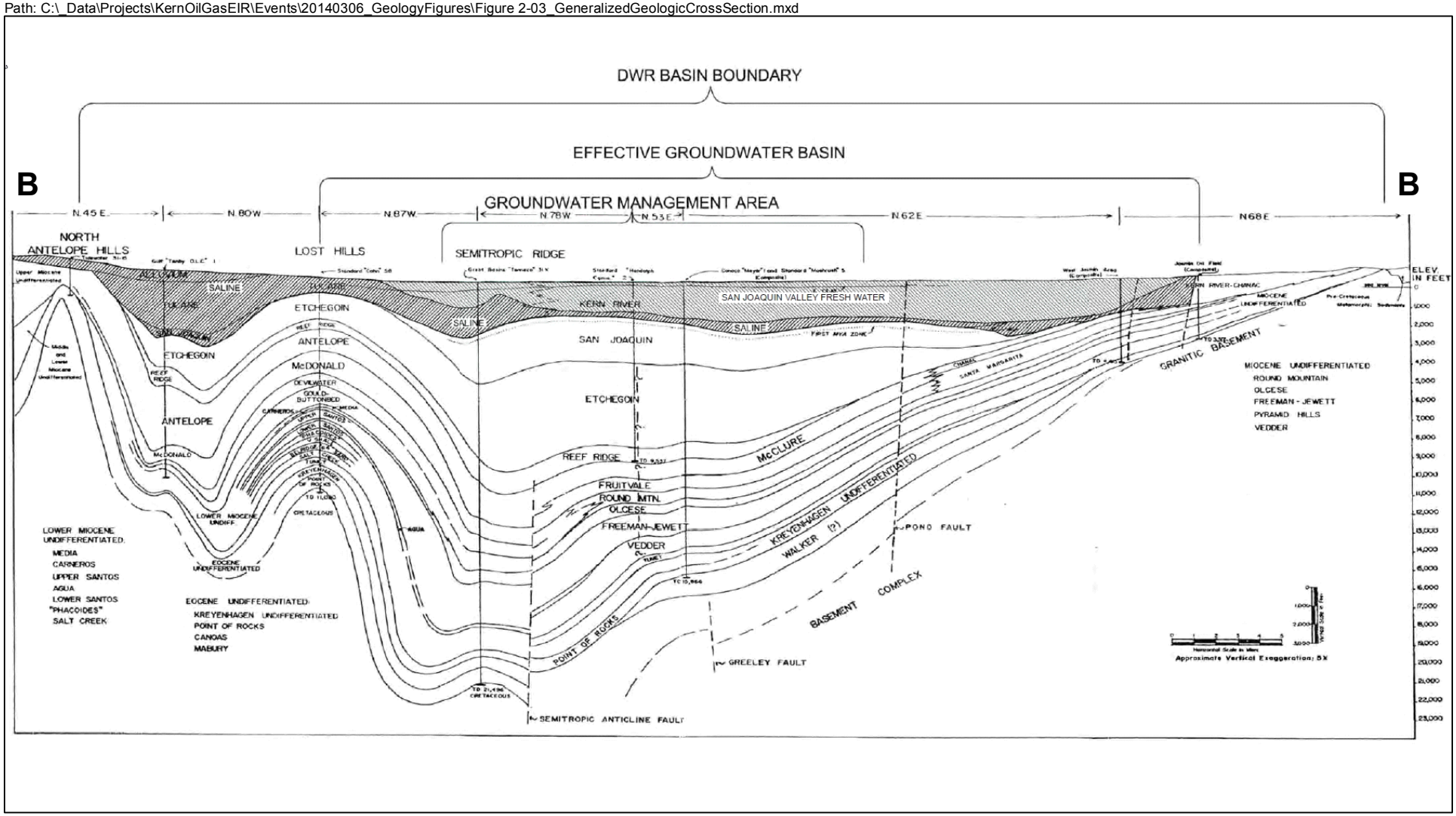
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Generalized Geologic Cross Section across Southern San Joaquin Valley

May 2015

Figure 2-2

Path: C:_Data\Projects\KernOilGasEIR\Events\20140306_GeologyFigures\Figure 2-03_GeneralizedGeologicCrossSection.mxd



Source: SWSD. 2012. 2012 Groundwater Management Plan, Kern County, California. Semitropic Water Storage District., adapted from an original figure in Karp (1968).

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

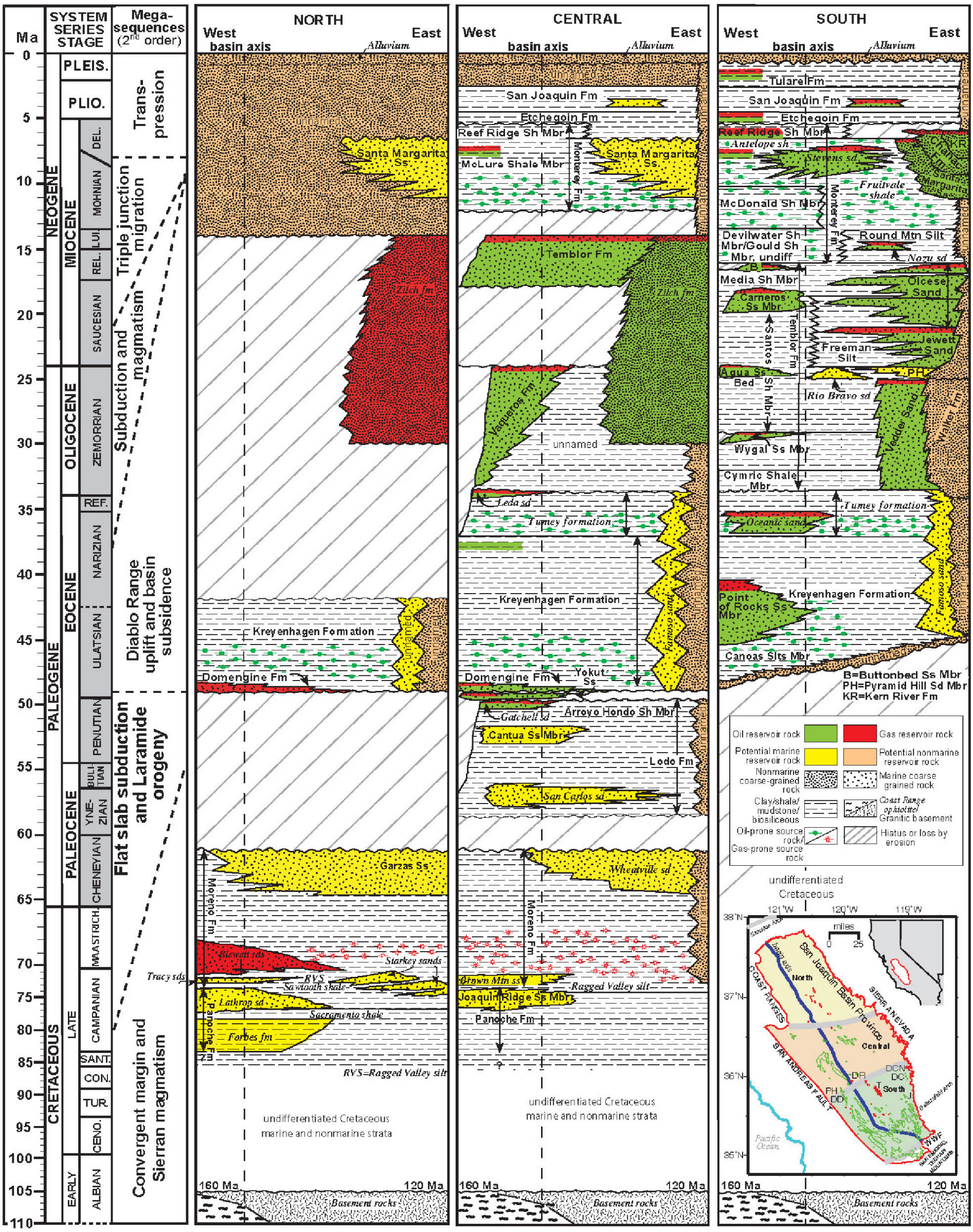
Generalized Geologic Cross Section Showing Relation of Groundwater Aquifer

May 2015

Figure 2-3

Path: C:_Data\Projects\KernOilGasEIR\Events\20140306_GeologyFigures\Figure 2-04_StrategraphicColumn.mxd

SAN JOAQUIN BASIN PROVINCE



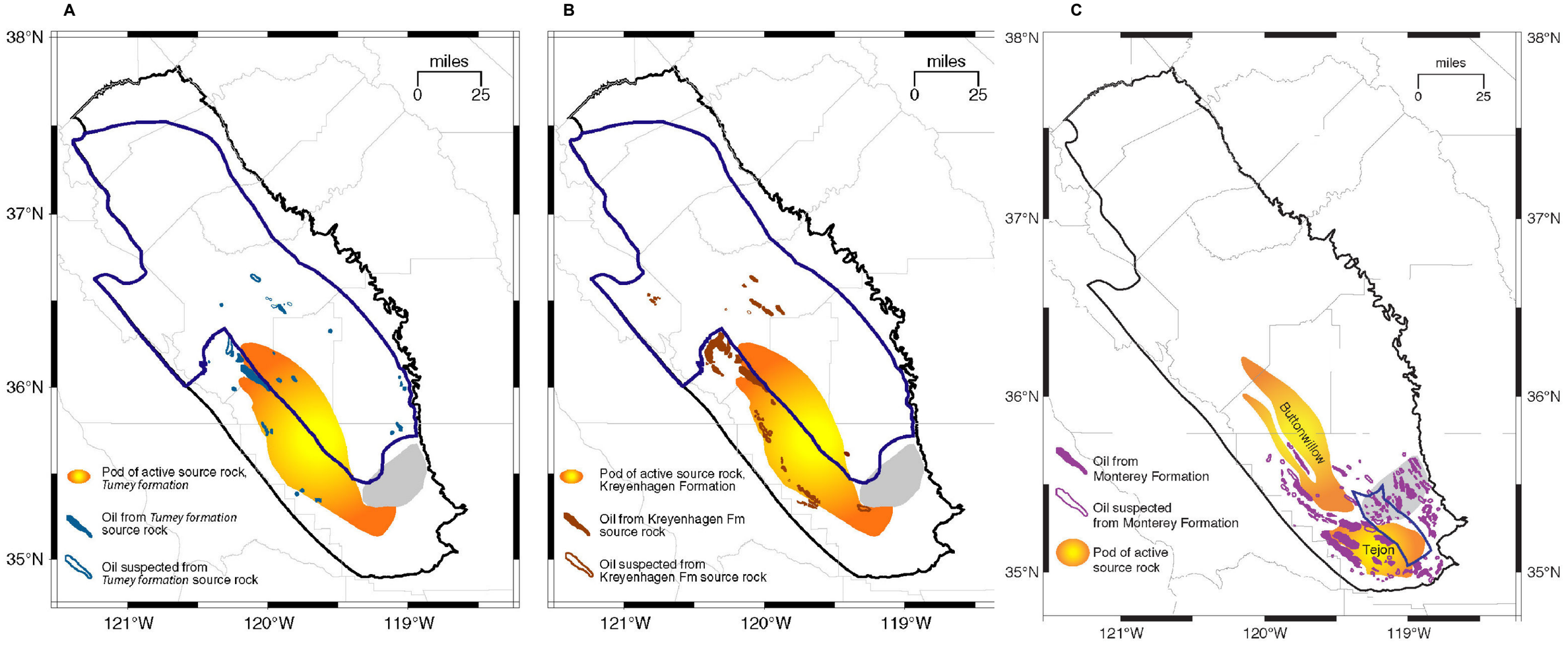
Source: Hosford Scheirer, A. and Magoon, L.B. 2007. Age, Distribution, and Stratigraphic Relationship of Rock Units in the San Joaquin Basin Province, California. Chapter 5 in Hosford Scheirer, A., ed., Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Stratigraphic Column for Kern County Oil and Gas Fields

May 2015

Figure 2-4



On (A) and (B), blue line shows location of North and East of Eocene West Side Fold Belt Assessment Unit with respect to the pods of active source rock of the Tumey formation (A) and Kreyenhagen Formation (B) of the Eocene Total Petroleum System (Peters et al. 2007). Because of a lack of geochemical data, the pod of active source rock for the Tumey formation is assumed to be the same as the pod of active source rock for the Kreyenhagen Formation. The bold line is the San Joaquin Basin Province boundary and thin gray lines are county boundaries. Gray shading shows the location of the Bakersfield Arch.
On (C), blue line shows location of Lower Bakersfield Arch AU with respect to the pods of active source rock of the Miocene Total Petroleum System (Peters et al. 2007). The bold line is the San Joaquin Basin Province boundary and thin gray lines are county boundaries. Gray shading shows the location of the Bakersfield Arch.

Source: Gautier, D.L. and Hosford Scheirer, A. 2007a. Eocene Total Petroleum System – North and East of the West Side Fold Belt Assessment Unit of the San Joaquin Basin Province. Chapter 19 in Hosford Scheirer, A., ed., Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713.; Gautier, D.L. and Hosford Scheirer, A. 2007b. Miocene Total Petroleum System – Lower Bakersfield Arch Assessment Unit of the San Joaquin Basin Province. Chapter 14 in Hosford Scheirer, A., ed., 2007. Petroleum Systems and Geologic Assessment of Oil and Gas in the San Joaquin Basin Province, California. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1713."

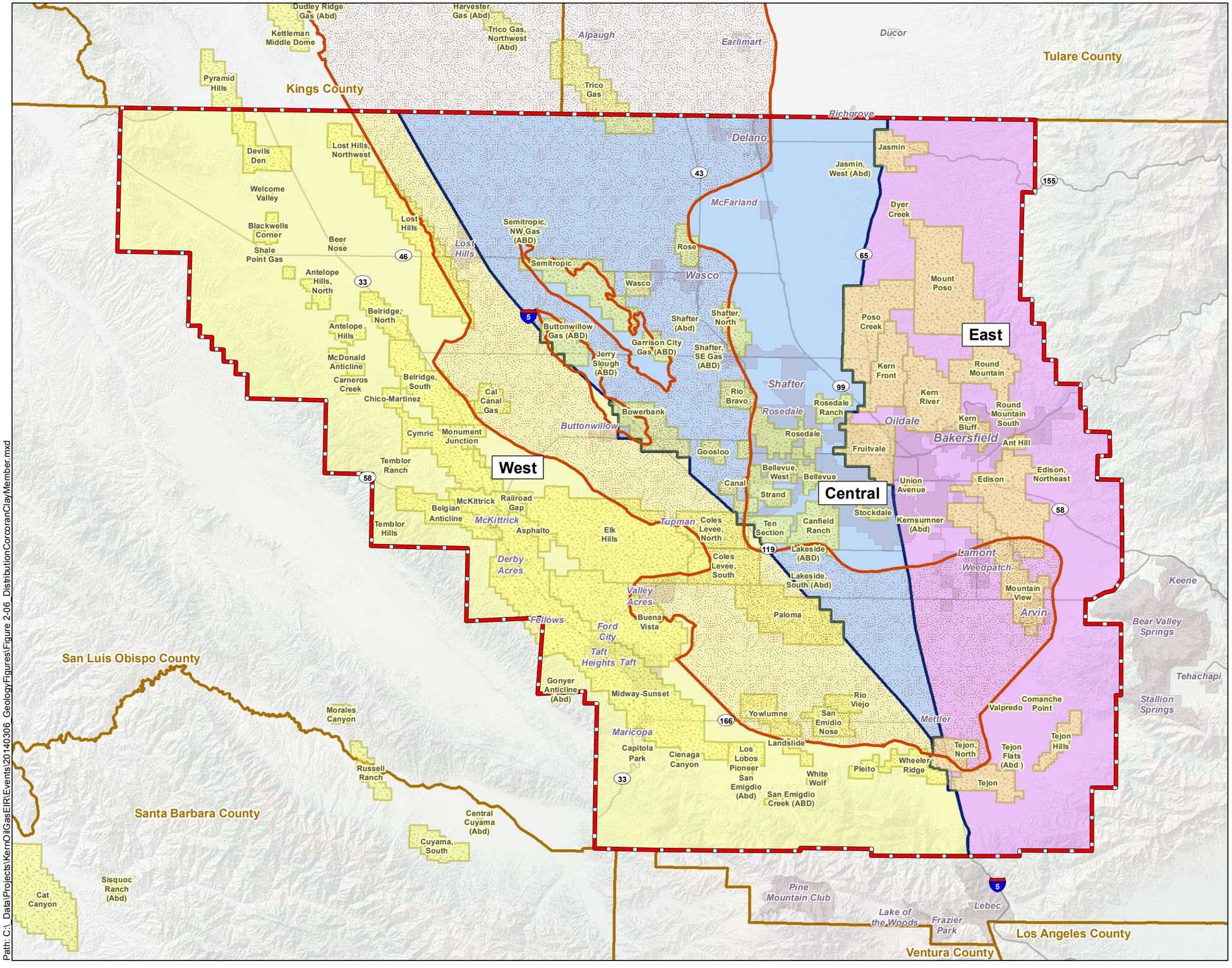
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Map of Miocene and Eocene Source Rocks

May 2015

Figure 2-5

Path: C:_Data\Projects\KernOilGasEIR\Events\20140306_GeologyFigures\Figure 2-05_MapOfMioceneAndEoceneSourceRocks.mxd



Path: C:_Data\Projects\KernOilGasEIR\Events\20140306_GeologyFigures\Figure 2-06_DistributionCorcoranClayMember.mxd

Legend

- Corcoran Clay Layer
- Oil And Gas Field Boundaries

Proposed Water Quality Sub-areas

- West
- Central
- East
- Project Boundary
- County Boundaries

Source for extent of Corcoran Clay: Faunt, C., ed. 2009. Groundwater Availability of the Central Valley Aquifer, California. U.S. Geological Survey, Reston, VA. USGS Professional Paper 1766. Modified from Page (1986).

N

0 4 8

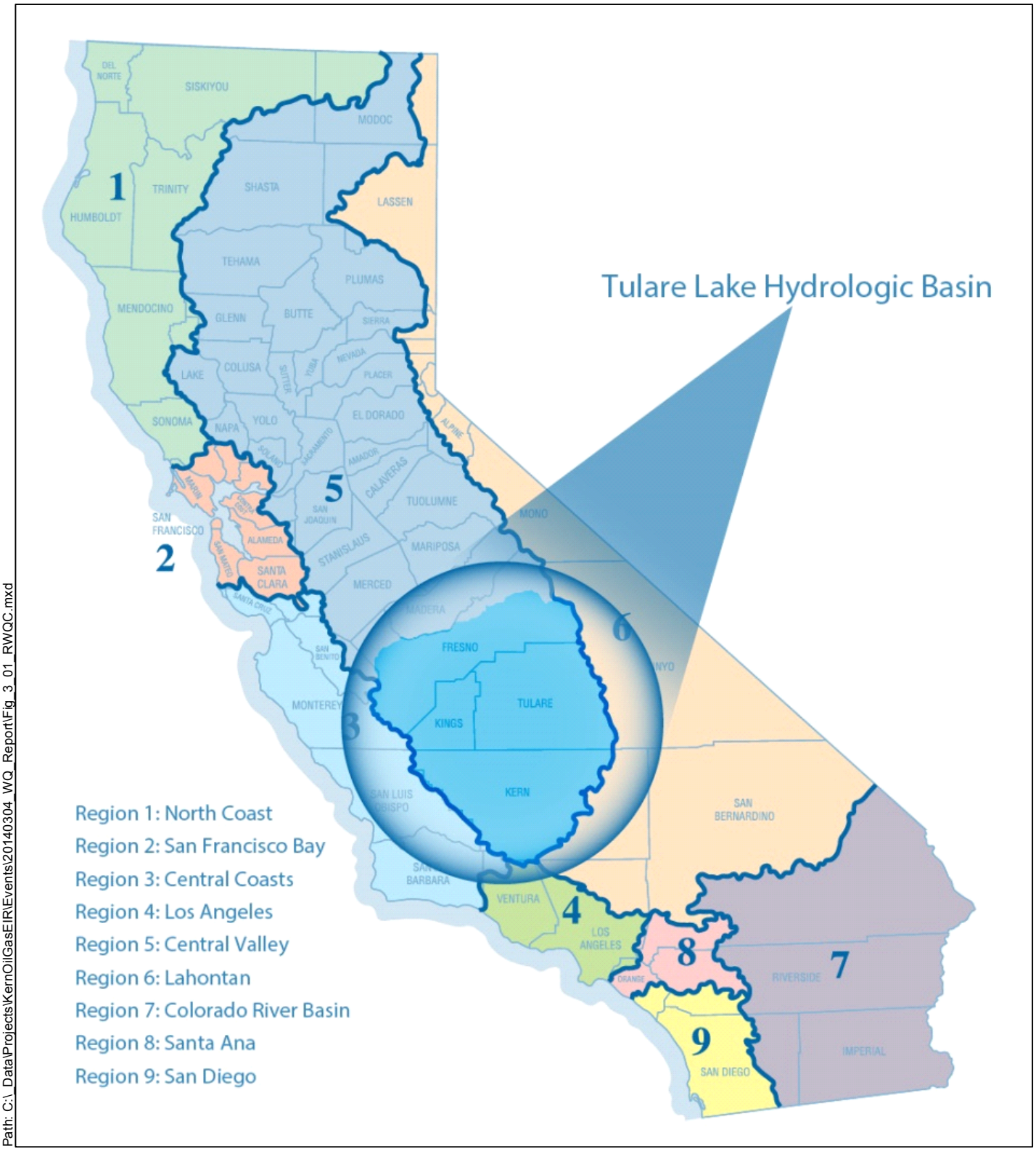
Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Distribution of the Corcoran Clay Member in the Project Area

May 2015

Figure 2-6



Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_01_RWQC.mxd

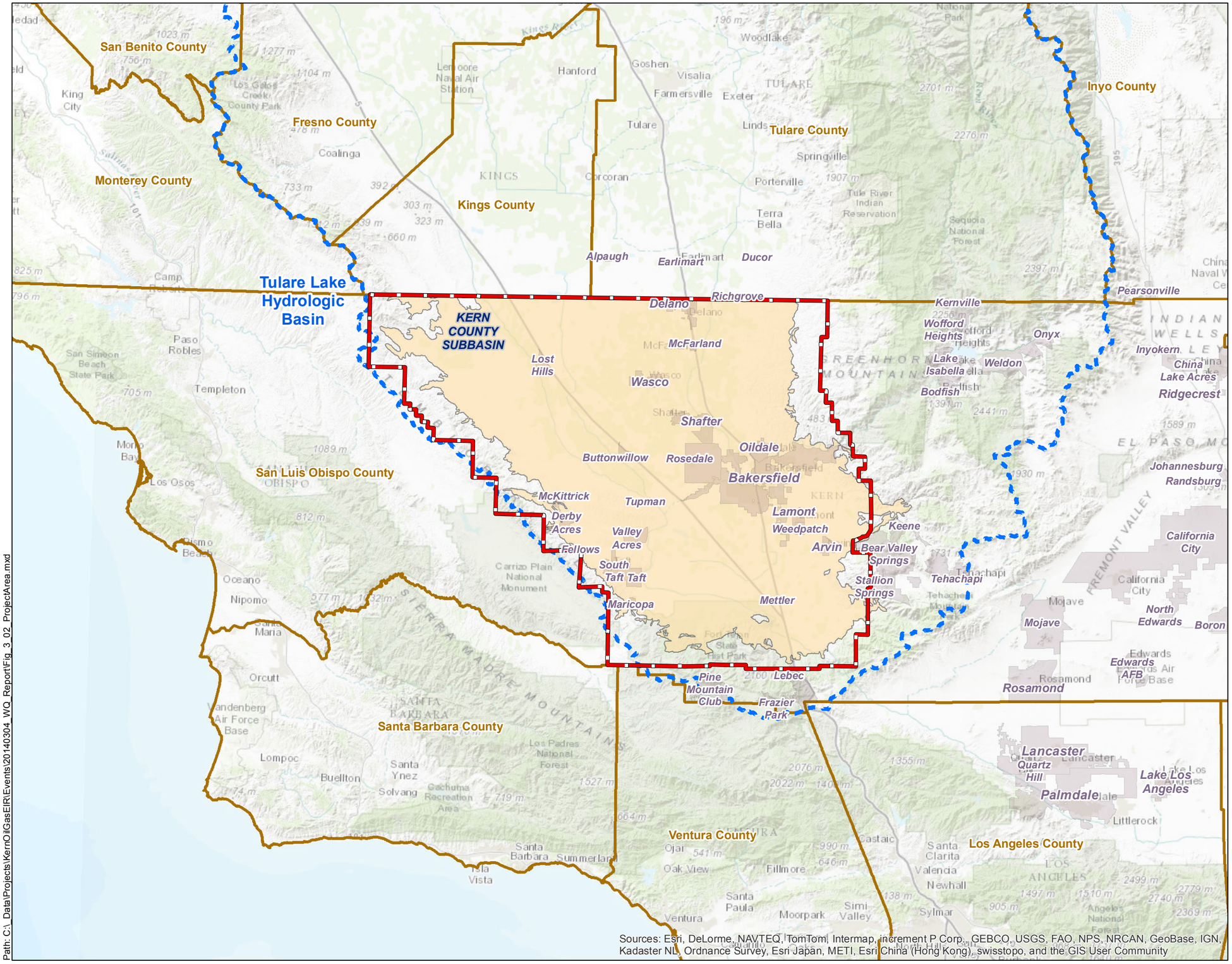
Source:
Adapted from CA SWRCB (2013b)

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Map of Regional Boundaries for California Regional Water Quality Control Boards

May 2015

Figure 3-1



Legend

- Project Boundary
- Tulare Lake Hydrologic Basin
- Kern County Subbasin
- County Boundaries

N

0 8 16

Miles

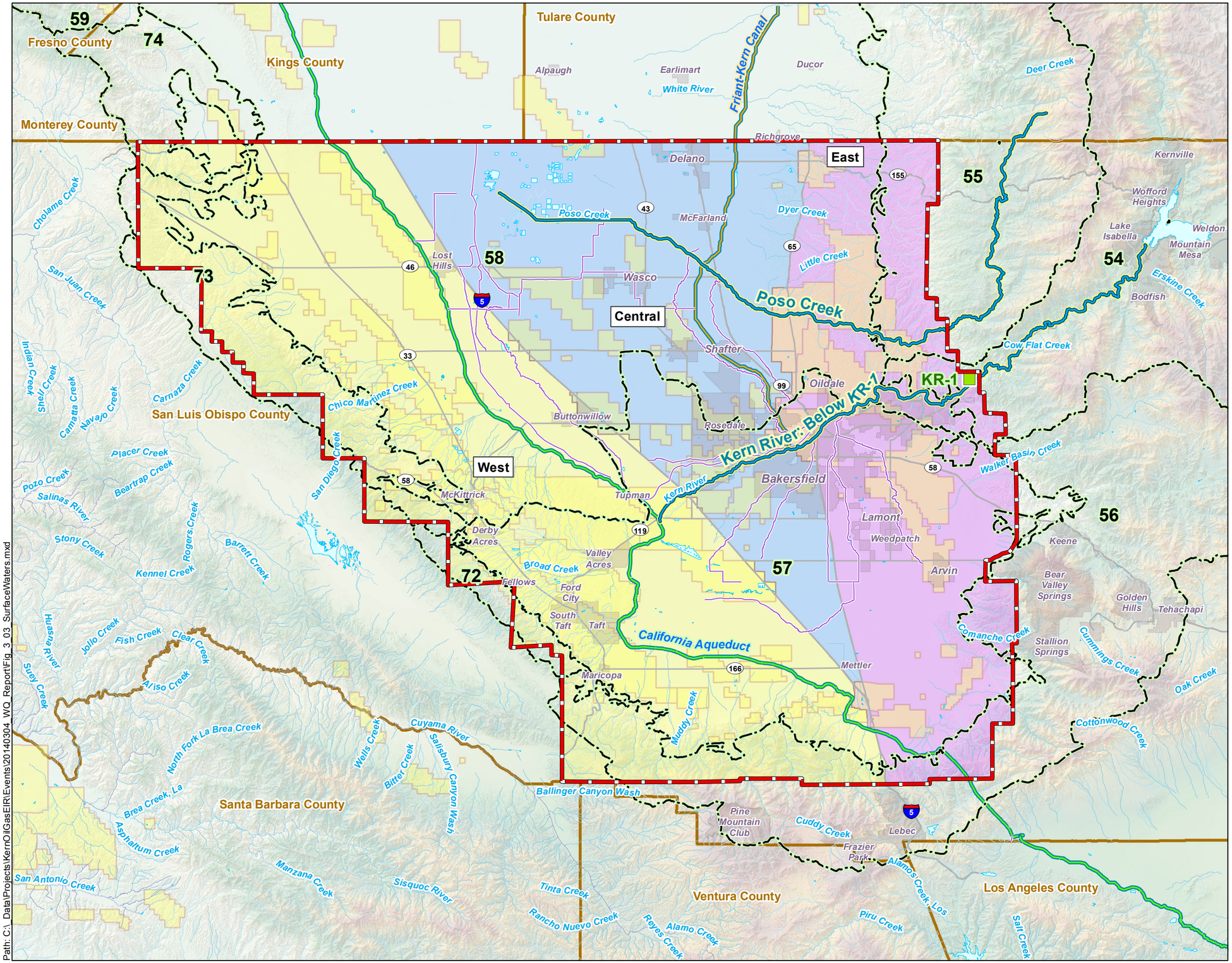
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Project Area, Tulare Lake Hydrologic Basin, and Kern County Subbasin Boundaries

May 2015

Figure 3-2

Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_02_ProjectArea.mxd



Legend

KR-1: Southern California Edison Kern River Powerhouse No. 1

Basin Plan-identified River or Creek

California Aqueduct

Friant Kern Canal

Local Canals

Rivers

Water Bodies

Oil And Gas Field Boundaries

Hydrologic Units

Water Quality Sub-Areas

West

Central

East

Project Boundary

County Boundaries

N

0 4 8

Miles

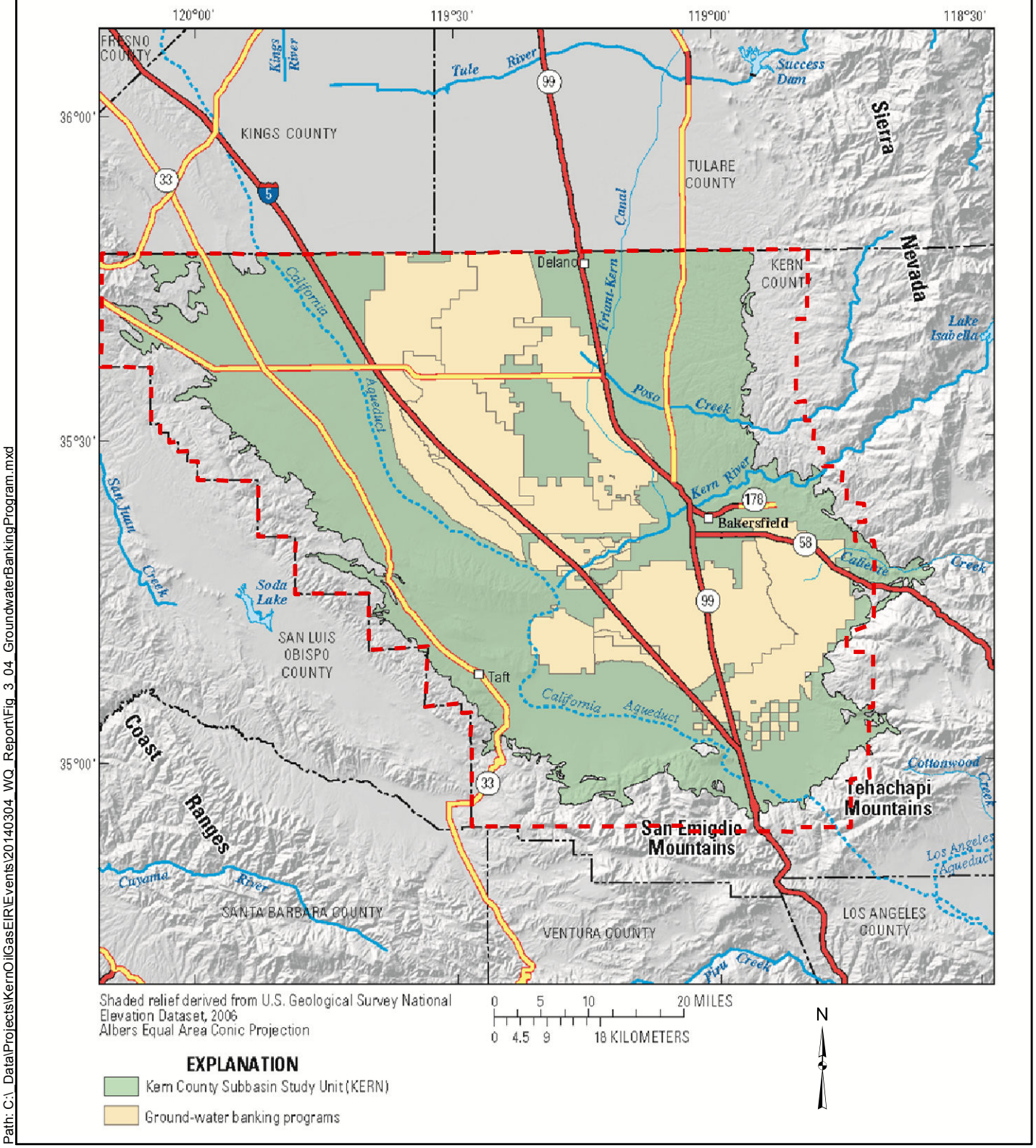
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Surface Waters in Project Area

May 2015

Figure 3-3

Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_03_SurfaceWaters.mxd



Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_04_GroundwaterBankingProgram.mxd

Notes:

1) Figure reproduced from Shelton JL, Pimentel I, Fram MS, Belitz K. 2008. Ground-Water Quality Data in the Kern County Subbasin Study Unit, 2006—Results from the California GAMA Program. Data Series 337, California Groundwater Ambient Monitoring and Assessment (GAMA) Program, United States Geological Survey and California State Water Resources Control Board, Reston, Virginia.
2) Project boundary is approximate and was superimposed on source figure.

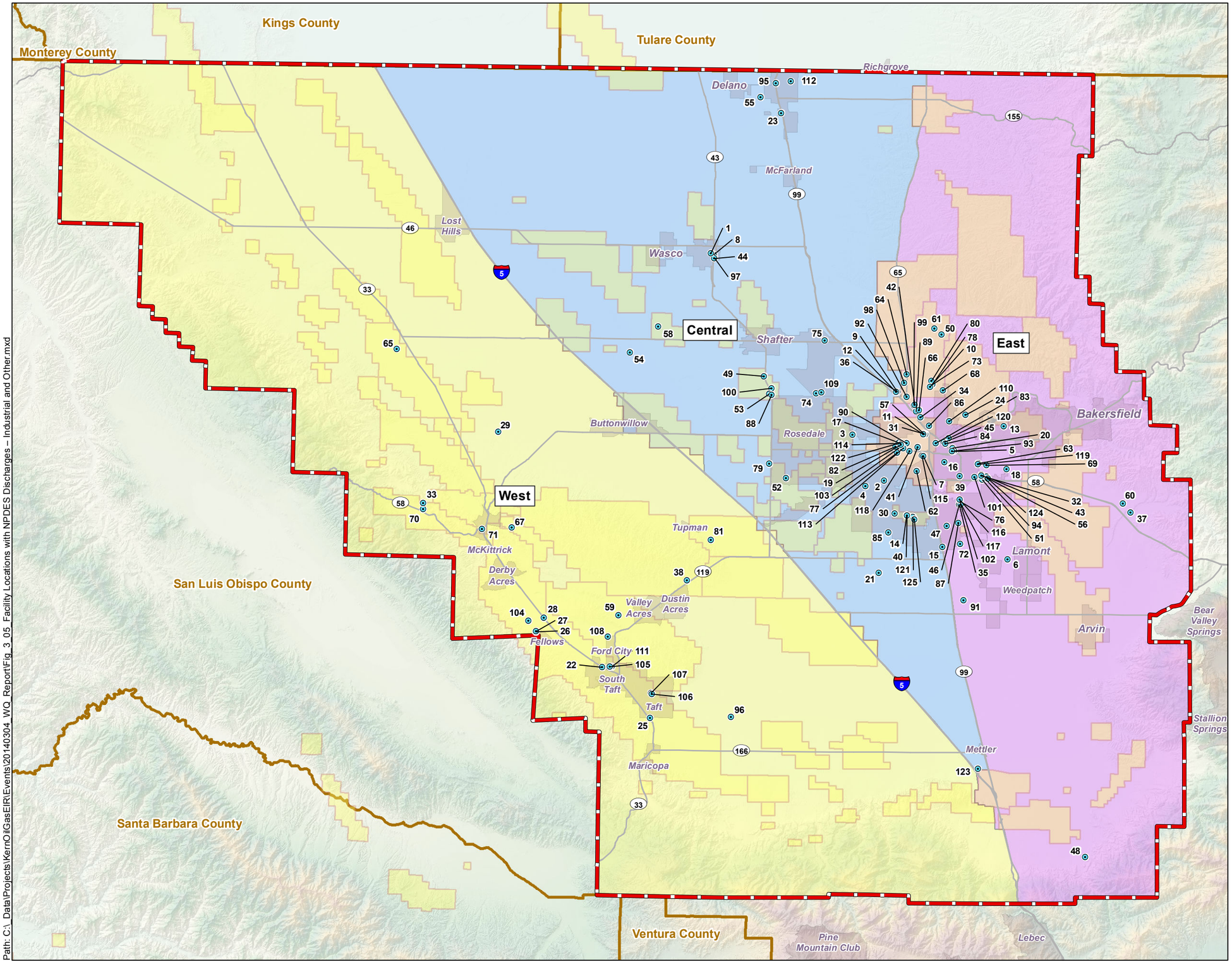
Source: Modified from Shelton, J.S., Pimentel, I., Fram, M.S., and Belitz, K. 2008. Ground-Water Quality Data in the Kern County Subbasin Study Unit, 2006—Results from the California GAMA Program. U.S. Geological Survey, Reston, VA. USGS Data Series 337. Project boundary (dashed red line) is approximate.

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Kern County Groundwater Banking Program Locations

May 2015

Figure 3-4



Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_05_Facility Locations with NPDES Discharges – Industrial and Other.mxd

Legend

- NPDES discharge locations (industrial and other)
- Oil And Gas Field Boundaries

Water Quality Sub-Areas

- West
- Central
- East
- Project Boundary
- County Boundaries

N

0 4 8

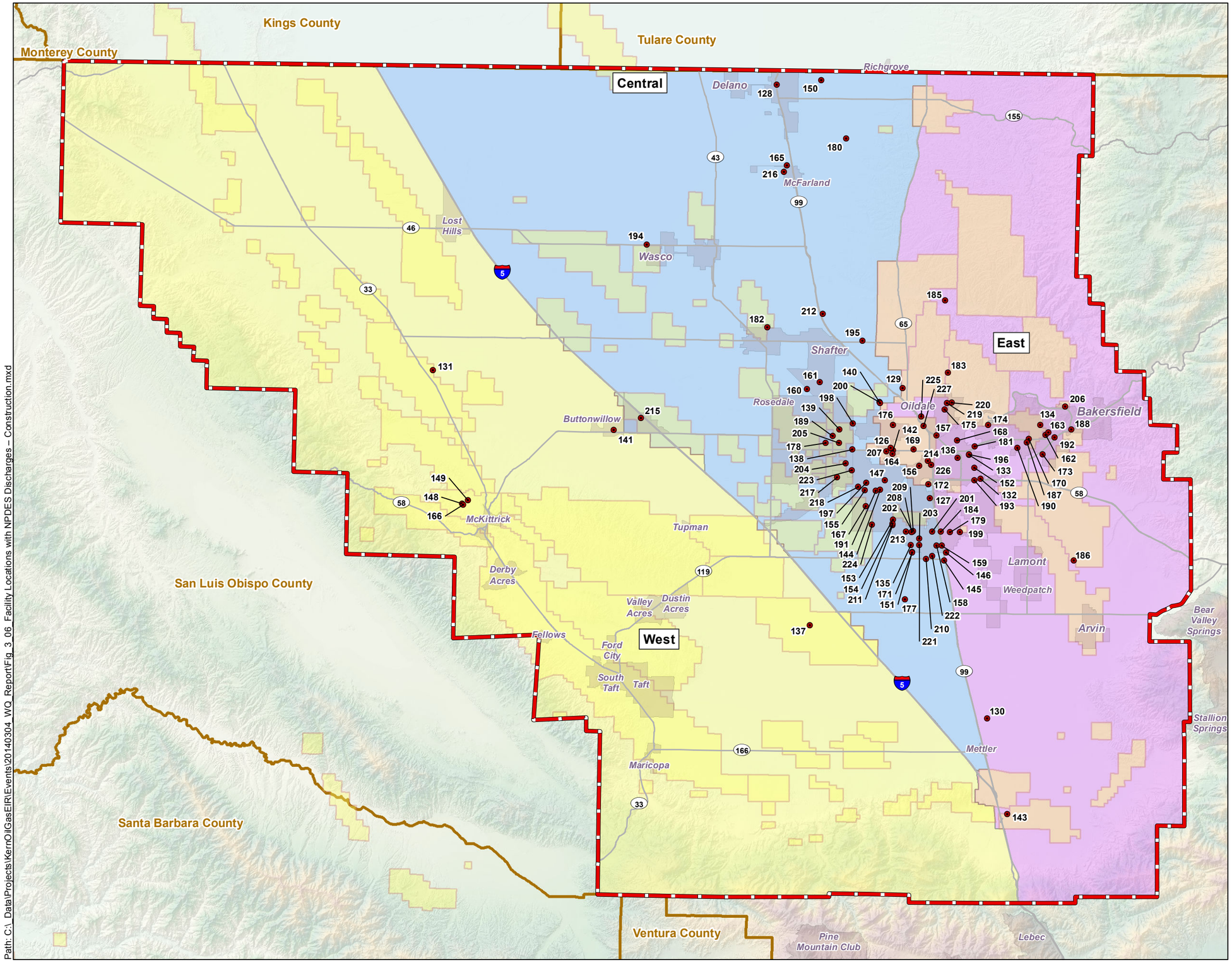
Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Facility Locations with NPDES Discharges – Industrial and Other

May 2015

Figure 3-5



Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_06_Facility Locations with NPDES Discharges – Construction.mxd

Legend

- NPDES discharge locations (construction)
- Oil And Gas Field Boundaries

Water Quality Sub-Areas

- West
- Central
- East
- Project Boundary
- County Boundaries

N

0 4 8

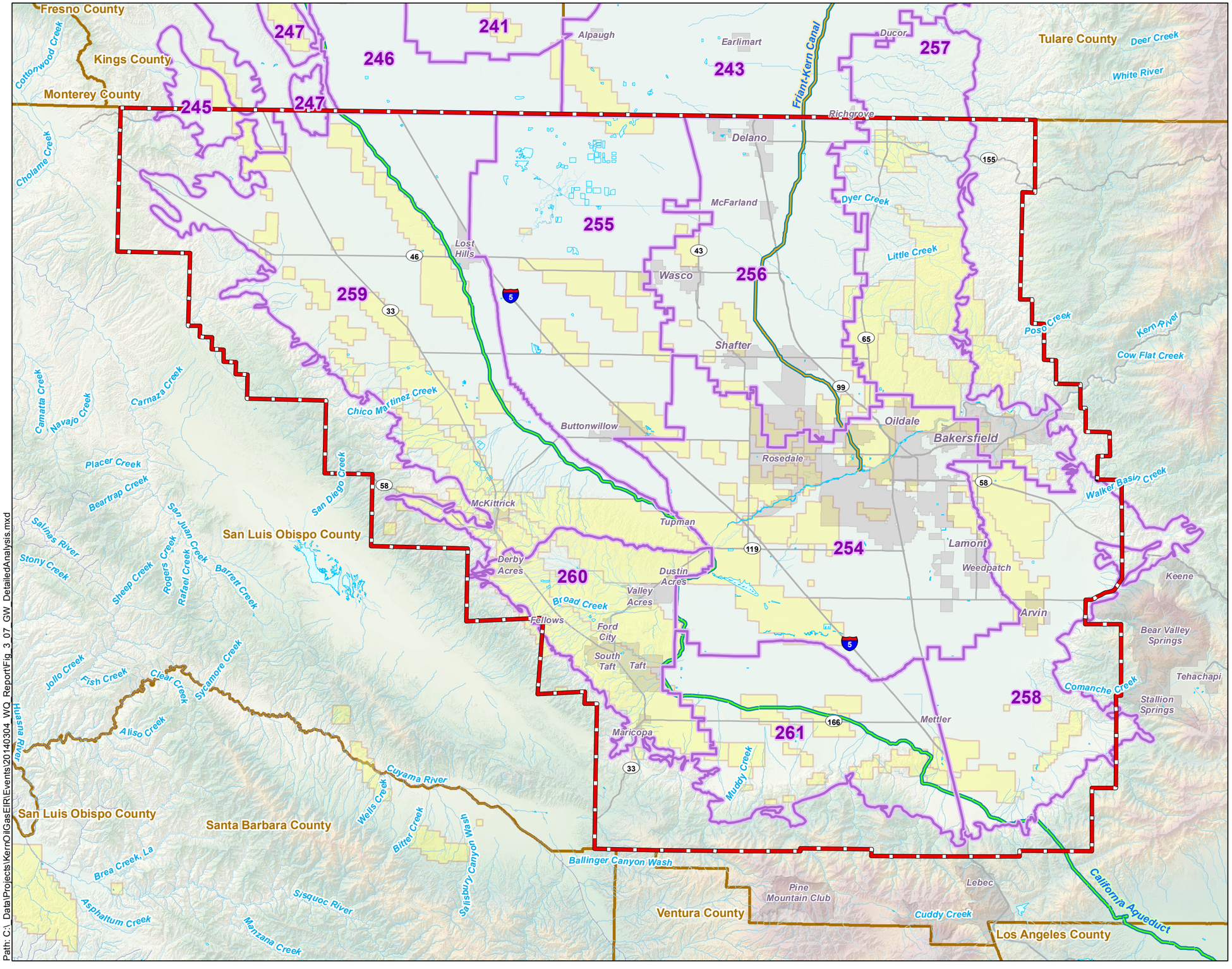
Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Facility Locations with NPDES Discharges – Construction

May 2015

Figure 3-6



Legend

- California Aqueduct
- Friant Kern Canal
- Oil And Gas Field Boundaries
- 254 Groundwater Detailed Analysis Unit
- Project Boundary
- County Boundaries

N

0 4 8

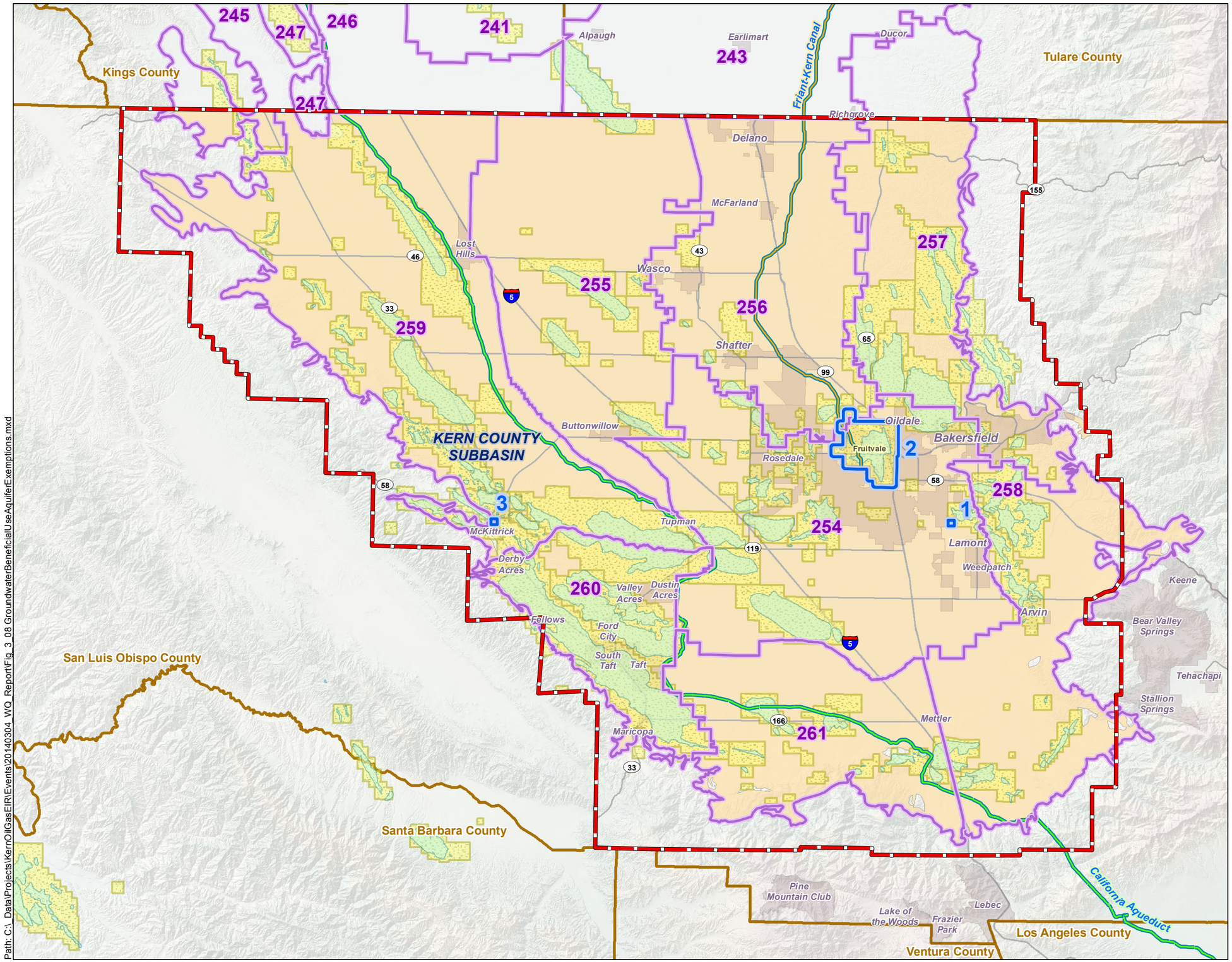
Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Groundwater Detailed Analysis Units in the Project Area

May 2015

Figure 3-7



Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_08 GroundwaterBeneficialUseAquiferExemptions.mxd

Legend

- Exempted Aquifers
- Groundwater Beneficial Use Exemptions (see notes)
- California Aqueduct
- Friant Kern Canal
- 254 Groundwater Detailed Analysis Unit
- Kern County Sub-basin
- Oil And Gas Field Boundaries
- Project Boundary
- County Boundaries

Notes:
Groundwater Beneficial Use Exemptions as defined in the Water Quality Control Plan (Basin Plan) for the Tulare Lake Basin (CA RWQCB. 2004. Water Quality Control Plan for the Tulare Lake Basin, Second Edition. California Regional Water Quality Control Board, Central Valley Region (Region 5). [Available at: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml, retrieved 18 February 2014]), Table II-2:

1) Groundwater contained in the lower Transition Zone and Santa Margarita formation within 3,000 feet of the Kern Oil and Refining Company proposed injection wells in Section 25, T30S, R28E, MDB&M, is not suitable, or potentially suitable, for municipal or domestic supply (MUN).

2) Ground water contained in the basal Etchegoin formation, Chanac formation, and Santa Margarita formation within, and extending to one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the State of California, Department of Conservation, Division of Oil and Gas in Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act, dated April 1981, is not suitable, or potentially suitable, for municipal or domestic supply (MUN). However, the upper ground water zone (ground water to a depth of 3,000 feet) retains the MUN beneficial use.

3) Ground water and spring water within 1/2 mile radius of the McKittrick Waste Treatment (formerly Liquid Waste Management) site in Section 29, T30S, R22E, MDB&M, have no beneficial uses.

N

0 4 8

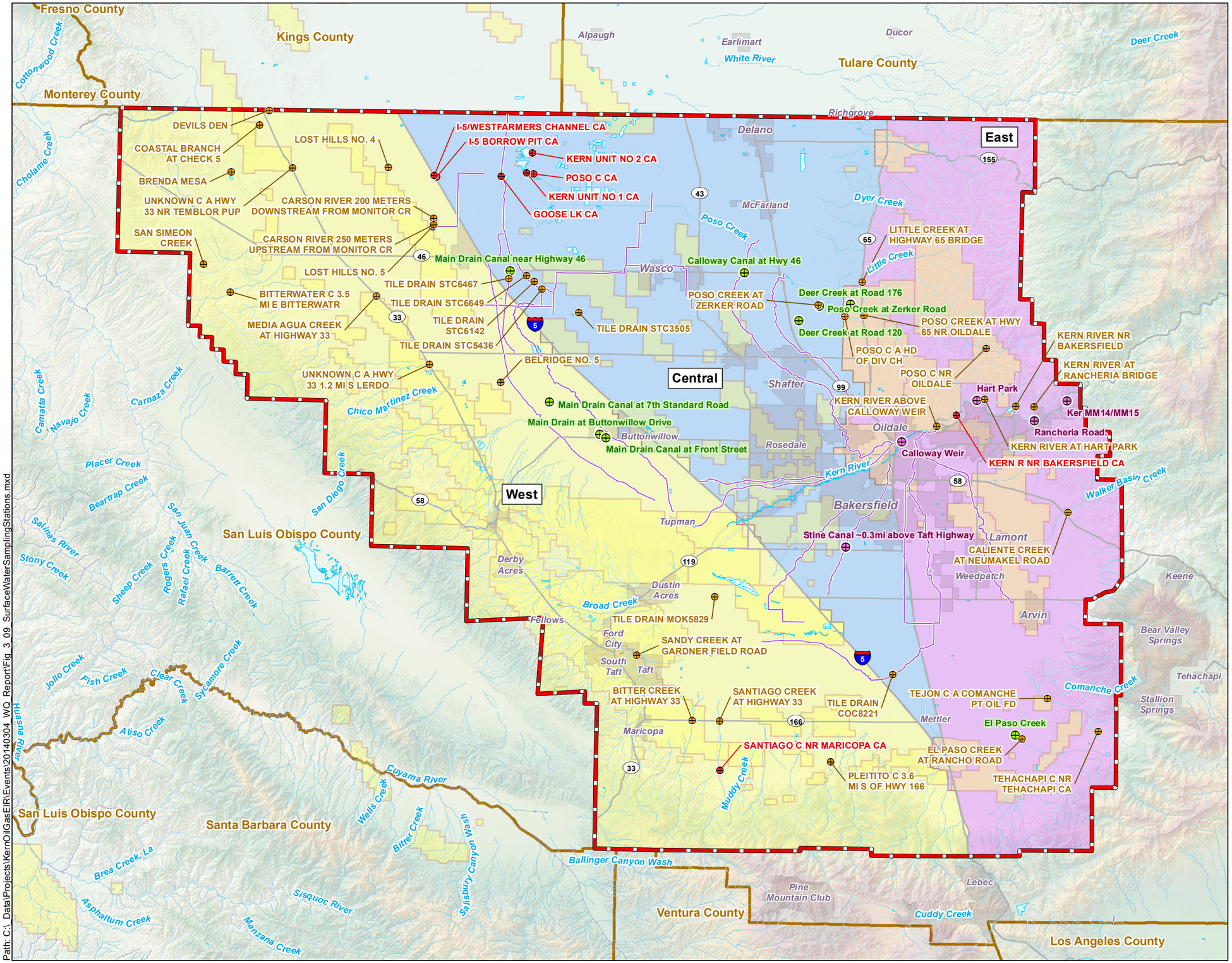
Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Groundwater Beneficial Use Aquifer Exemptions

May 2015

Figure 3-8

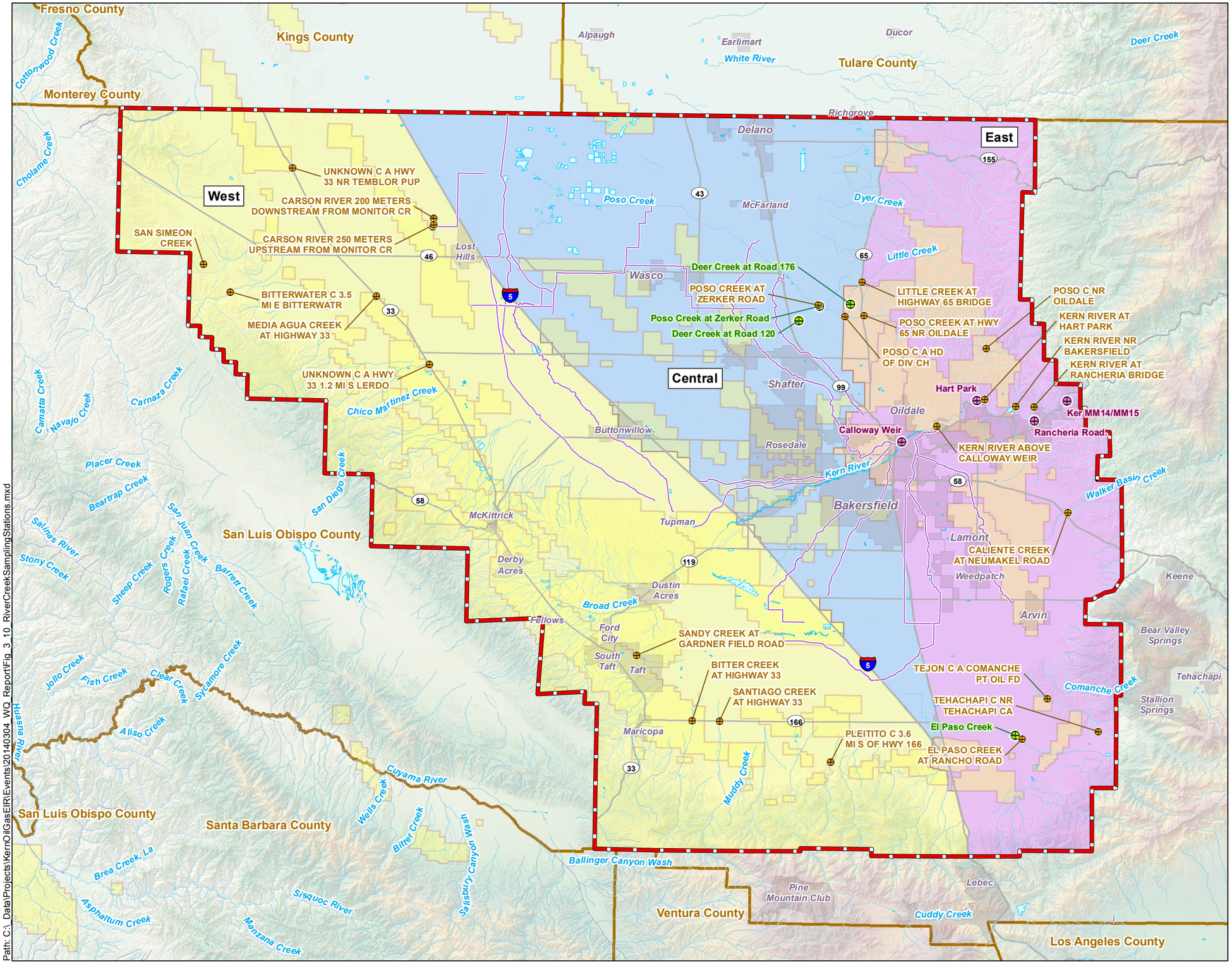


Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Surface Water Sampling Stations in Project Area

May 2015

Figure 3-9



Legend

Water Quality Sampling Stations

- EPA Legacy Stations
- Irrigated Lands Regulatory Program
- SWAMP Stations
- Local Canals
- Rivers
- Water Bodies
- Oil And Gas Field Boundaries

Water Quality Sub-Areas

- West
- Central
- East
- Project Boundary
- County Boundaries

N

0 4 8

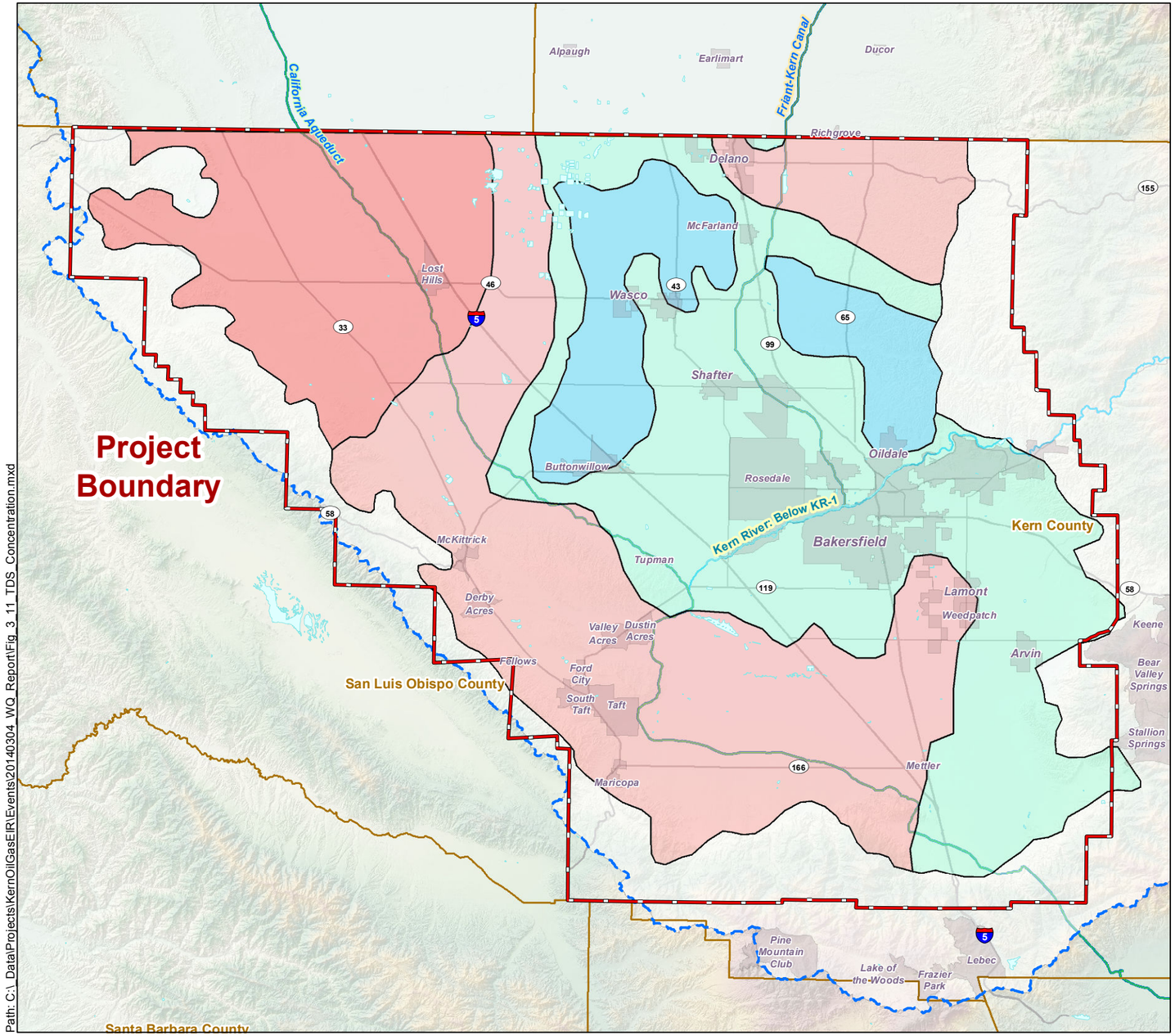
Miles

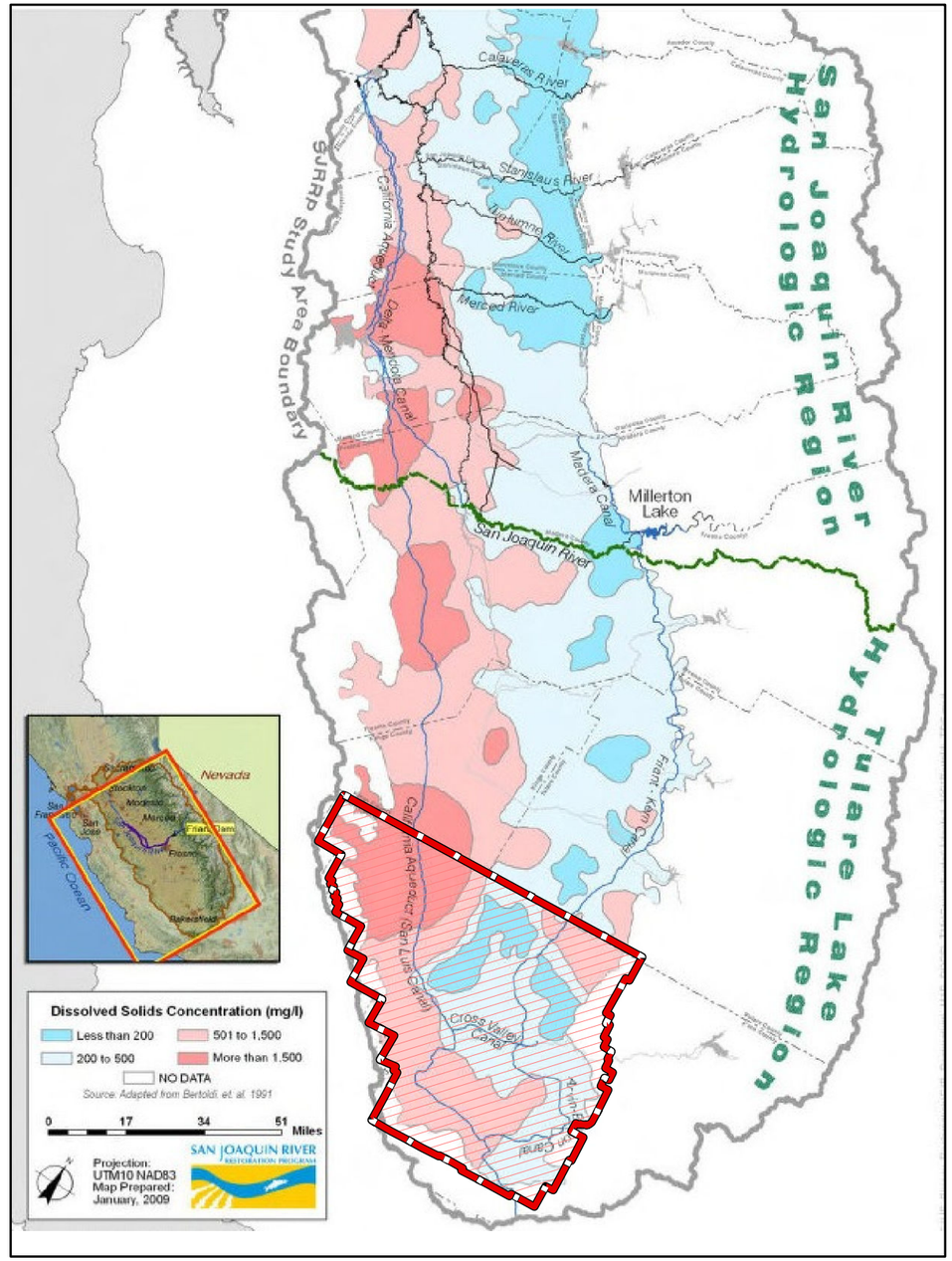
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

River and Creek Sampling Stations in the Project Area

May 2015

Figure 3-10





Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_11_TDS_Concentration.mxd

Legend

Dissolved Solids Concentration (mg/l)

- Less than 200
- 200 to 500
- 501 to 1,500
- More than 1,500
- No Data

- Project Boundary
- Tulare Lake Hydrologic Basin

Note:
Adapted from Figure 12-12 of USBR. 2011. Program Environmental Impact Statement/Environmental Impact Review - Public Review Draft. United States Bureau of Reclamation. San Joaquin River Restoration Program. April 2011."

N

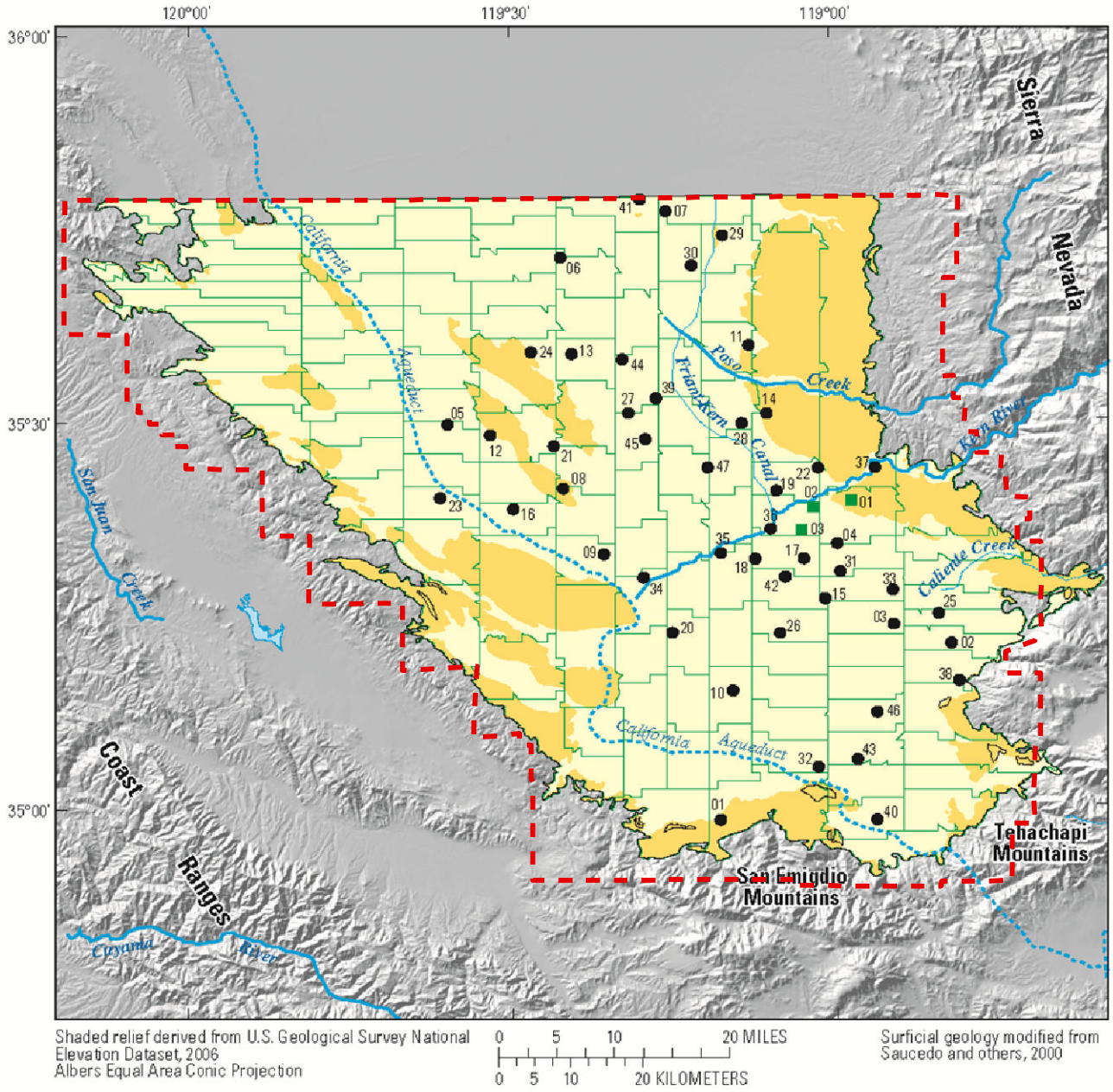
0 5 10
Miles

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Generalized Total Dissolved Solids Concentrations in Groundwater

May 2015

Figure 3-11



Notes:
1) Figure shows the grid and well locations used in the U.S. Geological Survey's summary of the California Groundwater Ambient Monitoring and Assessment (GAMA) database through 2006, and is reproduced from Shelton, J.S., Pimentel, I., Fram, M.S., and Belitz, K. 2008. Ground-Water Quality Data in the Kern County Subbasin Study Unit, 2006—Results from the California GAMA Program. U.S. Geological Survey, Reston, VA. USGS Data Series 337
2) Project boundary is approximate and was superimposed on source figure.

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

USGS Grid Well Locations Map

May 2015

Figure 3-12

Fresno County
Kings County
Monterey County
Tulare County
San Luis Obispo County
Santa Barbara County
Ventura County
Los Angeles County
Alpaugh
Earlimart
Ducor
Richgrove
Delano
McFarland
Lost Hills
Wasco
Shafter
Buttonwillow
Rosedale
Oildale
Bakersfield
McKittrick
Tupman
Derby Acres
Valley Acres
Dustin Acres
Fellows
Ford City
South Taft
Taft
Maricopa
Lamont
Weedpatch
Arvin
Keene
Bear Valley Springs
Tehachapi
Stallion Springs
Mettler
Pine Mountain Club
Frazier Park
Lebec
Lake of the Woods
East
Central
West
5
46
33
58
43
65
99
119
166
155

Legend

GAMA Wells

- California Dept. of Pesticide Reg.
- California Dept. of Public Health
- Other GAMA-Reported Wells (e.g., Monitoring wells)
- Oil And Gas Field Boundaries

Water Quality Sub-Areas

- West
- Central
- East
- Project Boundary
- County Boundaries

Note:

Approximate locations of various sets of groundwater wells (e.g., public water supply wells, environmental monitoring wells) included in the California Groundwater Ambient and Monitoring Assessment (GAMA) database, used to summarize groundwater quality in the study area between 2007 and 2013.

N

0 4 8

Miles

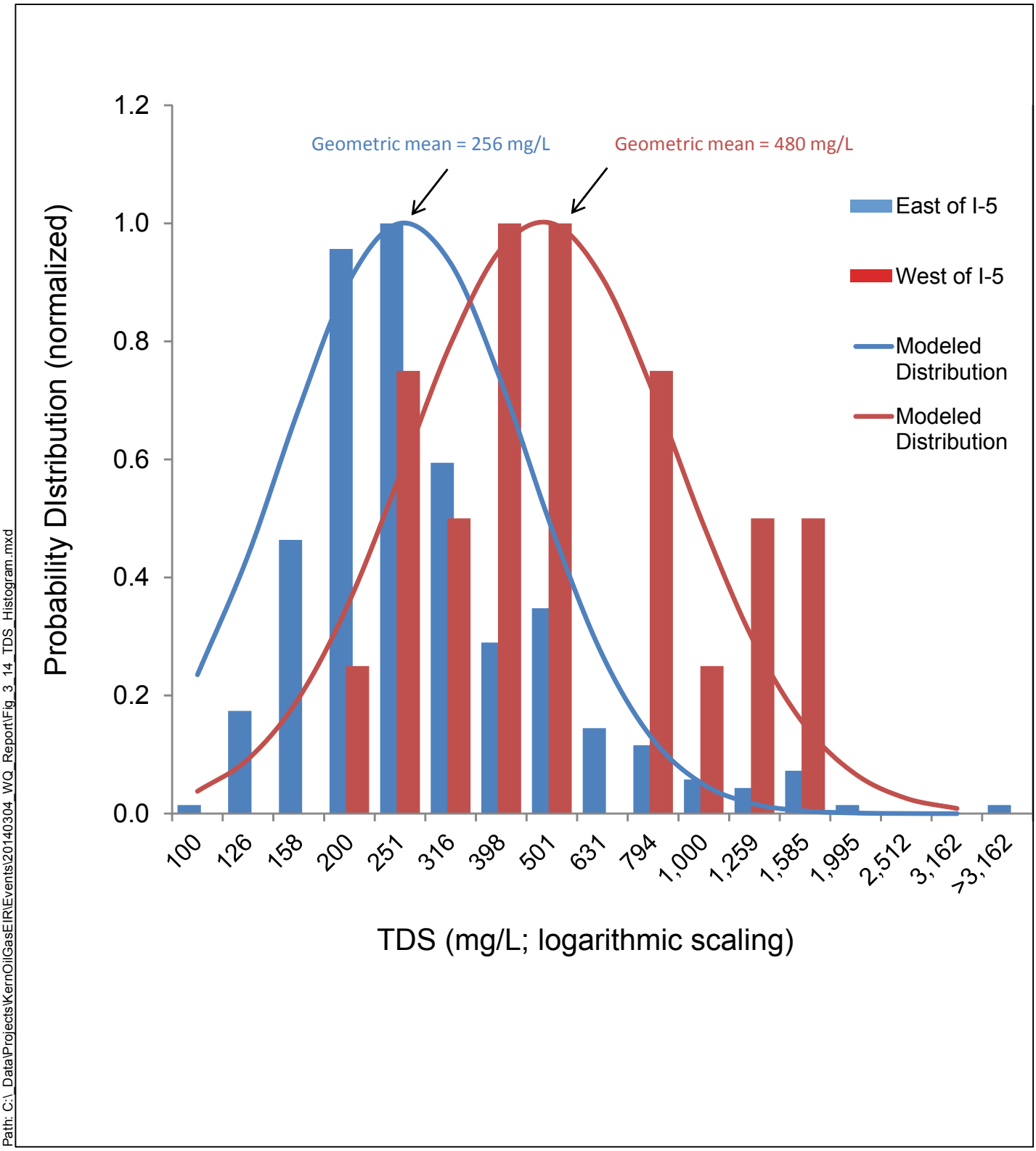
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

GAMA Well Locations in Project Area

May 2015

Figure 3-13

Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_13_GAMA_WellLocationsInProjectAreaWithinGeographicSubareas.mxd



Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_14_TDS_Histogram.mxd

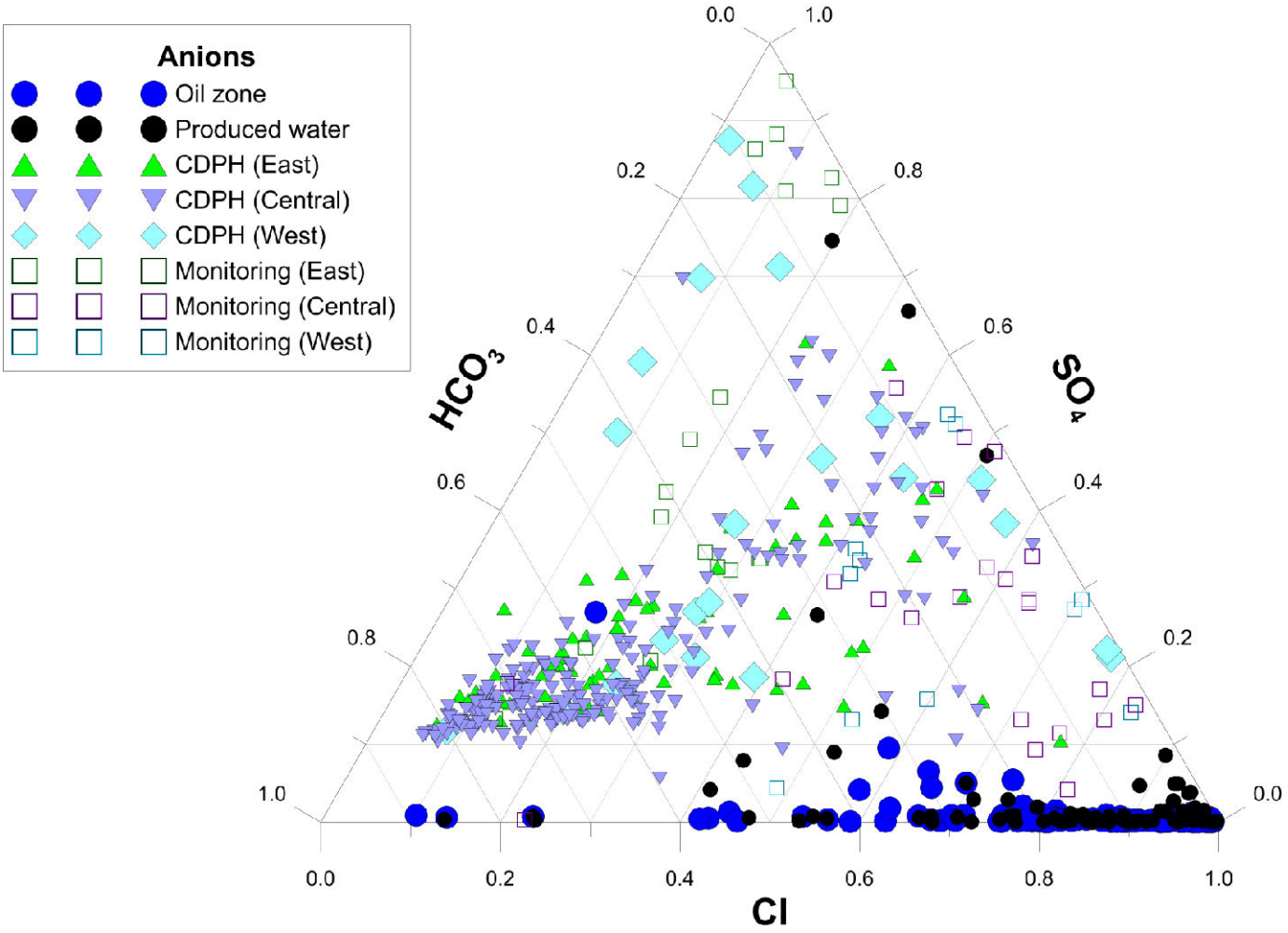
Note:
Probability distributions of time-averaged TDS concentrations measured in wells east and west of Interstate-5, as represented in the California Groundwater Ambient and Monitoring Assessment (GAMA) database.

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Total Dissolved Solids Concentrations Histogram

May 2015

Figure 3-14



Distribution of major anions in groundwater samples from production zones (i.e., oil zone, produced water) as well as from potable aquifer water supply wells (CDPH) and shallow environmental monitoring wells

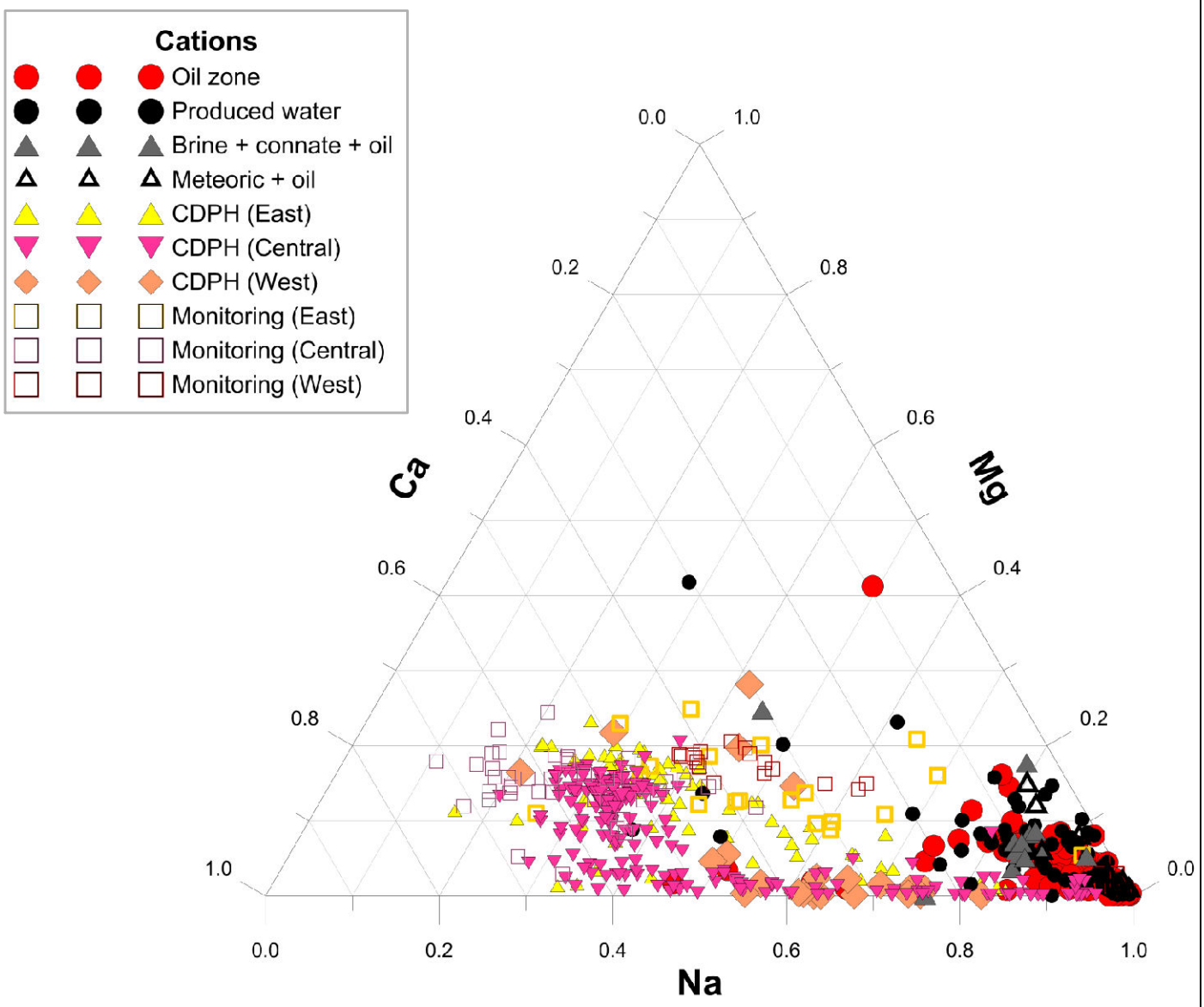
Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_15_DistributionMajorAnions.mxd

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Distribution of Major Anions in Groundwater

May 2015

Figure 3-15



Distribution of major cations in groundwater samples from production zones (i.e., oil zone, produced water, brine/connate water and meteoric water in contact with oil zone) as well as from potable aquifer water supply wells (CDPH) and shallow environmental monitoring wells

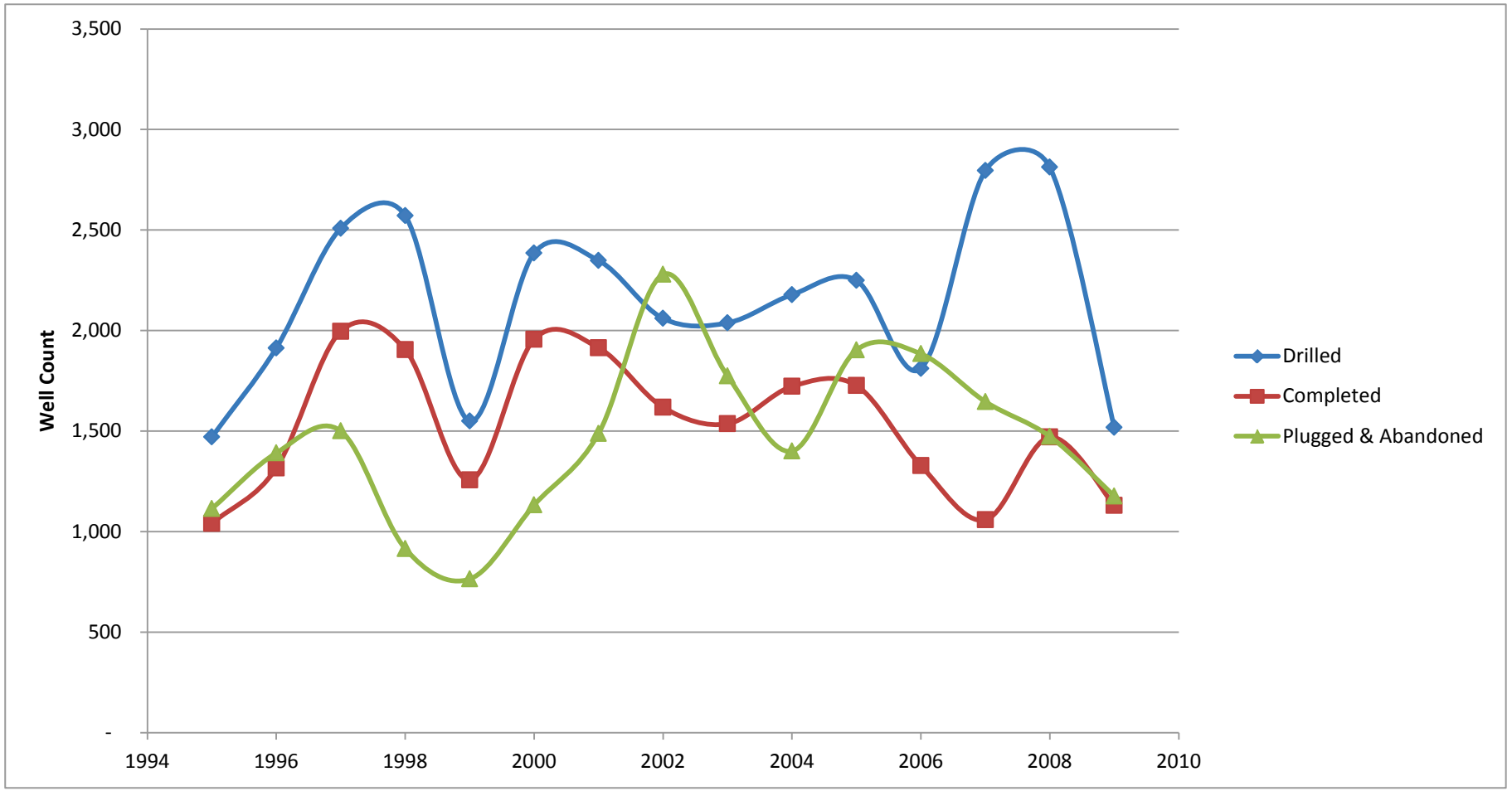
Path: C:_Data\Projects\KernOilGasEIR\Events\20140304_WQ_Report\Fig_3_16_DistributionMajorCations.mxd

Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Distribution of Major Cations in Groundwater

May 2015

Figure 3-16

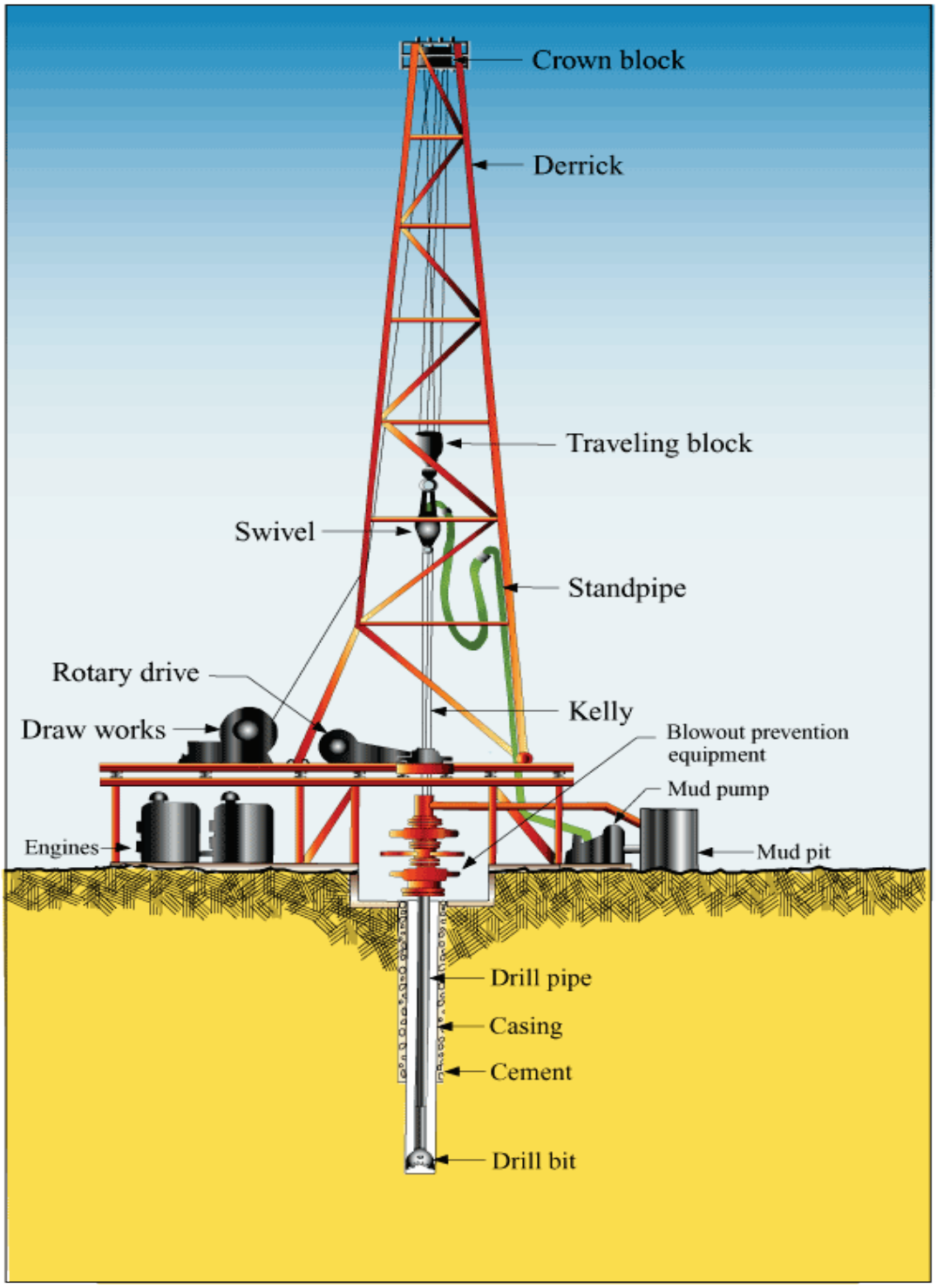


Source: DOGGR. 2010. 2009 Annual Report of the State Oil & Gas Supervisor. California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Sacramento, CA. Publication No. PR06.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Recent Drilling Trends in Project Area

May 2015
Figure 4-1



Source: California Division of Oil, Gas, and Geothermal Resources, Picture of a Drill Rig, http://www.conservation.ca.gov/dog/picture_a_well/Pages/qh_drill_rig.aspx, last accessed 4 March 2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Typical Drilling Rig Set-up

May 2015
Figure 4-2



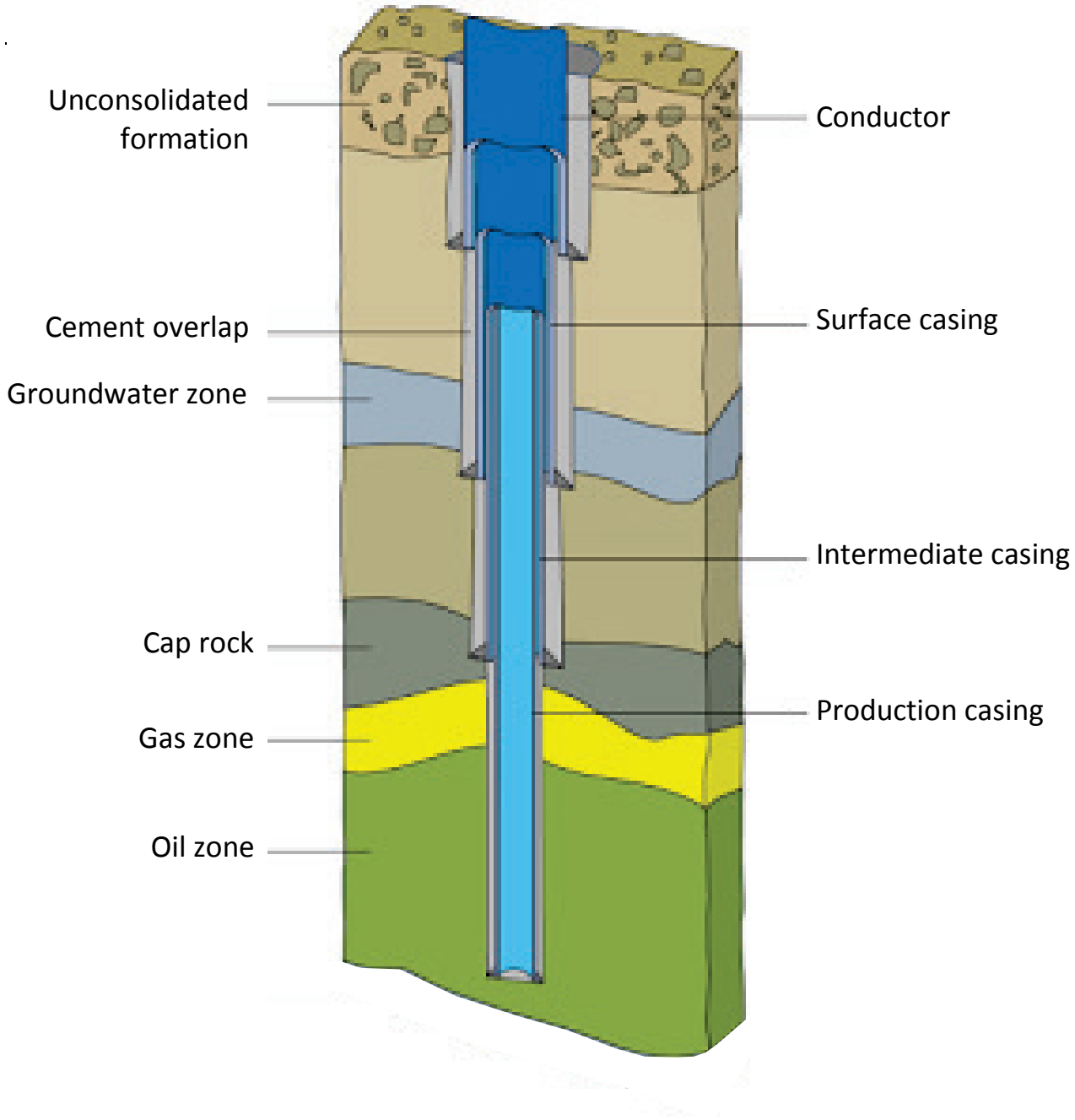
Source: Bommer, P. 2008. A Primer of Oilwell Drilling,. Seventh Edition. University of Texas.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Drilling Rig Photograph

May 2015

Figure 4-3

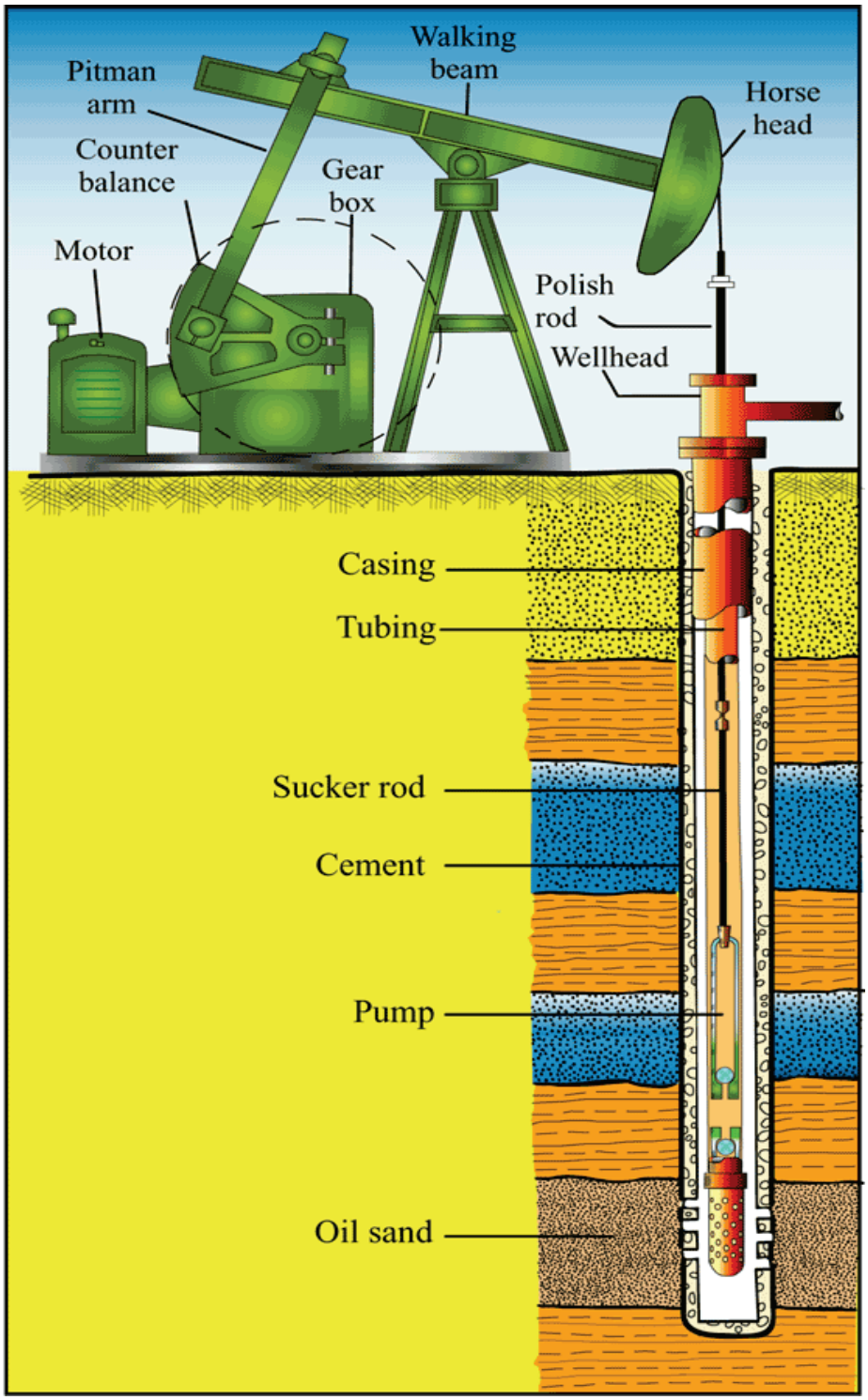


Source: API. 2009. Water Management Associated with Hydraulic Fracturing Operations-Well Construction and Integrity Guidelines. American Petroleum Institute. API Guidance Document HF1. October 2009.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Typical Oil or Gas Well Casing Schematic

May 2015
Figure 4-4

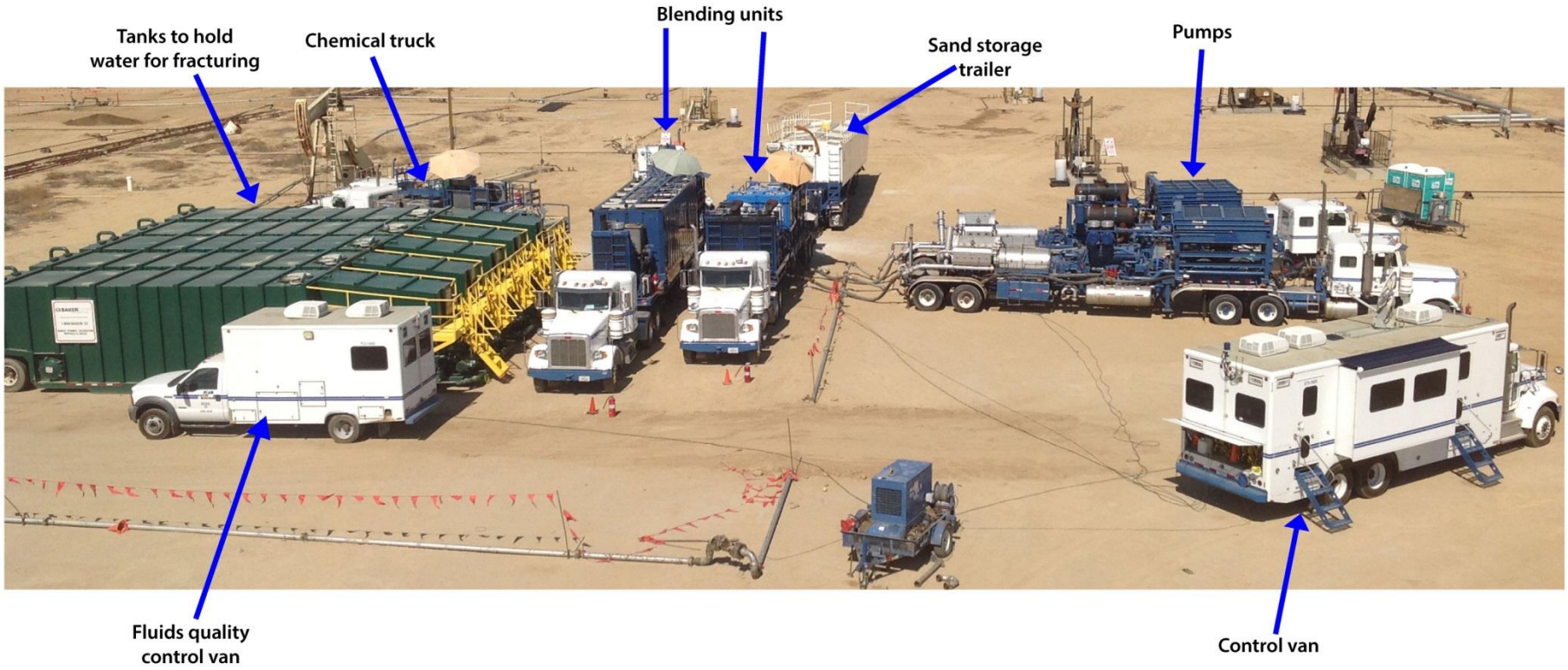


Source: California Division of Oil, Gas, and Geothermal Resources, Picture of a Well, http://www.conservation.ca.gov/dog/picture_a_well/Pages/qh_well.aspx, last accessed 4 March 2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Typical Production Well Installation

May 2015
Figure 4-5



Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Typical Hydraulic Fracturing Project Equipment

May 2015
Figure 4-6

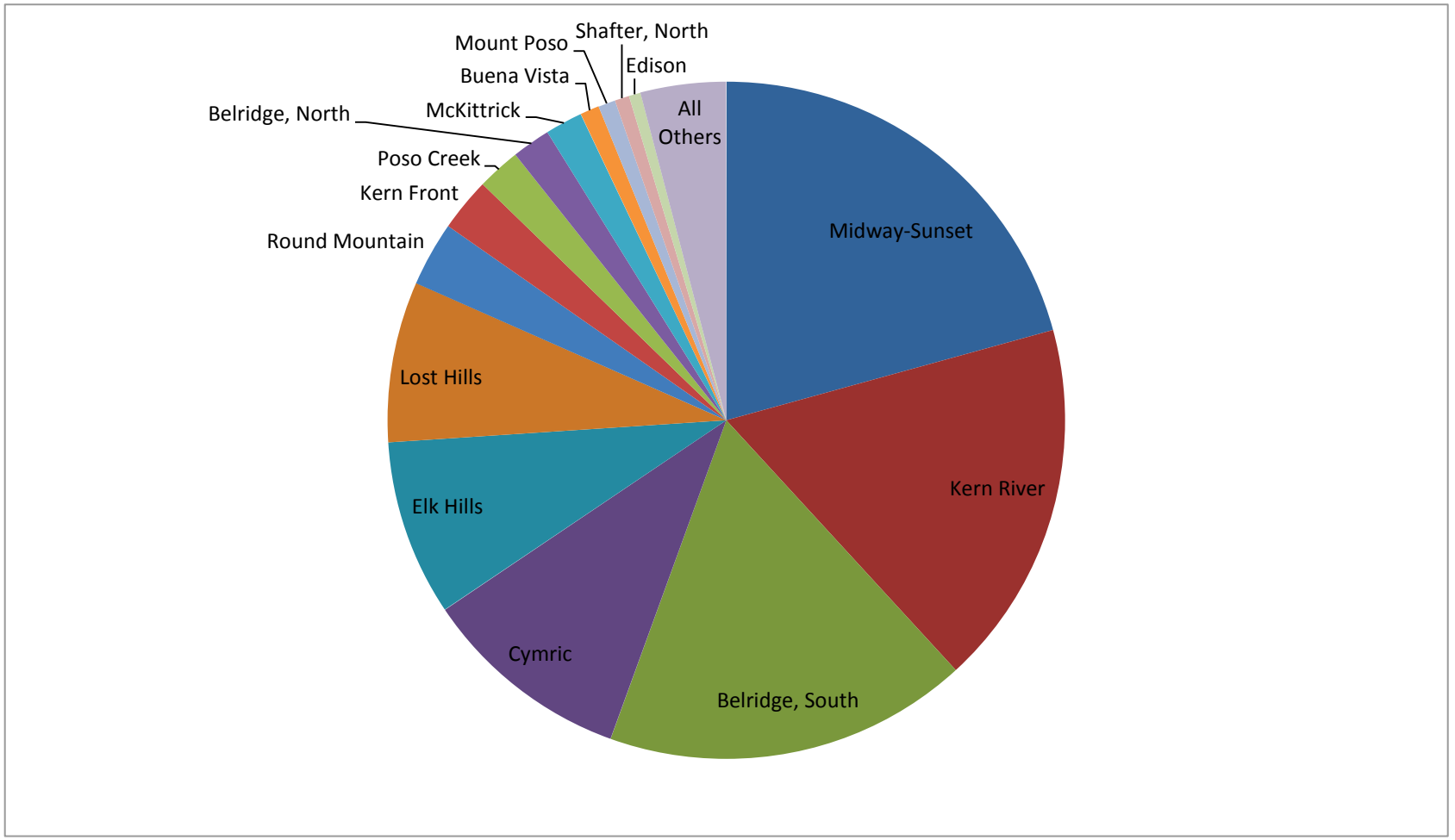


Source: AKL Services Inc. 2014. Caylx Tank Battery Design. http://www.aklservices.com, last accessed 4 March 2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Typical Tank Battery Installation

May 2015
Figure 4-7

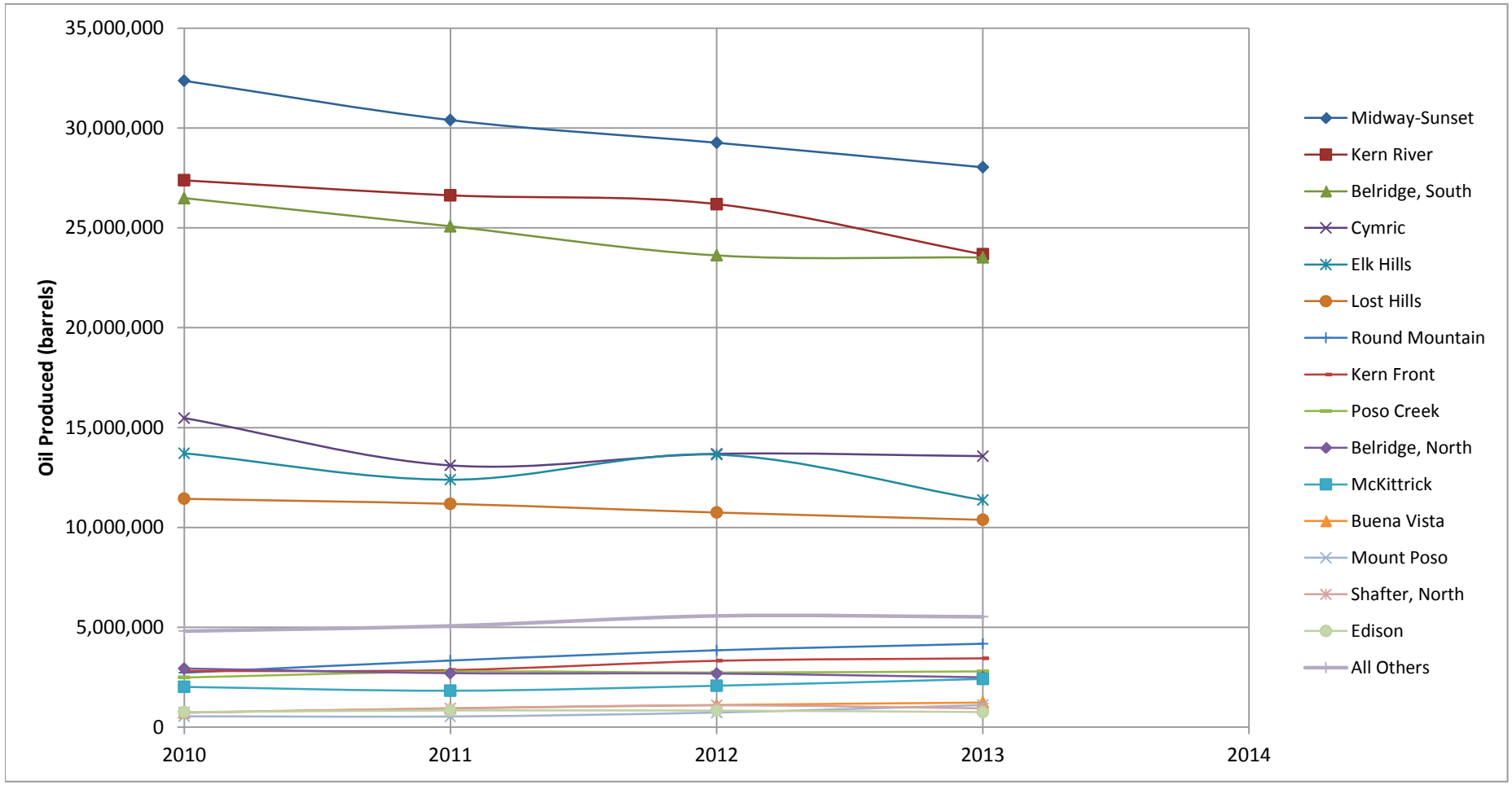


Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Top 15 Oil Producing Fields in Project Area in 2013

May 2015
Figure 4-8

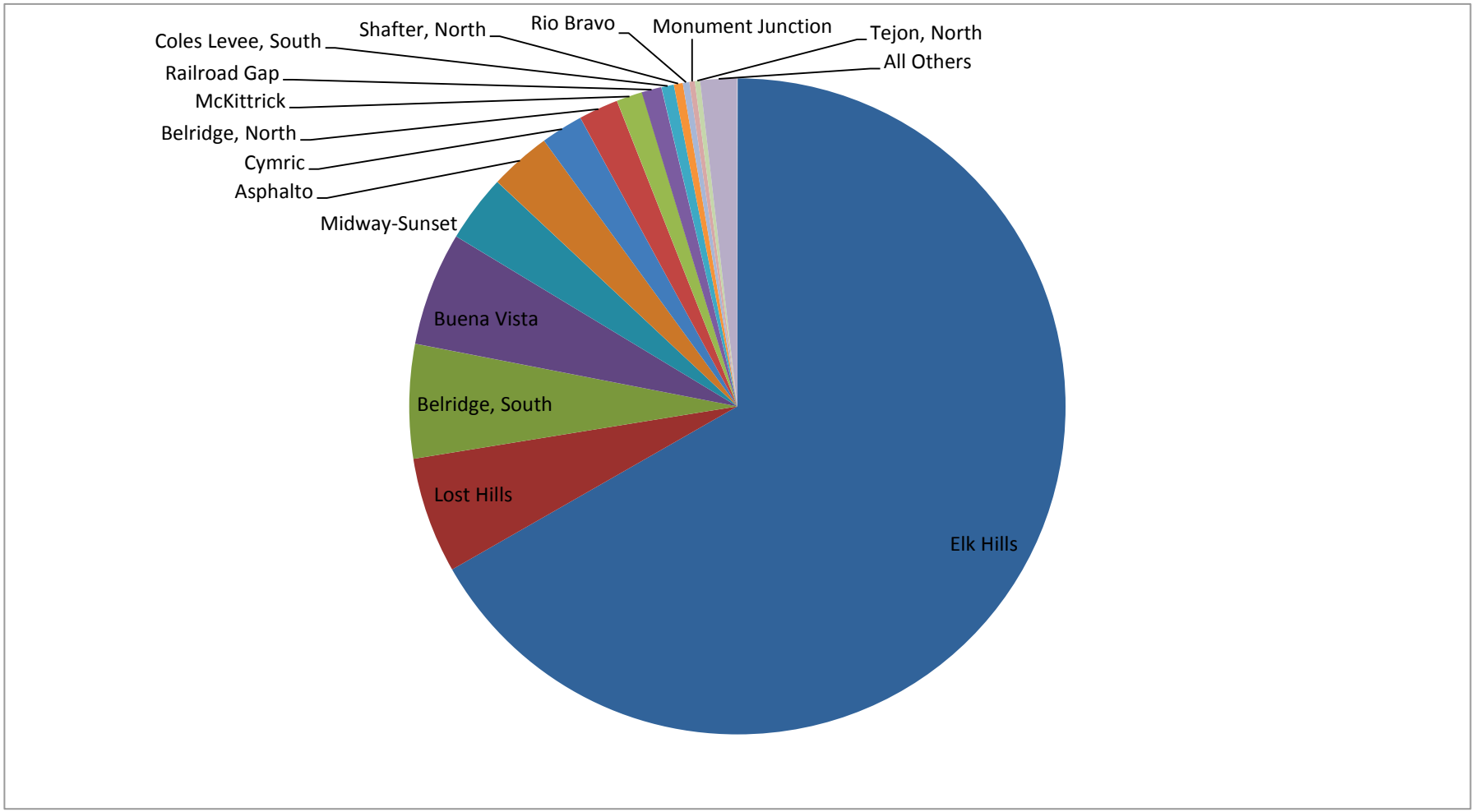


Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Oil Production Trends 2010-2013

May 2015
Figure 4-9

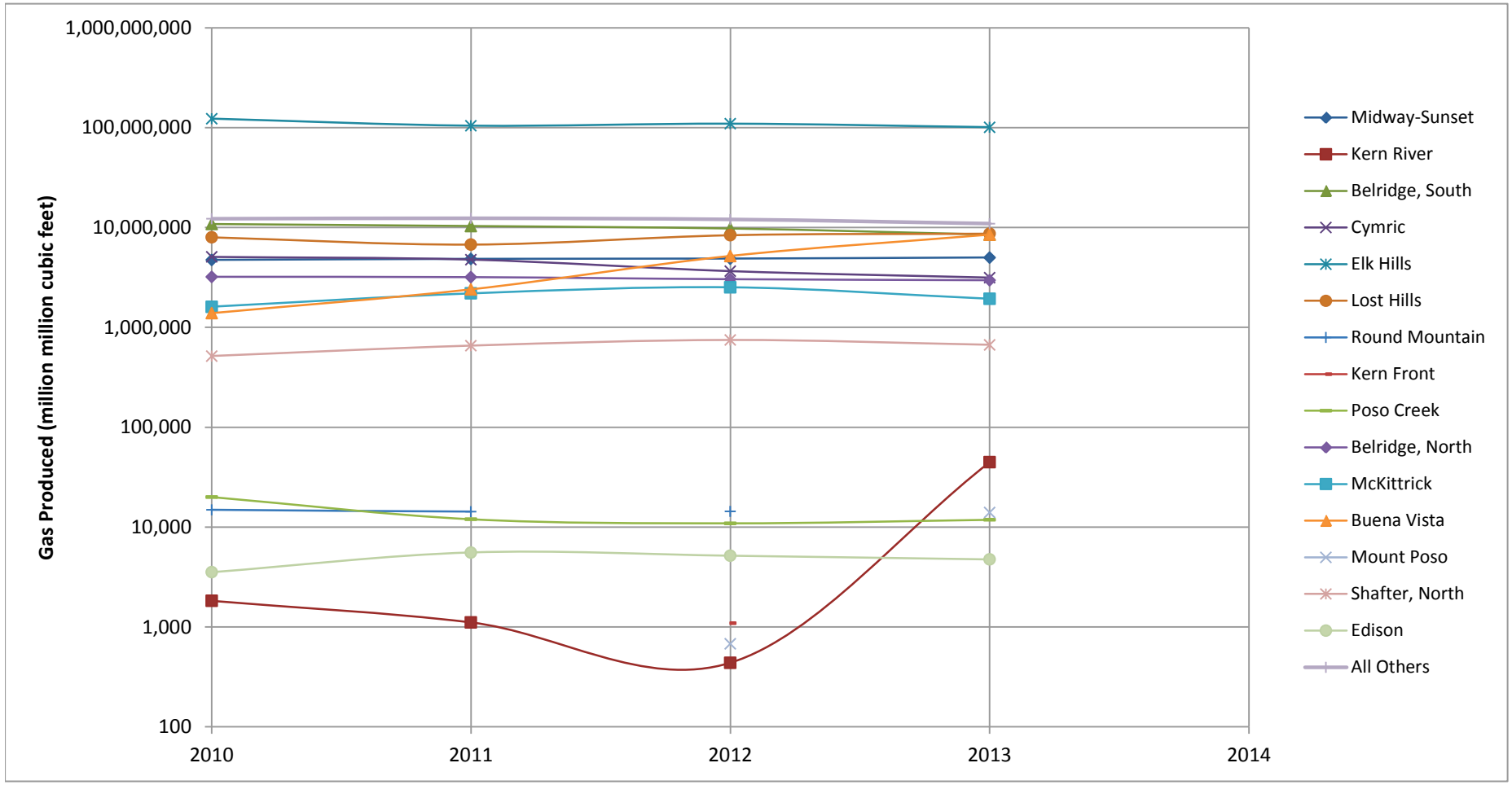


Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Top 15 Gas Producing Fields in Project Area in 2013

May 2015
Figure 4-10

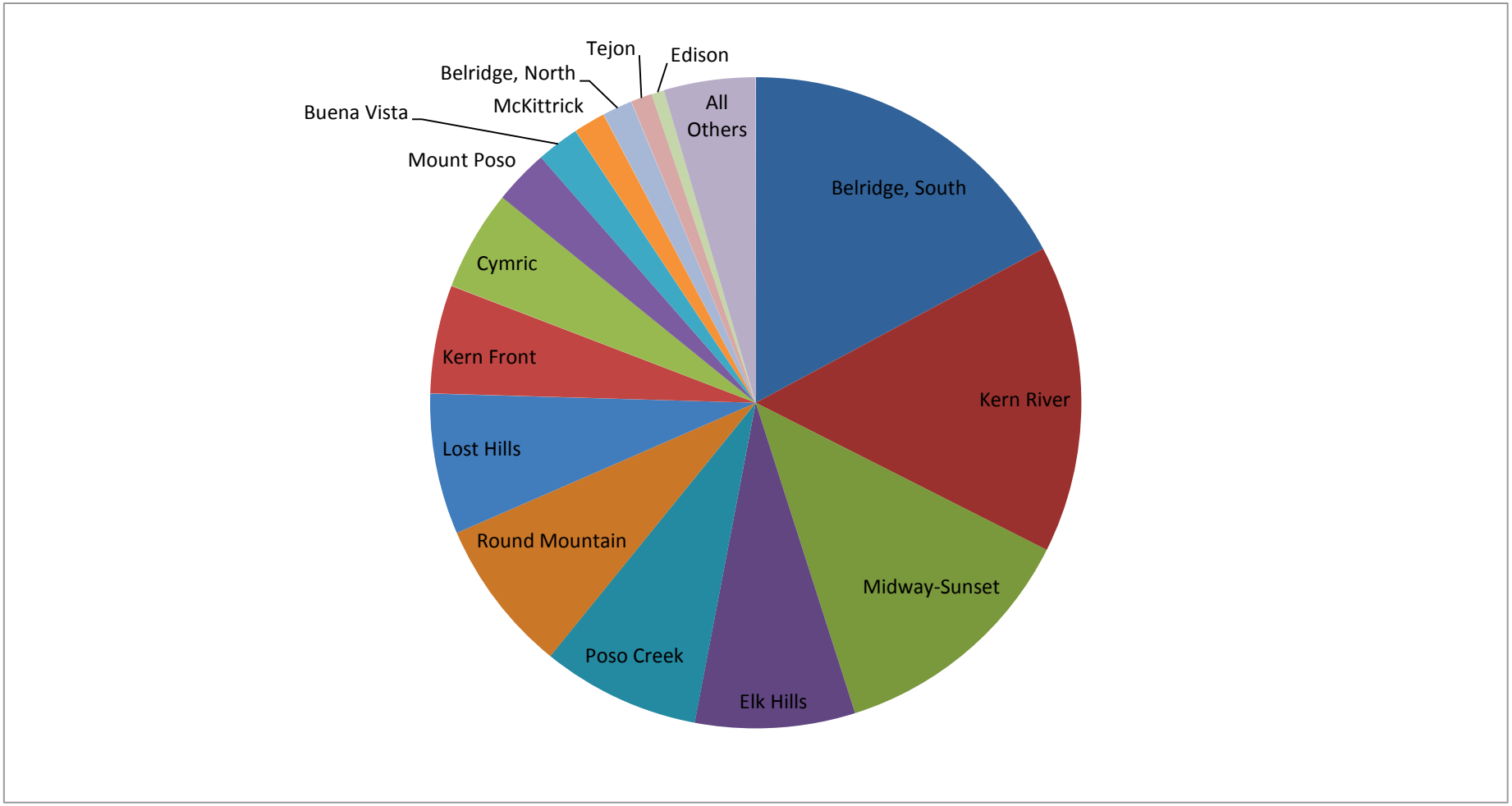


Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Gas Production Trends 2010-2013

May 2015
Figure 4-11

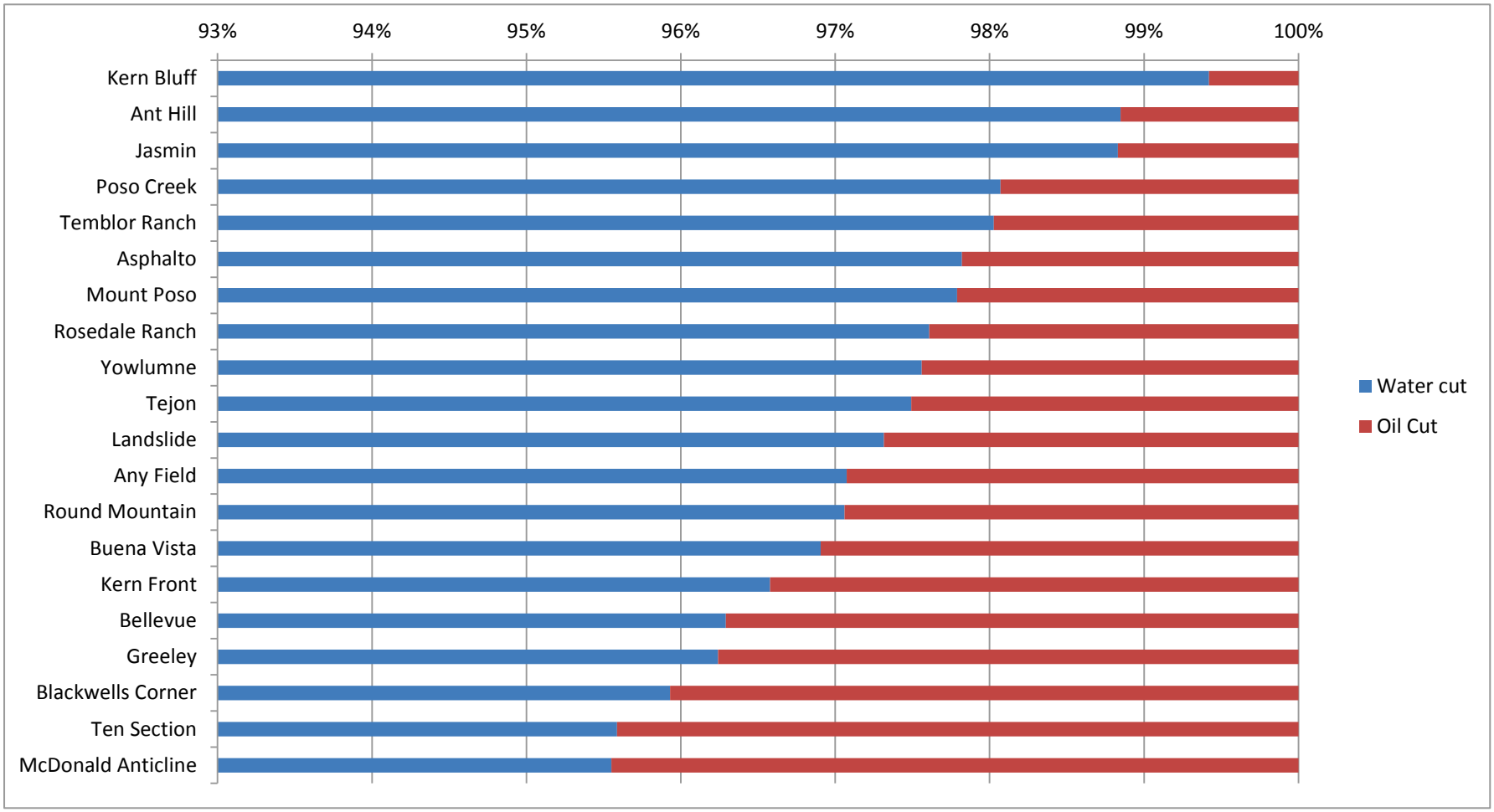


Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Top 15 Water Producing Fields in Project Area in 2013

May 2015
Figure 4-12

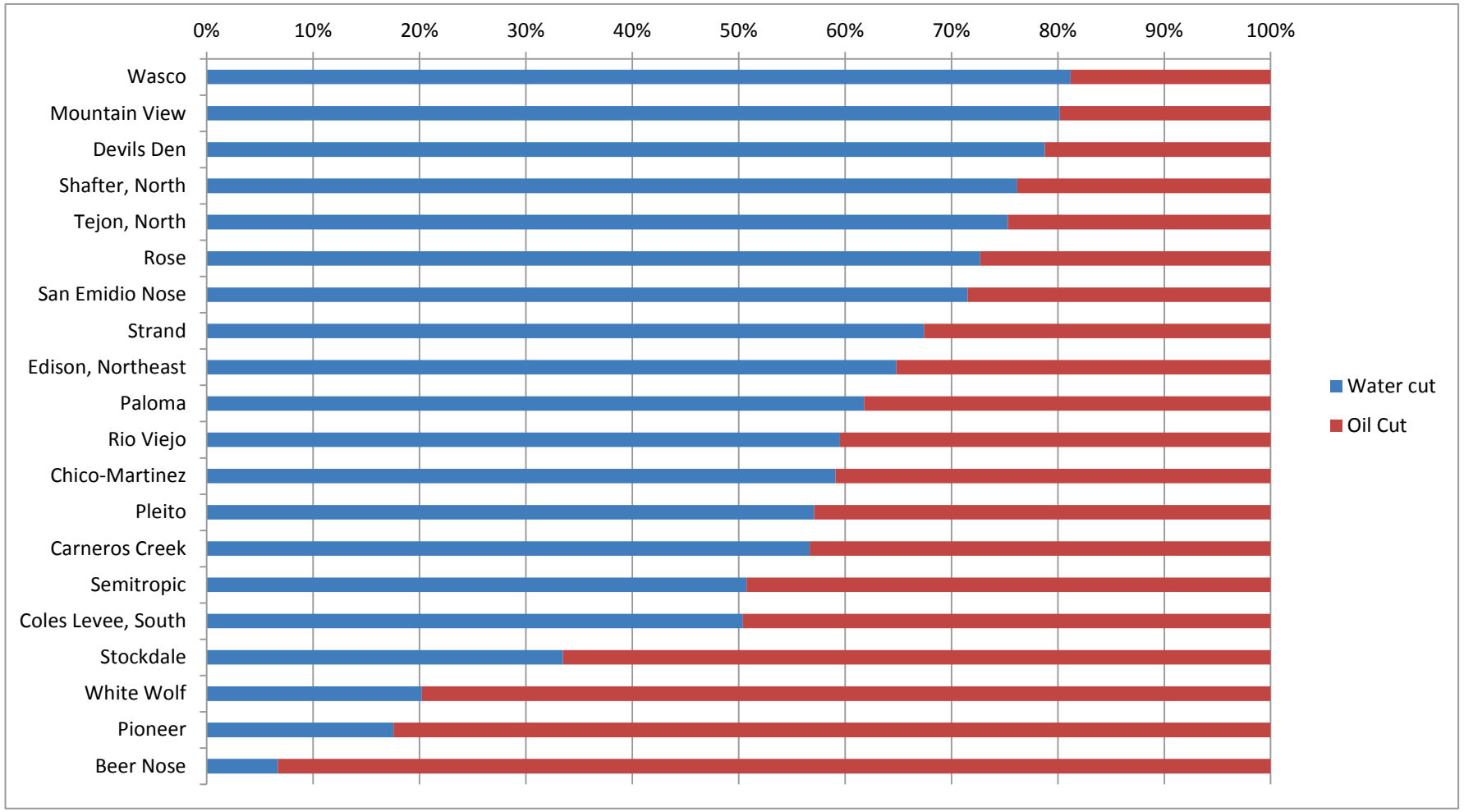


Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Fields with Highest Water to Oil Ratio in 2013

May 2015
Figure 4-13

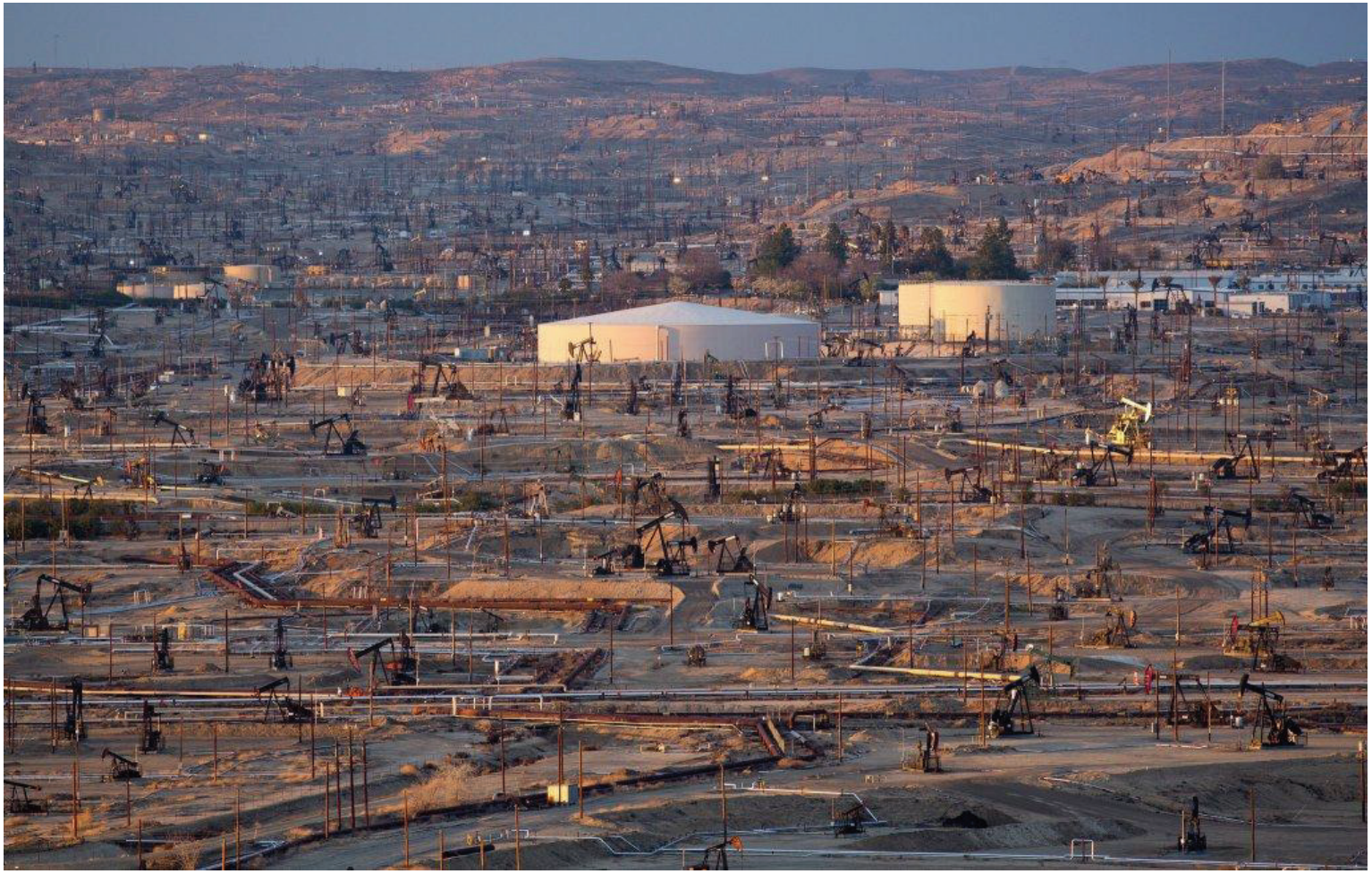


Source: Calif Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.cons ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Fields with Lowest Water to Oil Ratio in 2013

May 2015
Figure 4-14

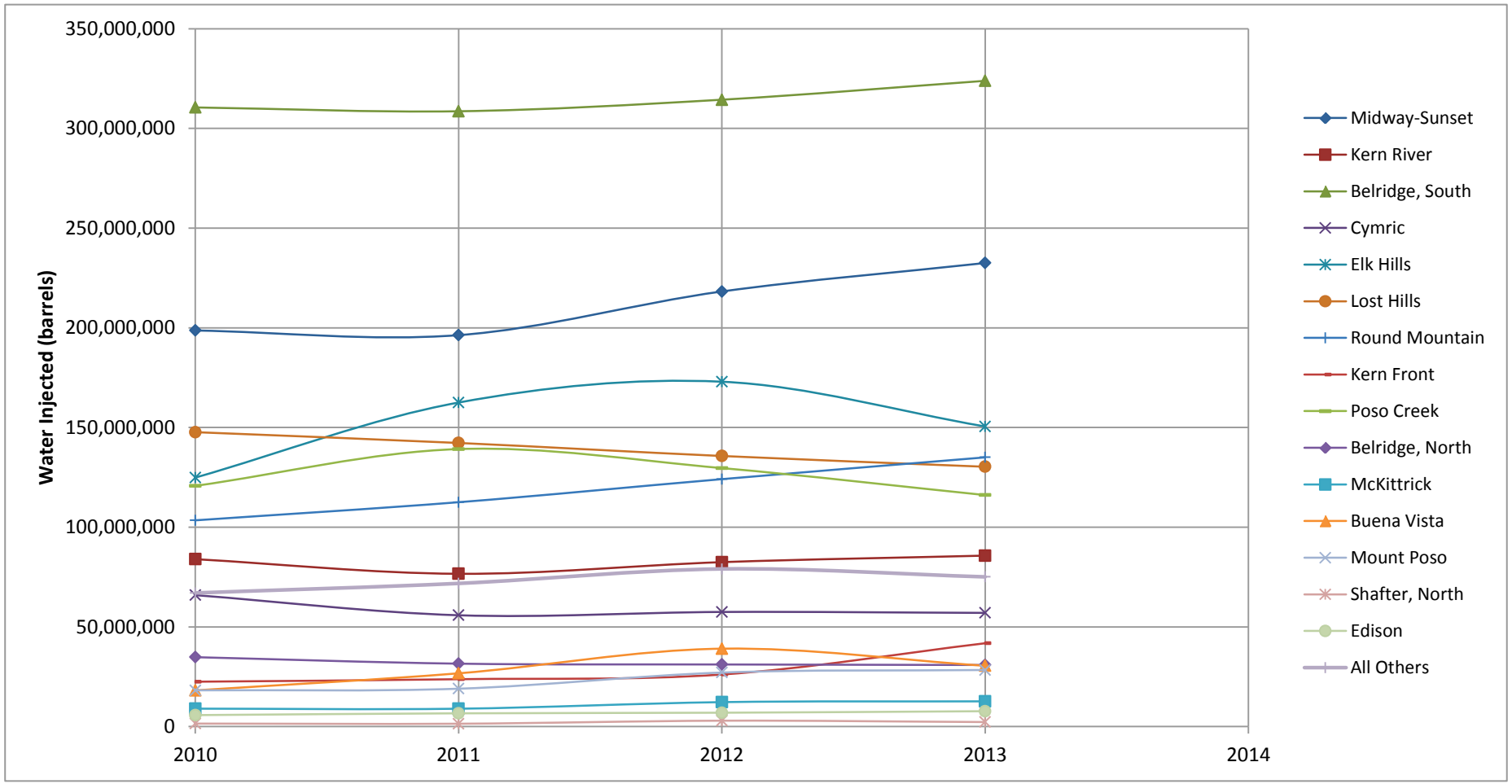


Source: New York Times, Stock Photograph, Kern River Oilfield.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Kern River Oilfield

May 2015
Figure 4-15



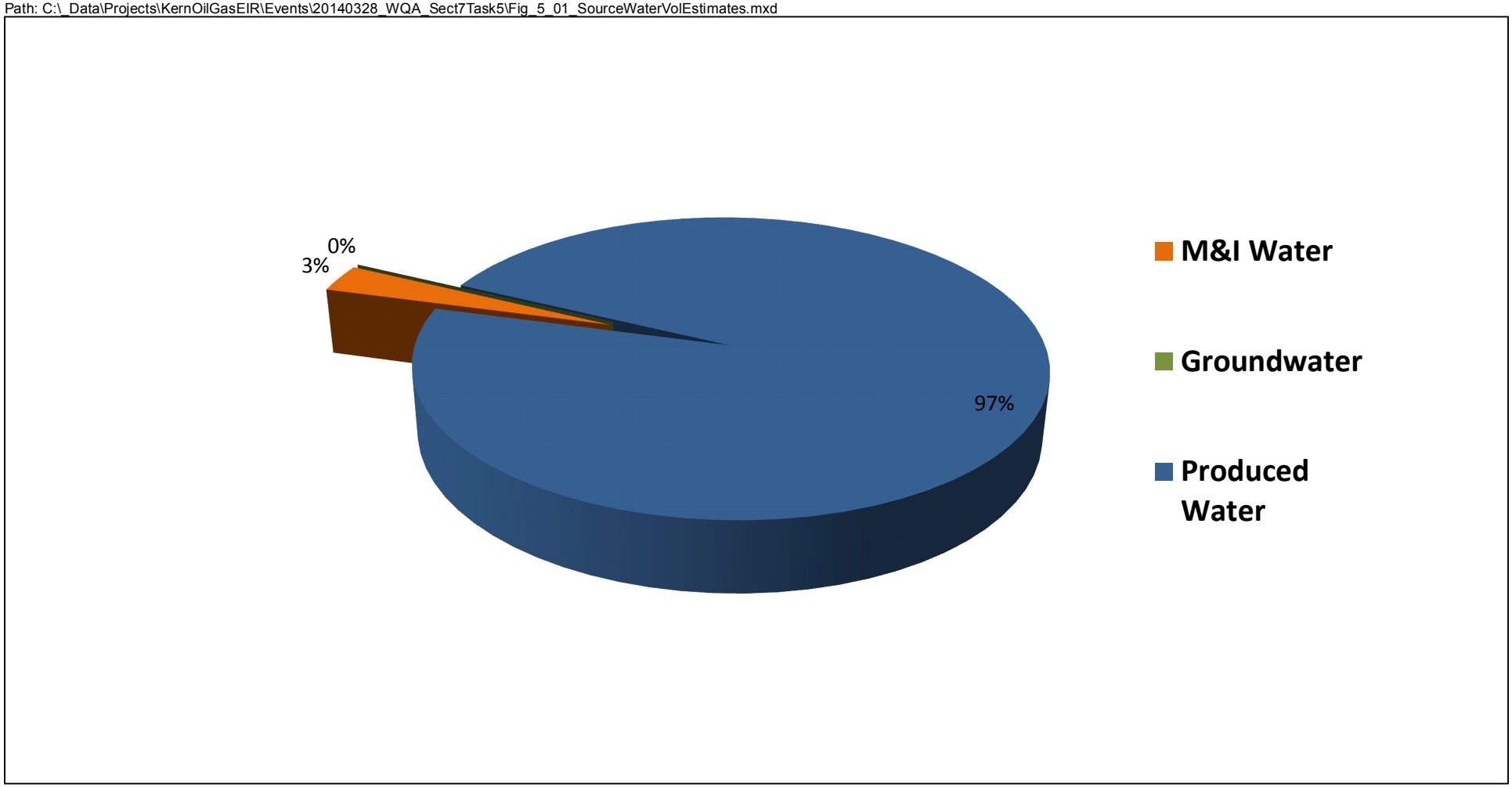
Source: California Division of Oil, Gas, and Geothermal Resources online database, ftp://ftp.consrv.ca.gov/pub/oil/new_database_format/ , last accessed 2/24/2014.

Oil and Gas EIR
Kern County, CA
Water Quality Assessment

Water/Steam Injection Trends 2010-2013

May 2015
Figure 4-16

Path: C:_Data\Projects\KernOilGasEIR\Events\20140328_WQA_Sect7Task5\Fig_5_01_SourceWaterVolEstimates.mxd



Note:
Municipal and Industrial water sources, including groundwater extracted for oilfield operations.

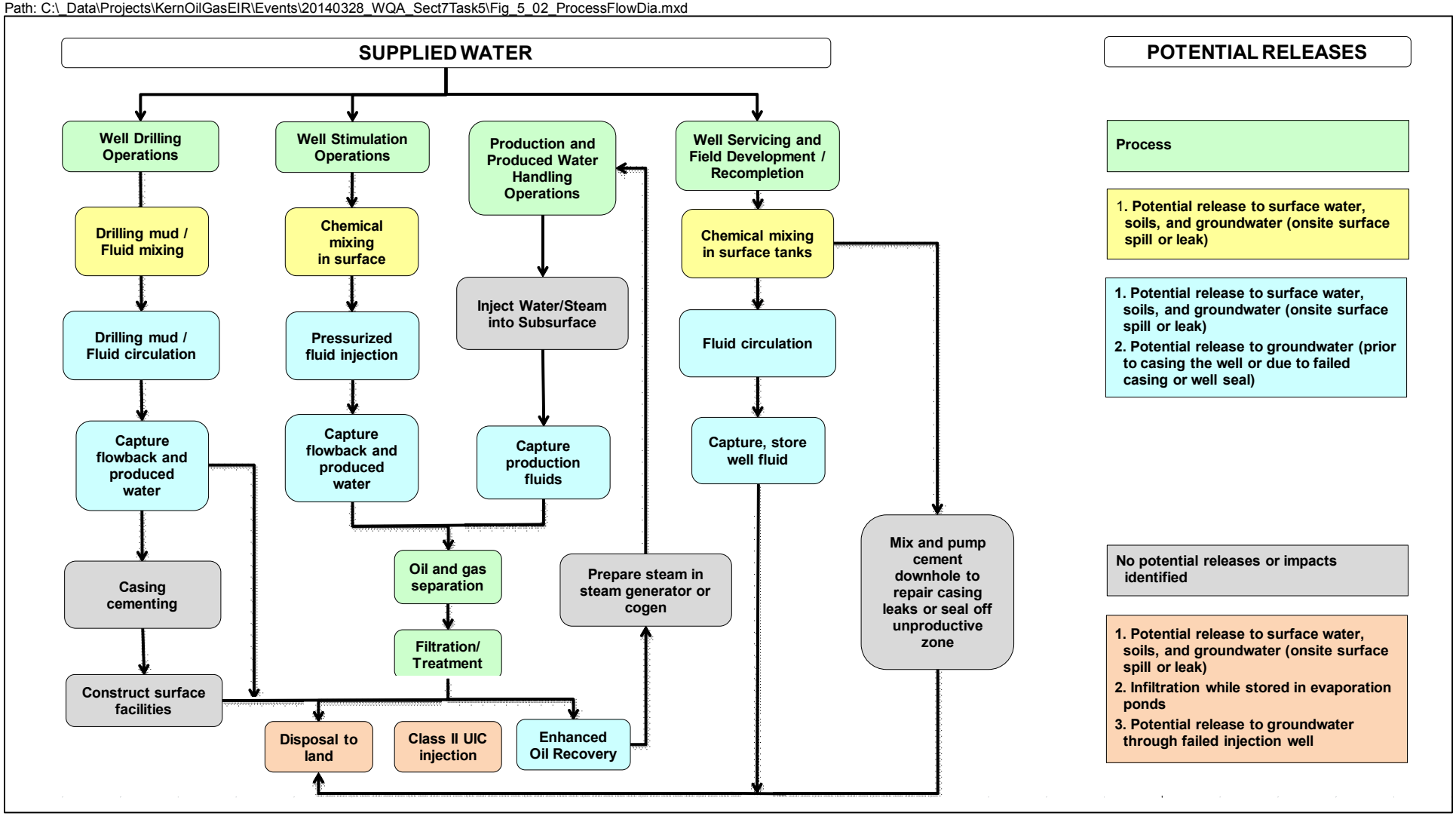
Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Volume of Water Handled During Production in 2012

May 2015

Figure 5-1

Path: C:_Data\Projects\KernOilGasEIR\Events\20140328_WQA_Sect7Task5\Fig_5_02_ProcessFlowDia.mxd



Oil & Gas EIR
Kern County, CA
Water Quality Assessment

Process Flow Diagram for Oilfield Activities Using Water

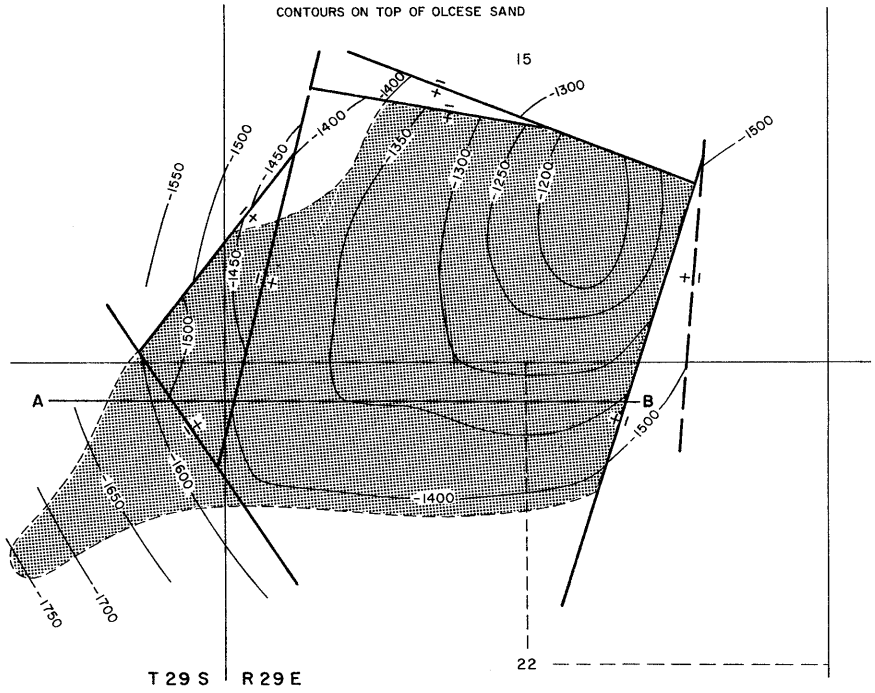
May 2015

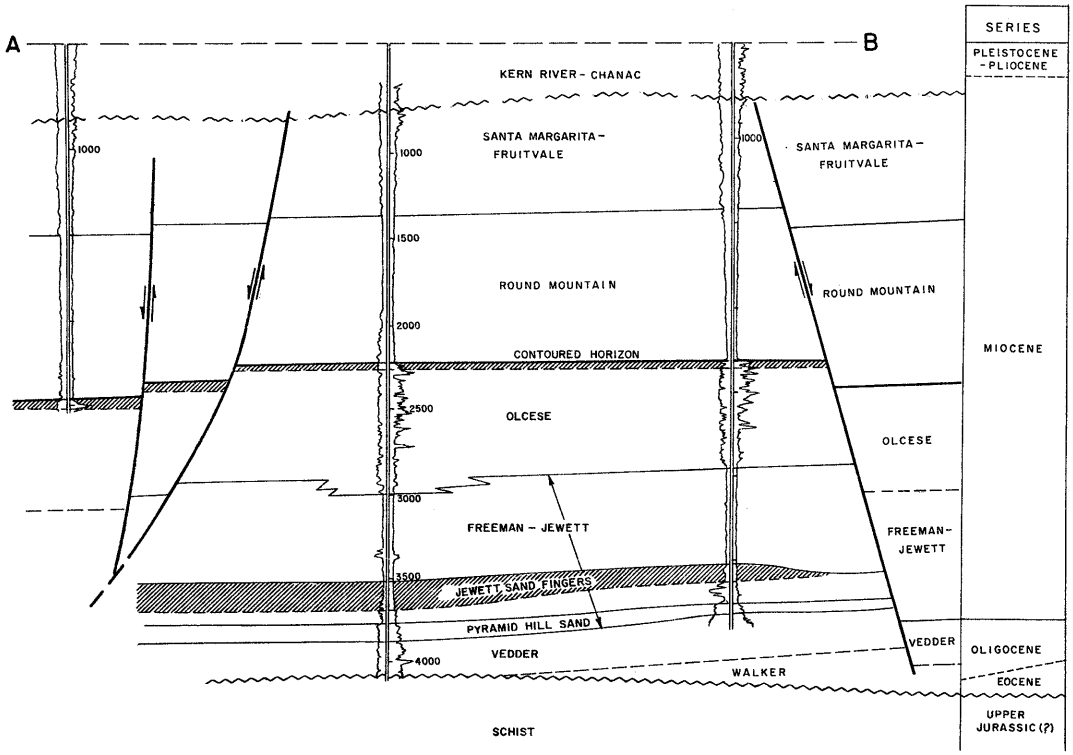
Figure 5-2

Appendix A

Field Cross Sections

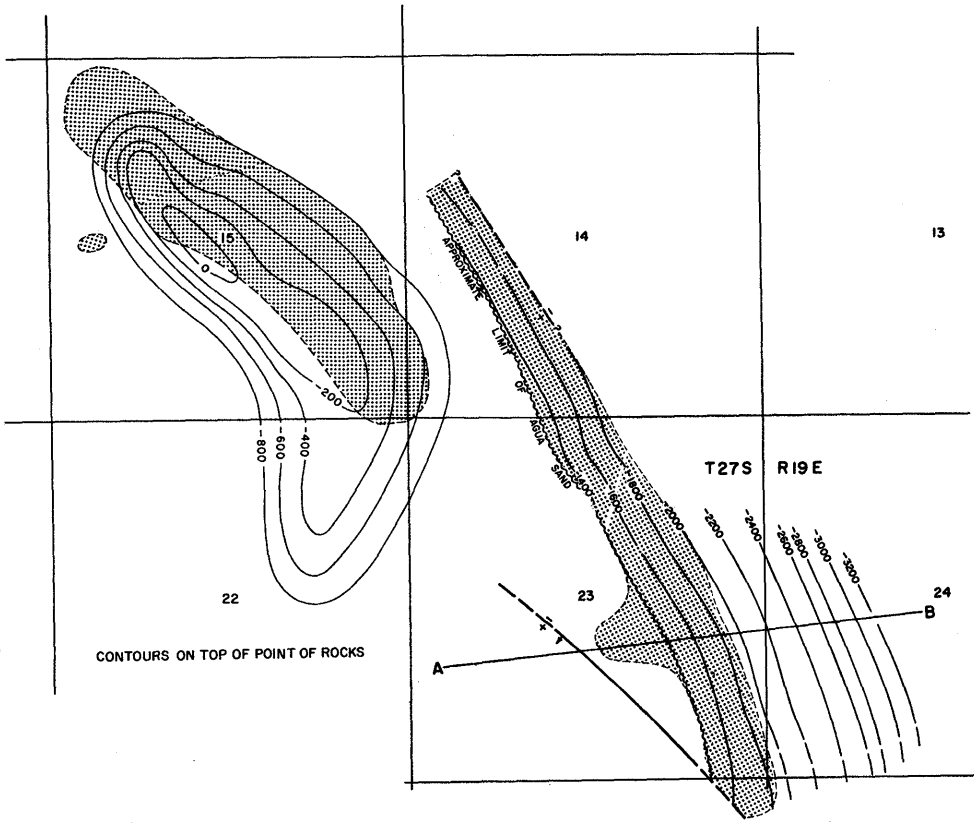
ANT HILL OIL FIELD





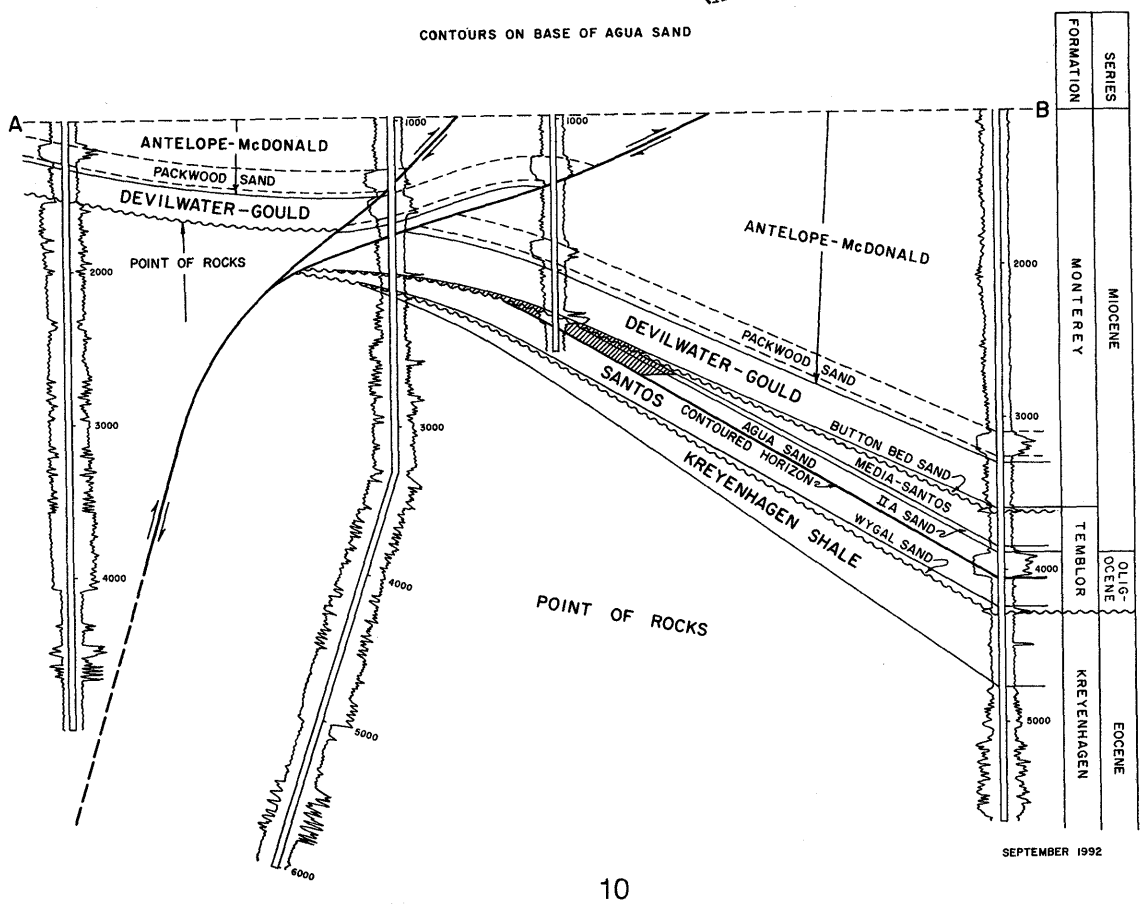
FEBRUARY 1980

NORTH ANTELOPE HILLS OIL FIELD



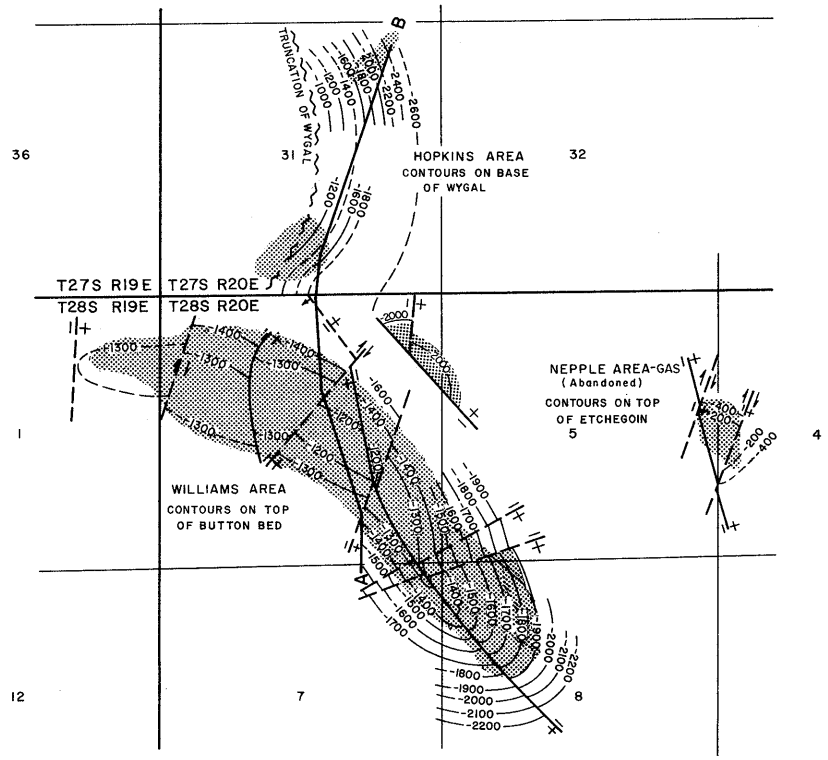
CONTOURS ON TOP OF POINT OF ROCKS

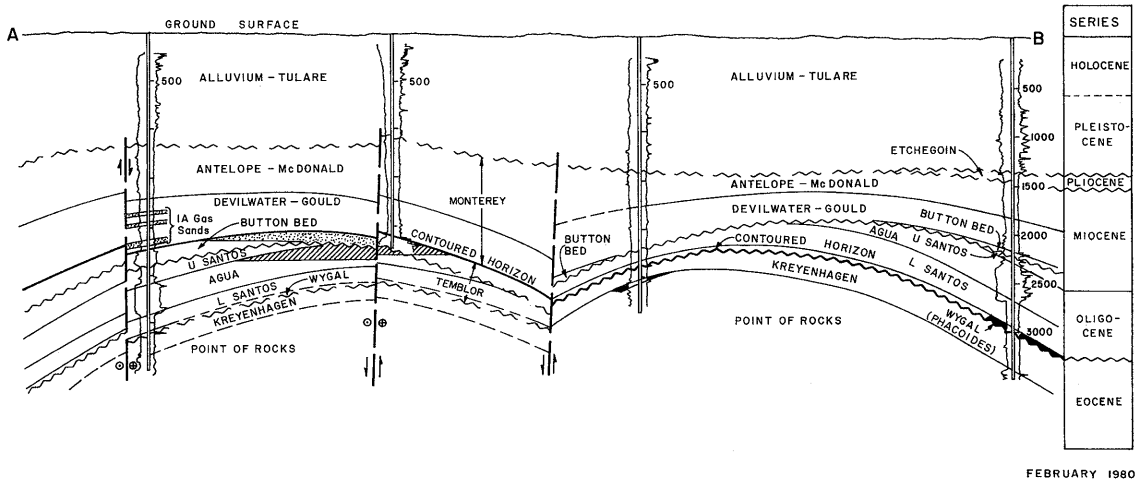
CONTOURS ON BASE OF AGUA SAND



SEPTEMBER 1992

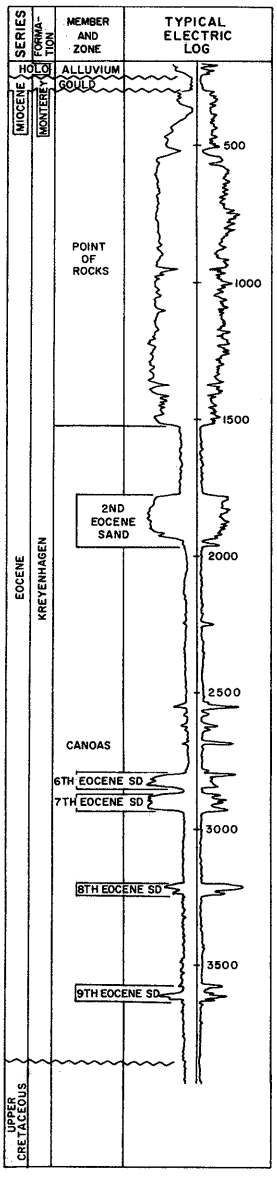
ANTELOPE HILLS OIL FIELD



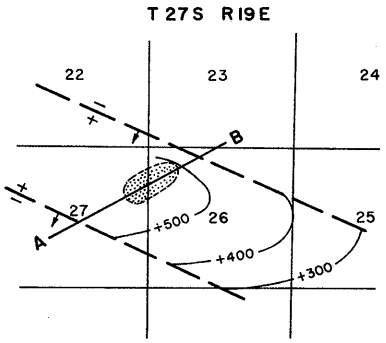


FEBRUARY 1980

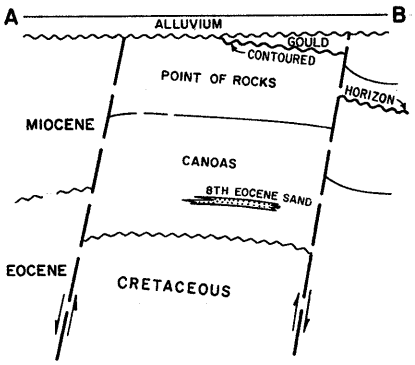
ANTELOPE PLAINS GAS FIELD
(Abandoned)



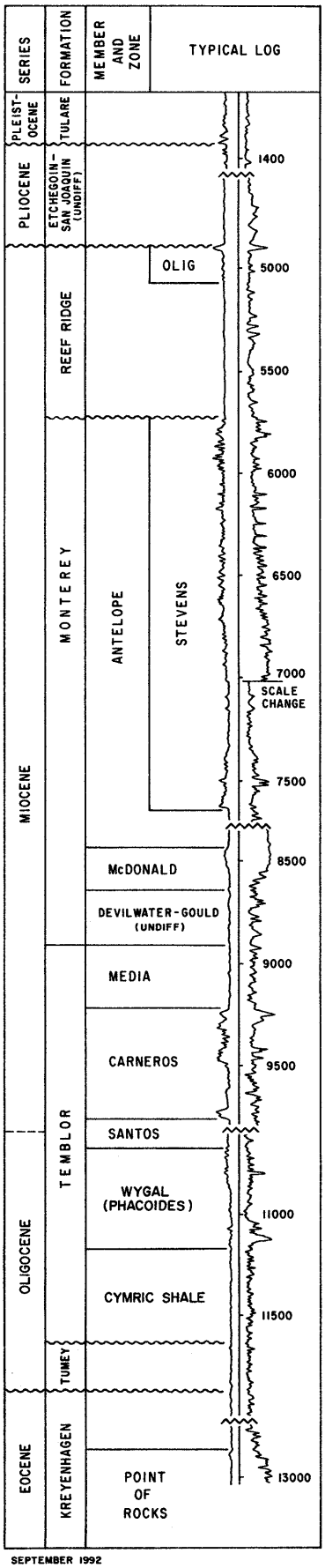
FEBRUARY 1980



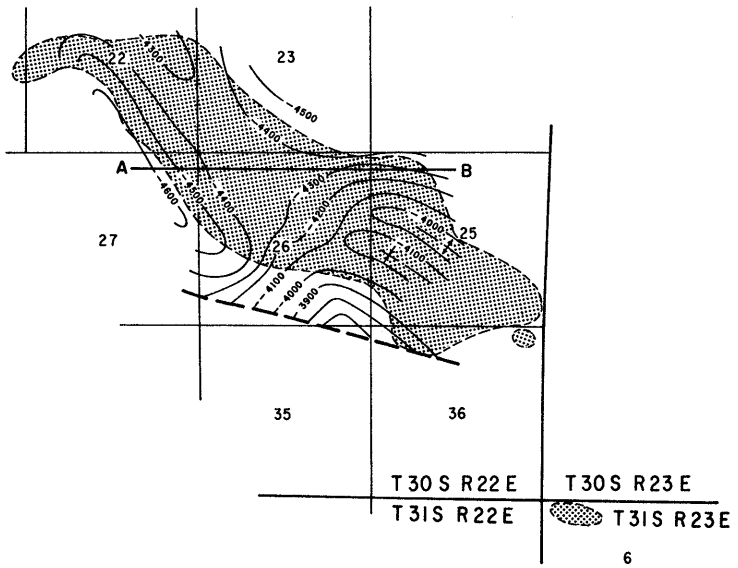
CONTOURS ON TOP OF POINT OF ROCKS



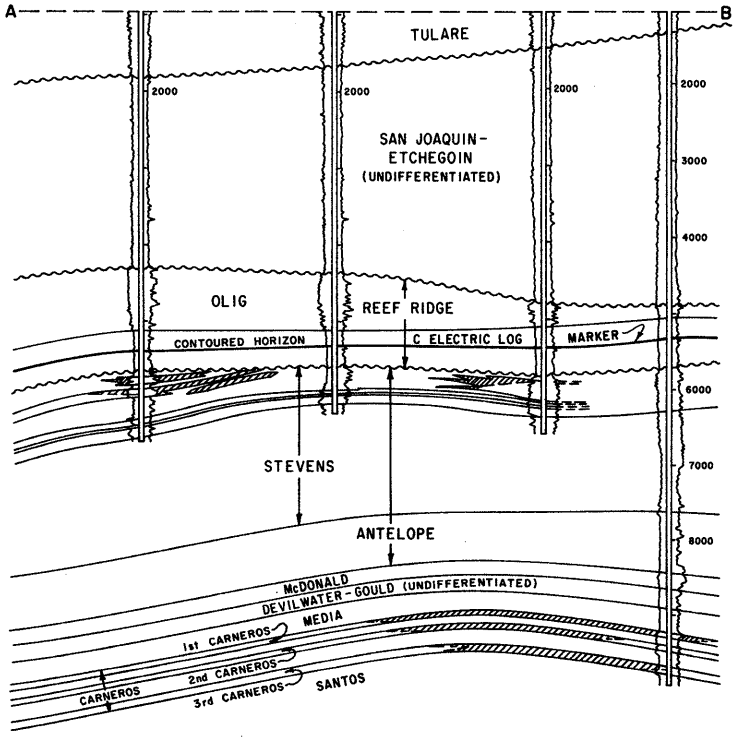
ASPHALTO OIL FIELD



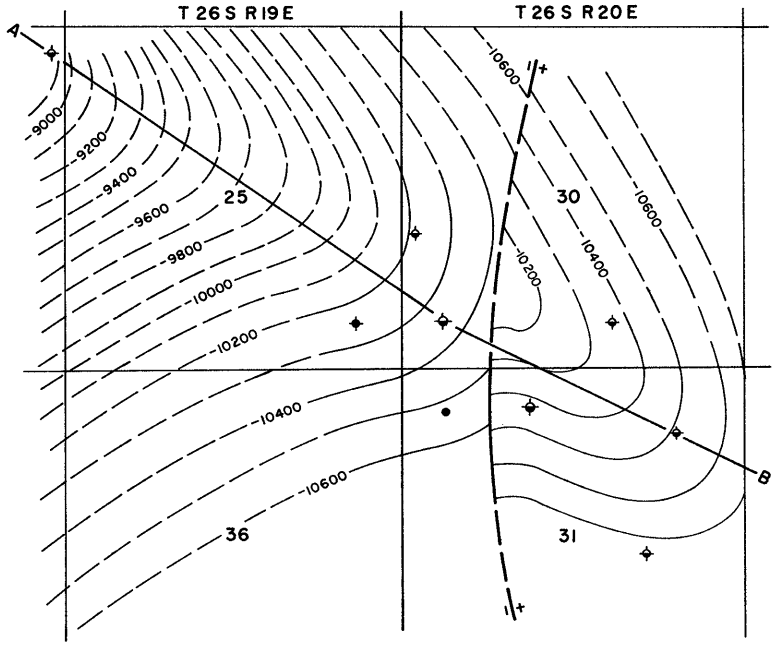
SEPTEMBER 1992



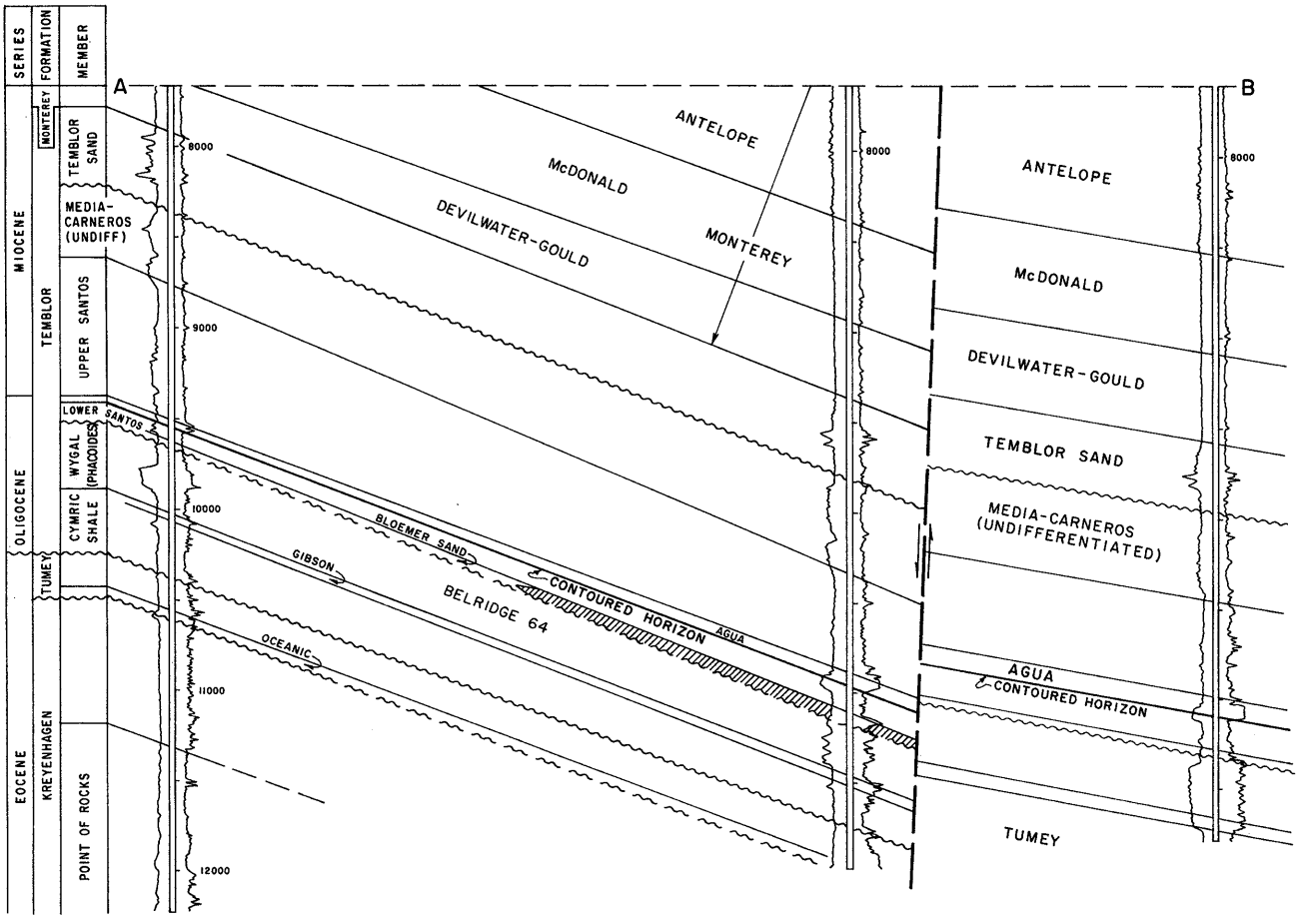
CONTOURS ON C ELECTRIC LOG MARKER



BEER NOSE OIL FIELD

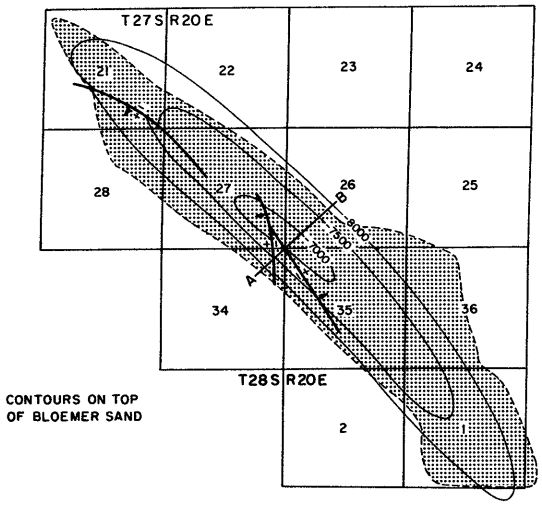


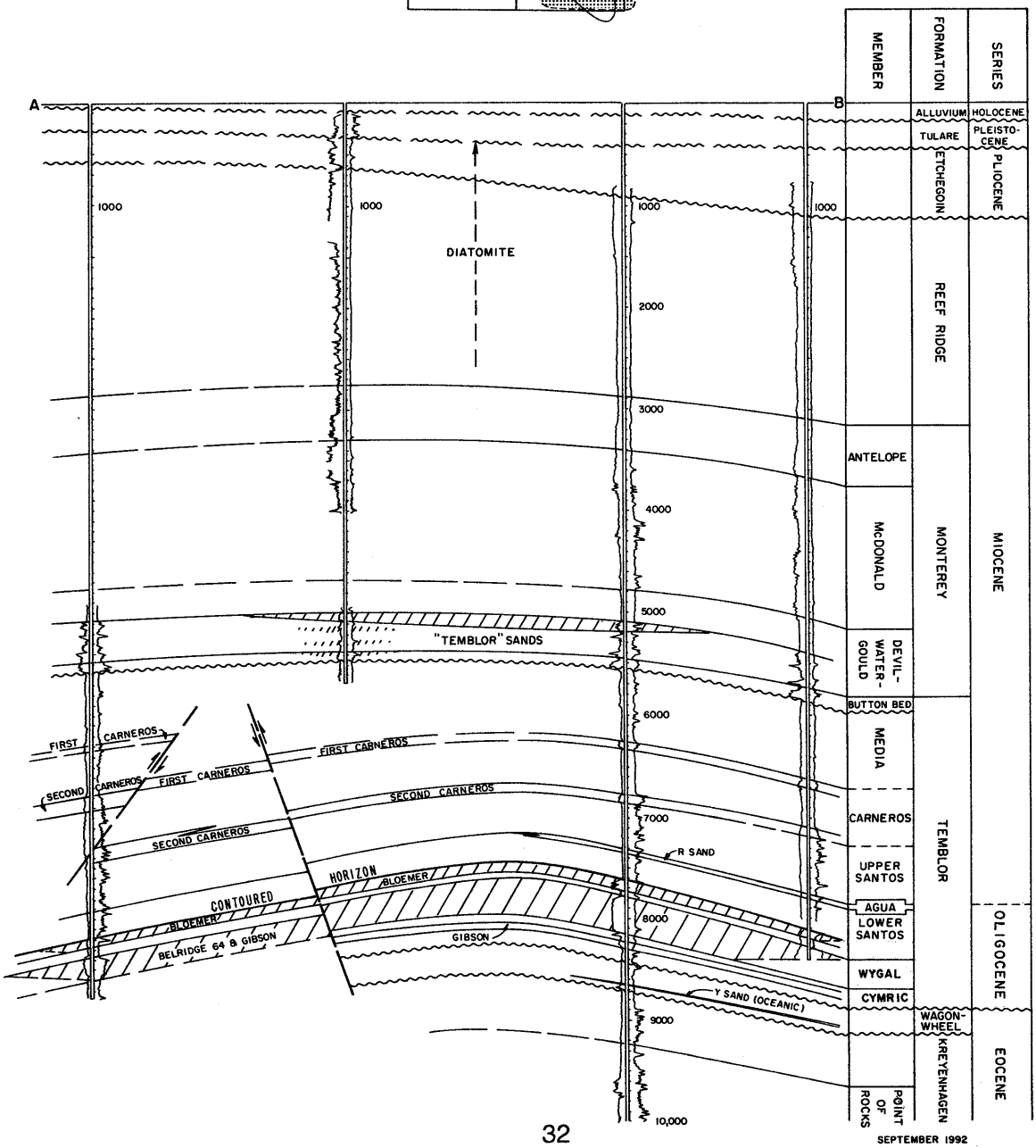
CONTOURS ON TOP OF LOWER SANTOS



FEBRUARY 1980

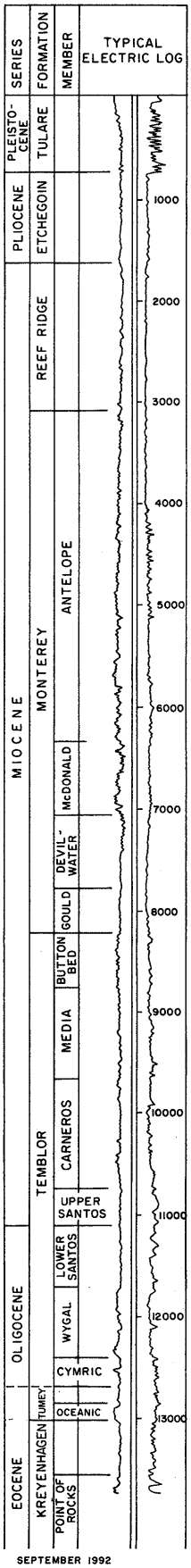
NORTH BELRIDGE

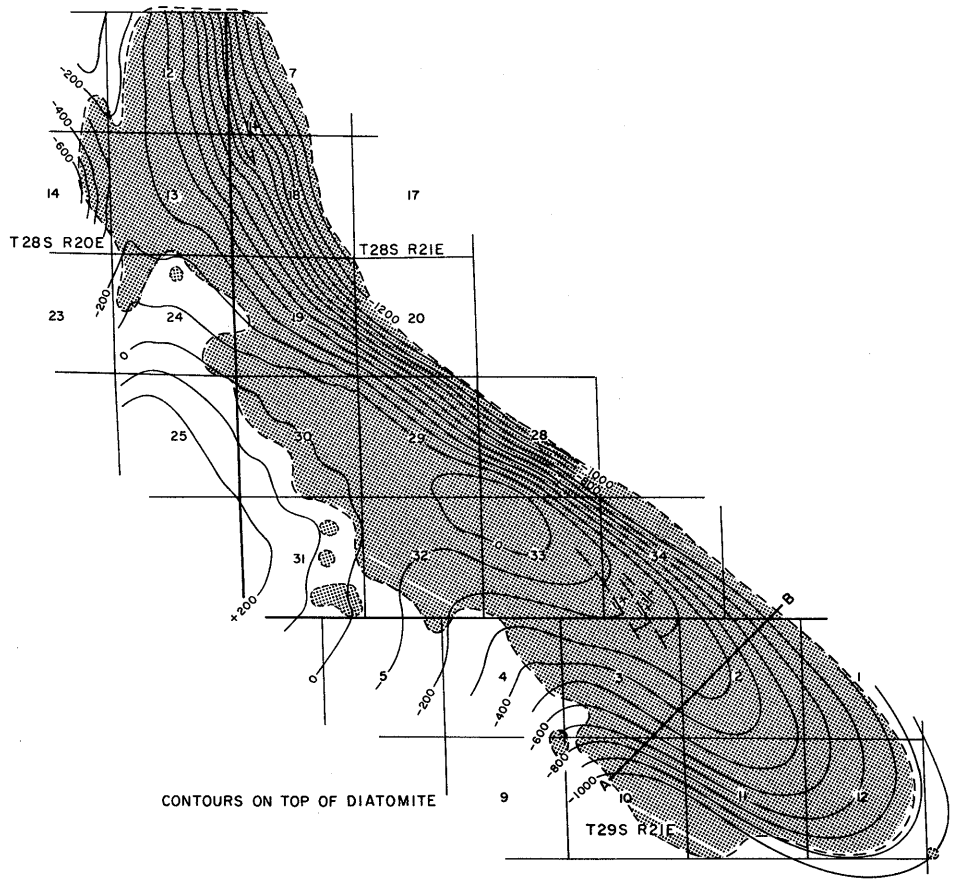


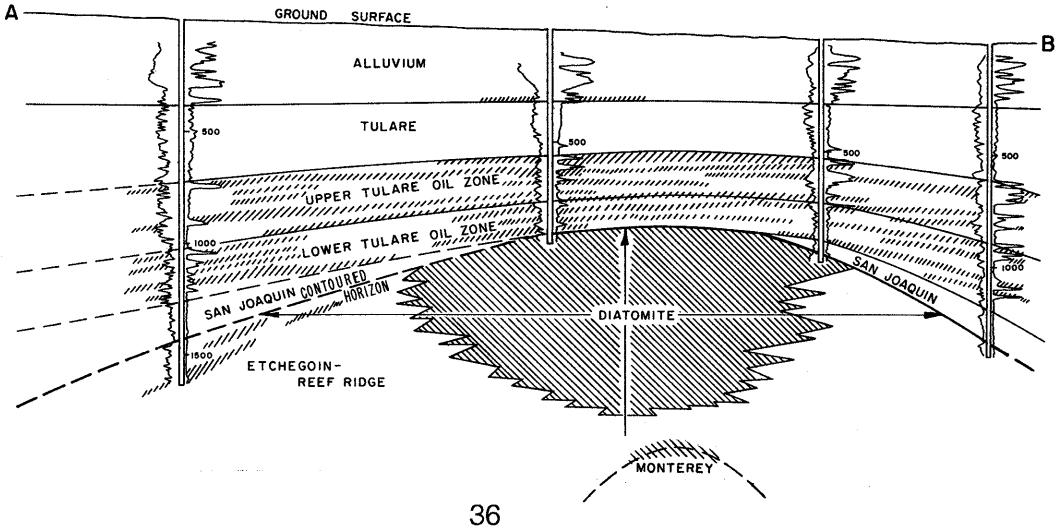


SEPTEMBER 1992

SOUTH BELRIDGE



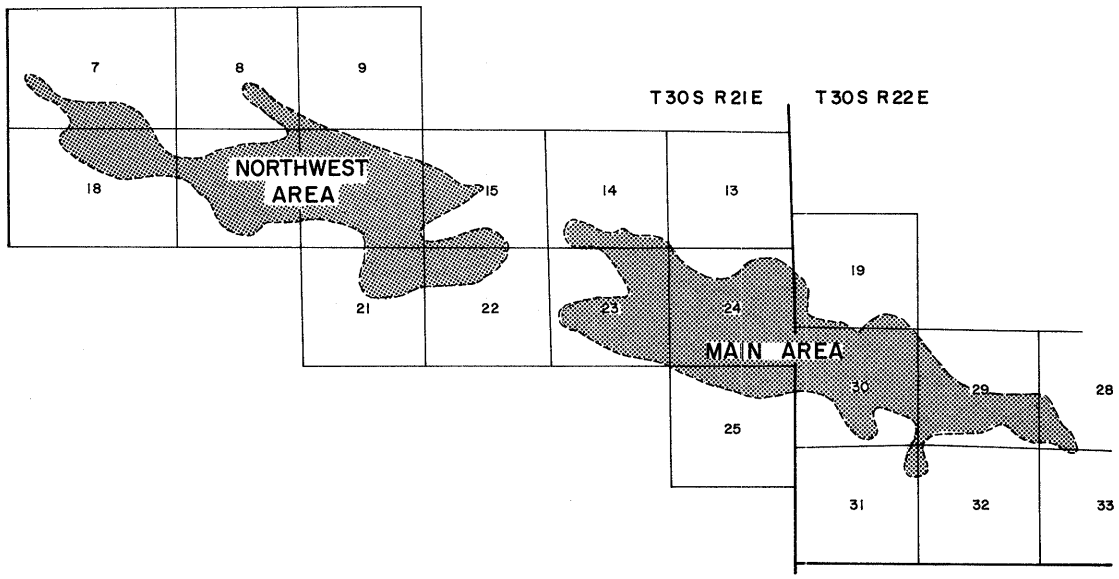




SEPTEMBER 1992

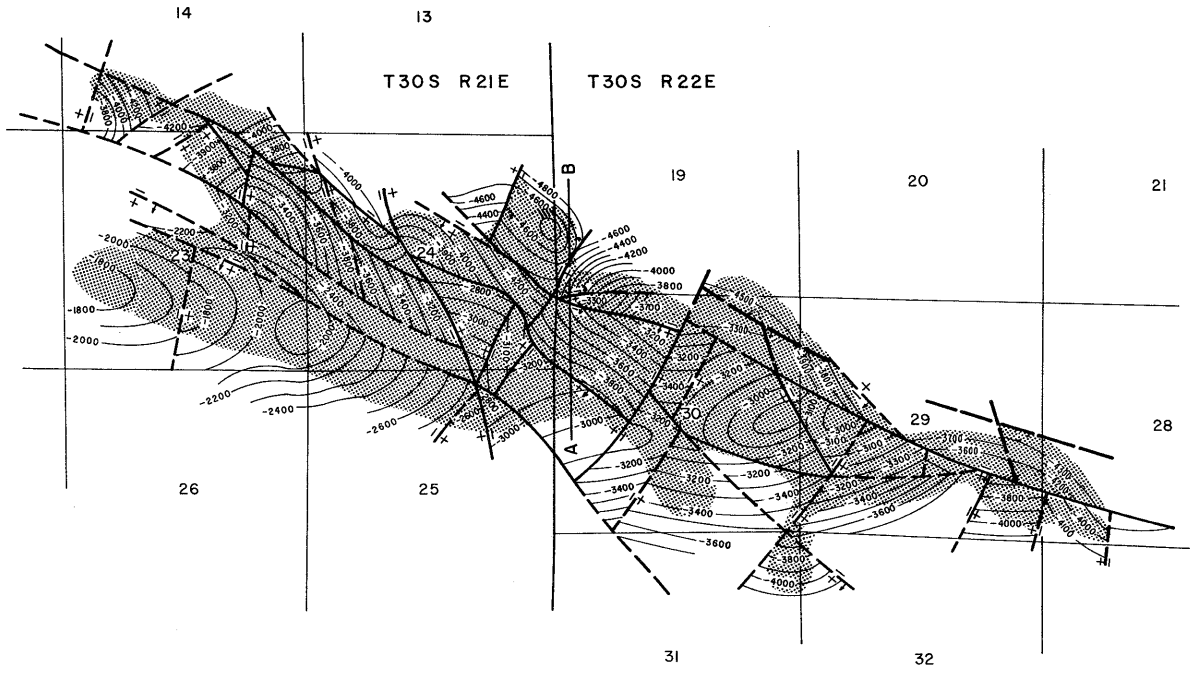
BELGIAN ANTICLINE OIL FIELD

Index Map

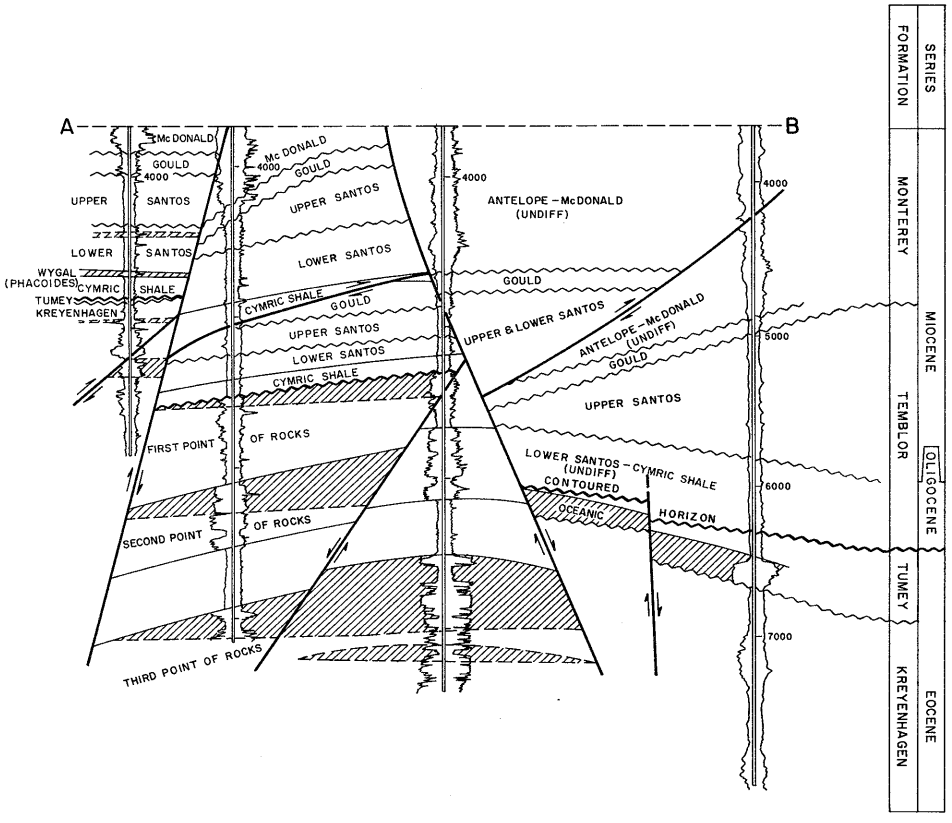


FEBRUARY 1980

BELGIAN ANTICLINE OIL FIELD
Main Area

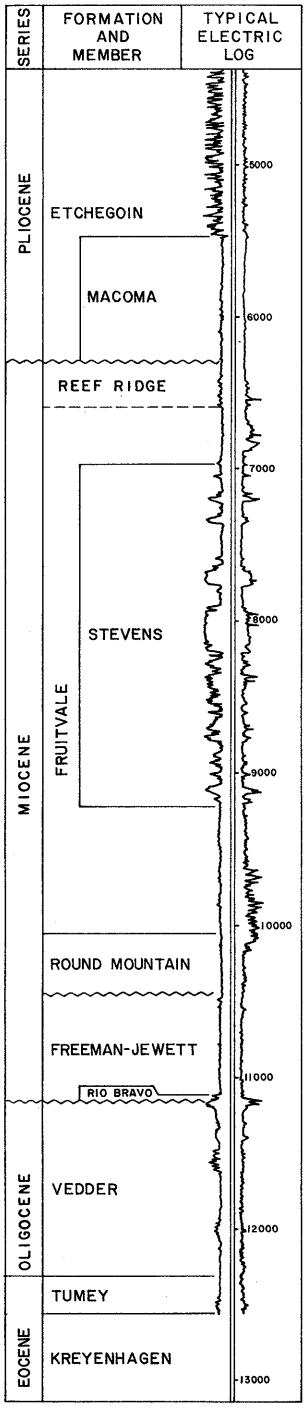


CONTOURS ON BASE OF TEMBLOR

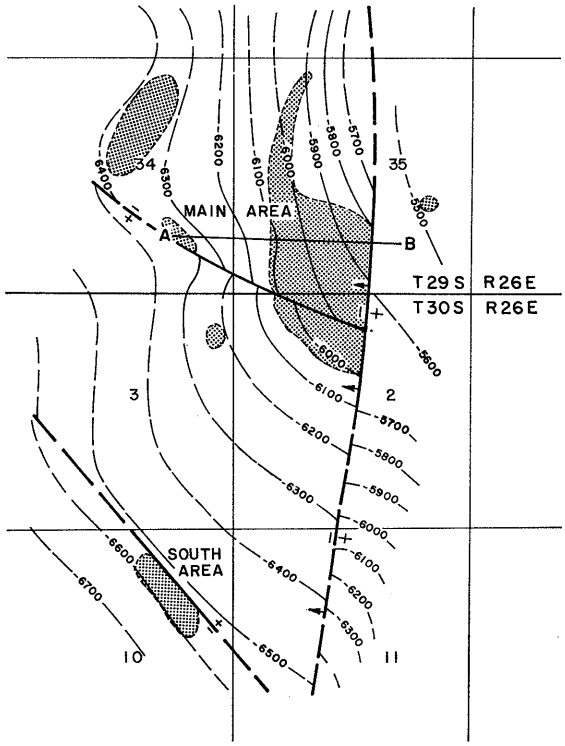


FEBRUARY 1980

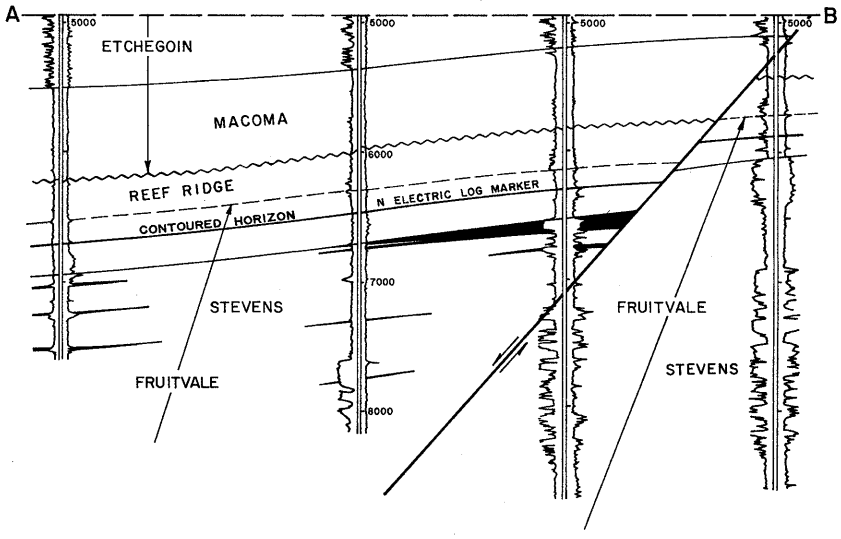
BELLEVUE OIL FIELD



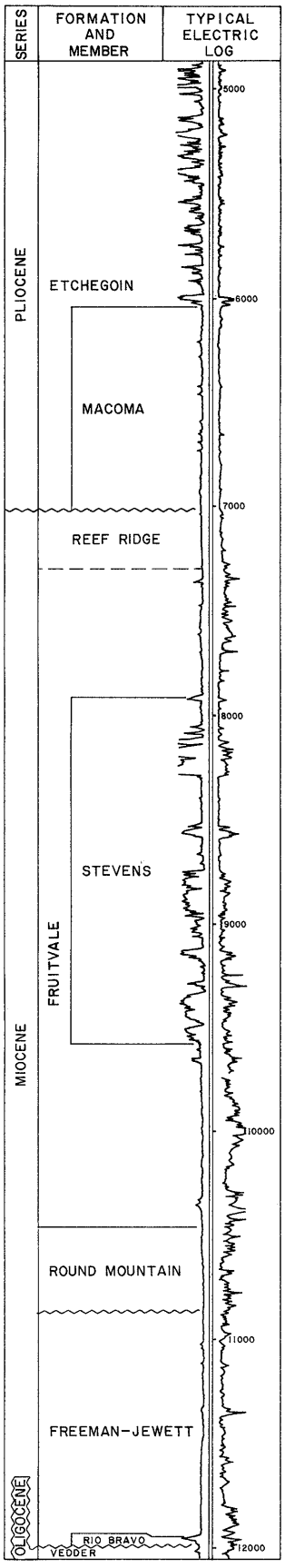
FEBRUARY 1980

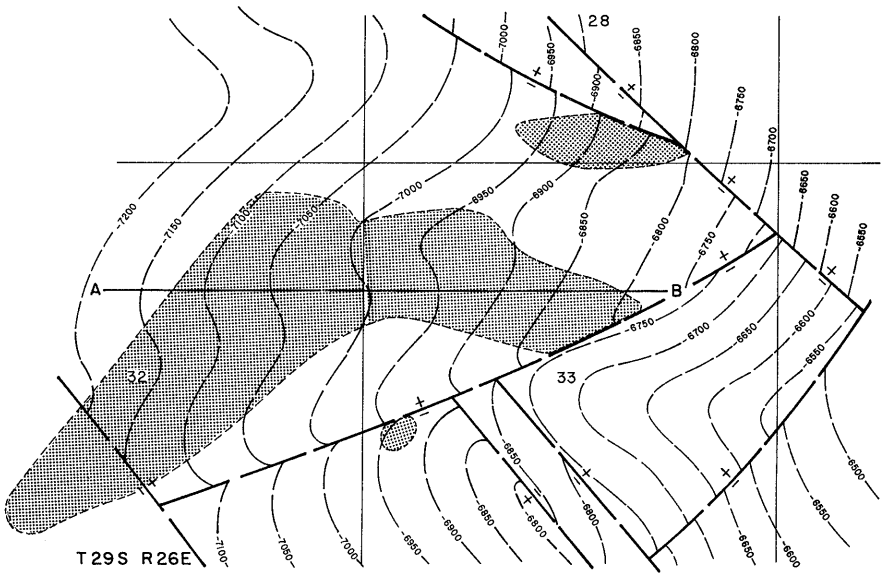


CONTOURS ON N ELECTRIC LOG MARKER

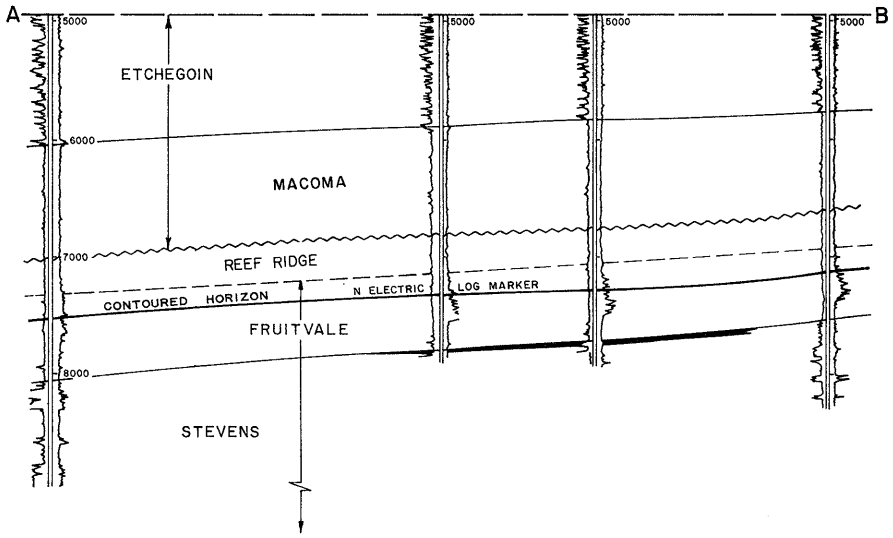


WEST BELLEVUE OIL FIELD



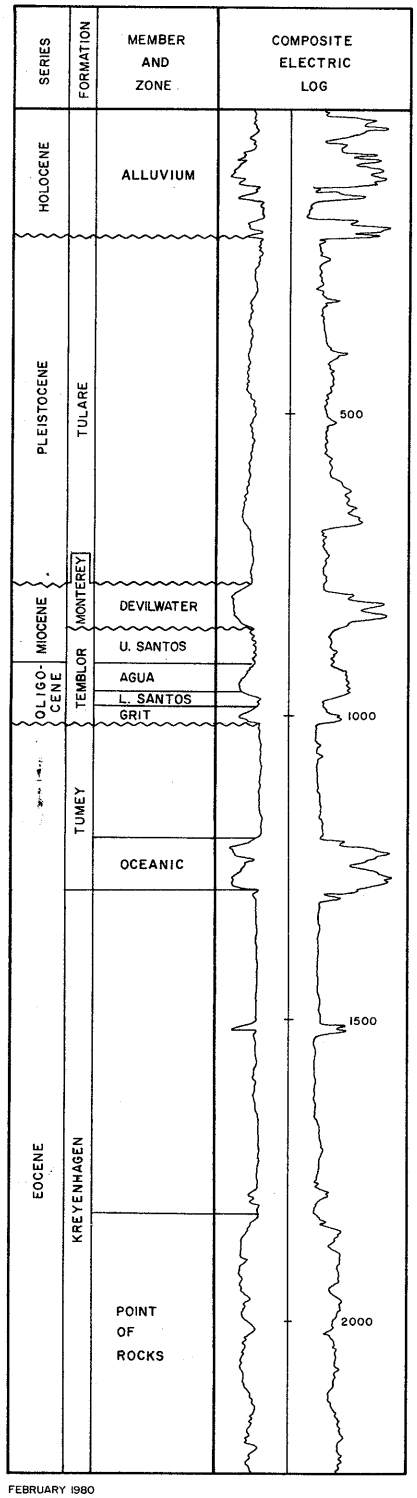


CONTOURS ON N ELECTRIC LOG MARKER

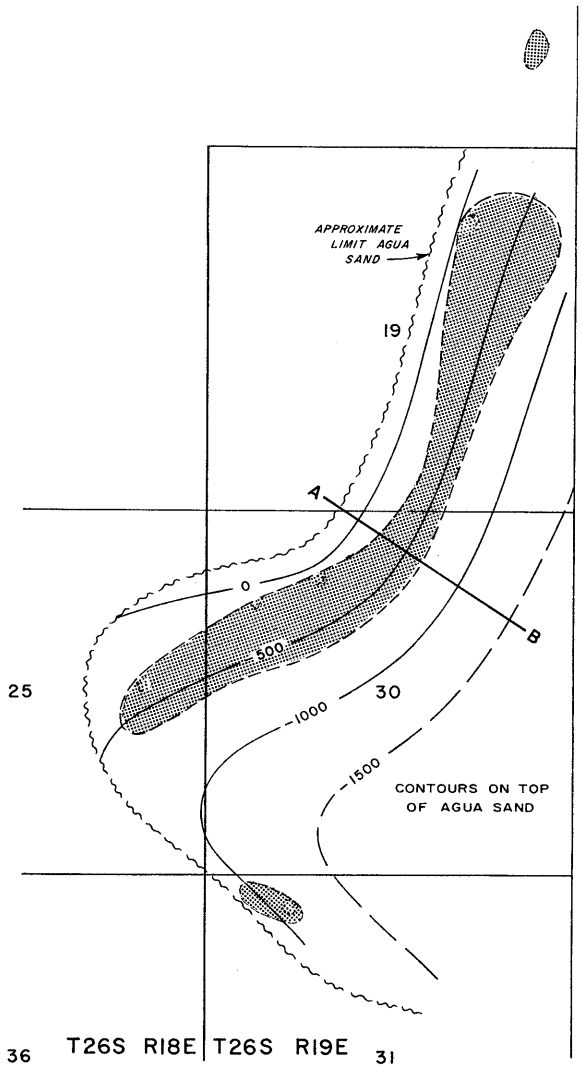


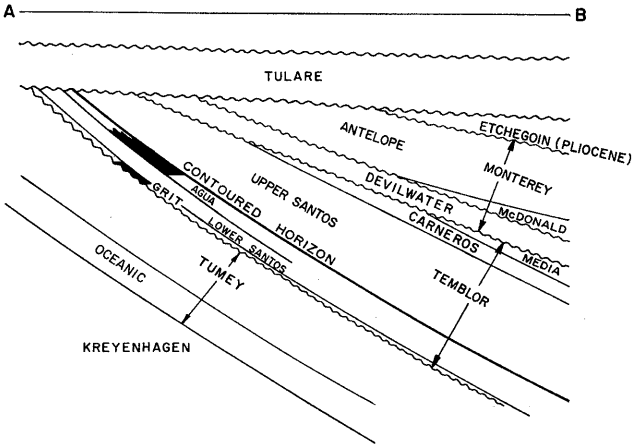
FEBRUARY 1980

BLACKWELLS CORNER OIL FIELD

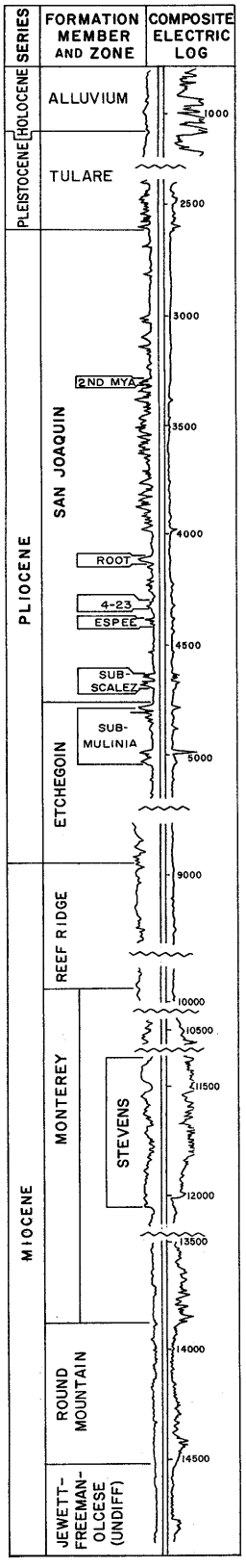


FEBRUARY 1980

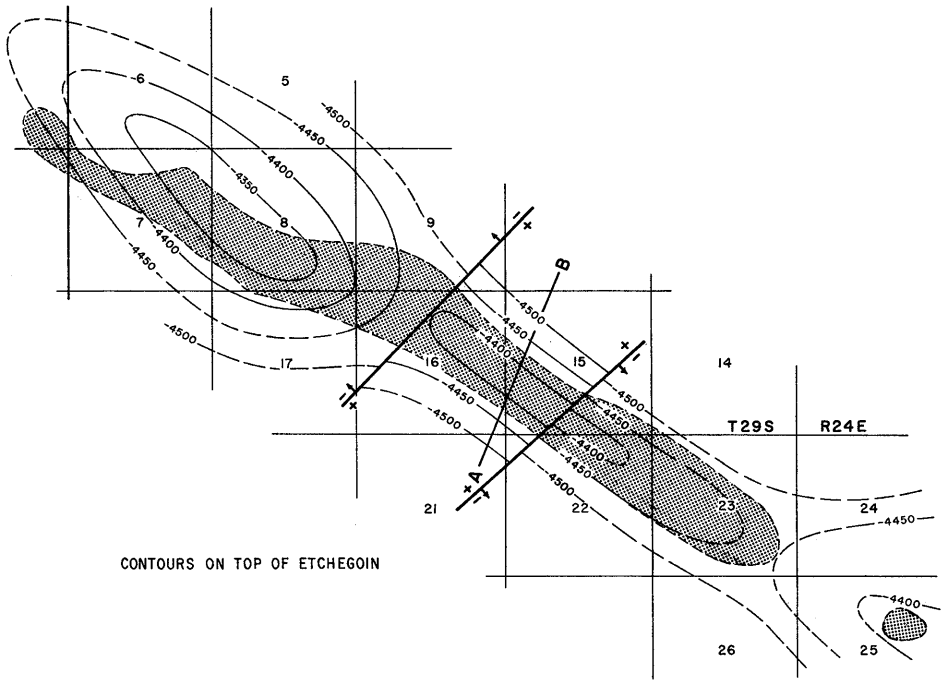


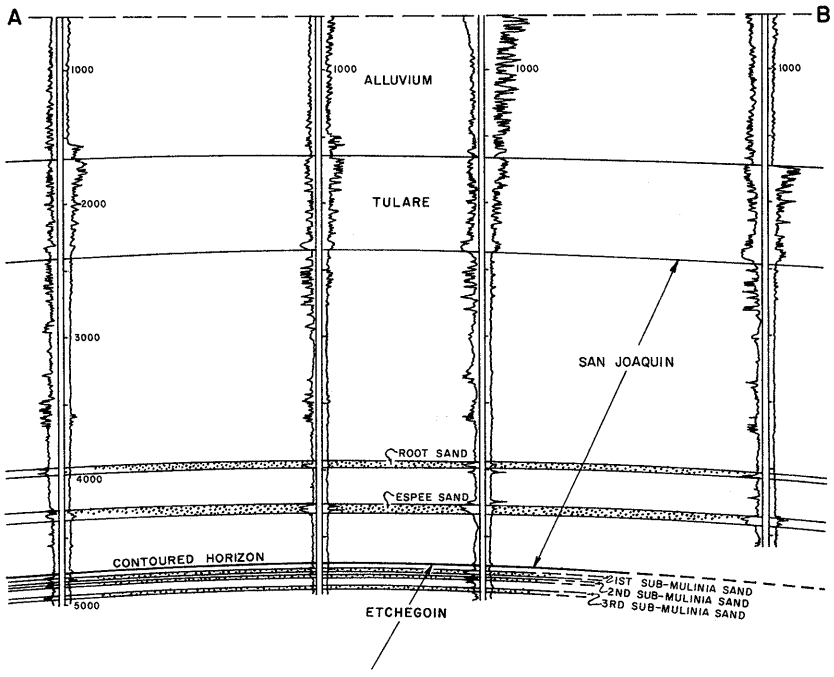


BOWERBANK OIL FIELD

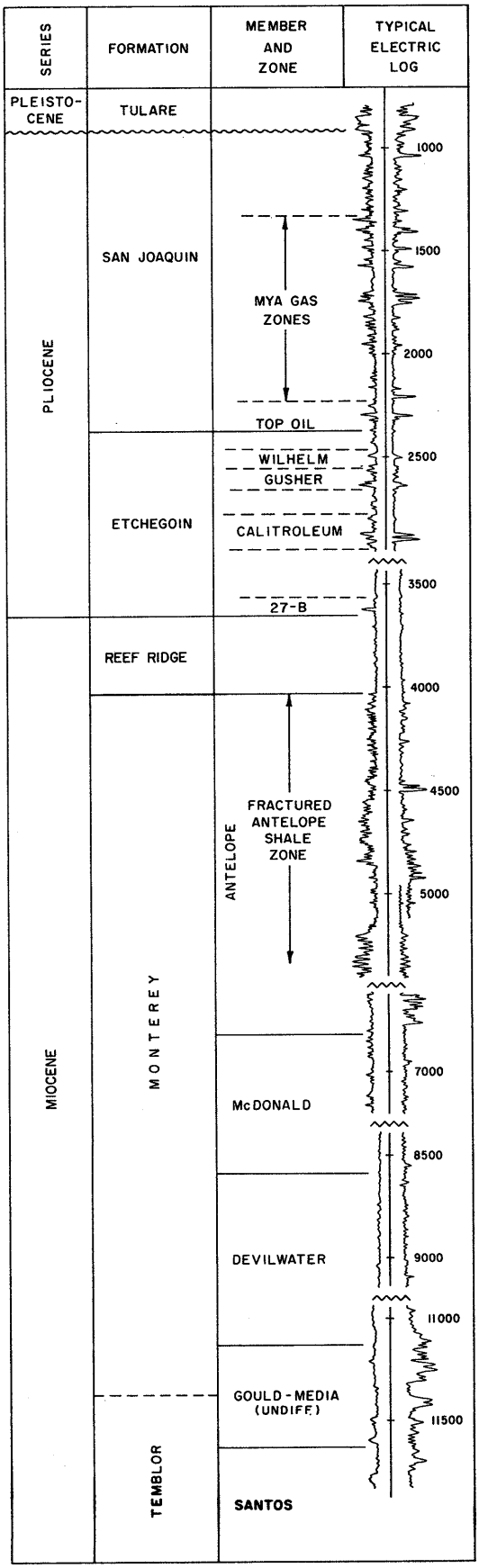


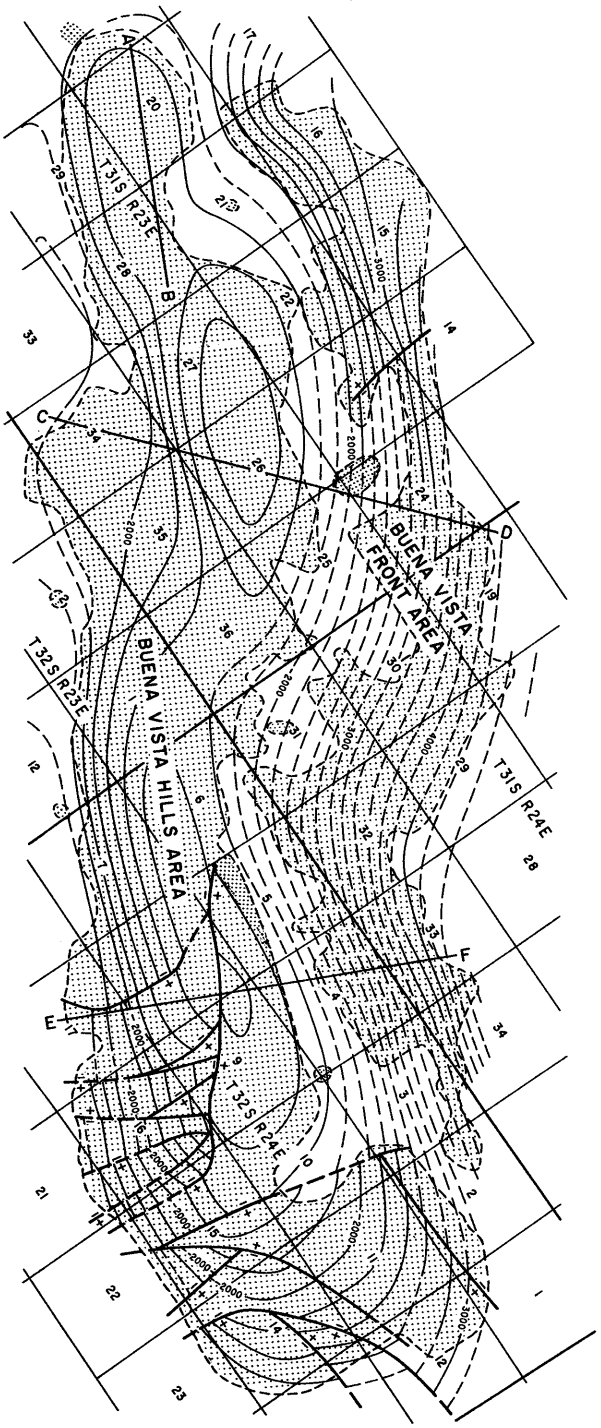
SEPTEMBER 1992





BUENA VISTA OIL FIELD

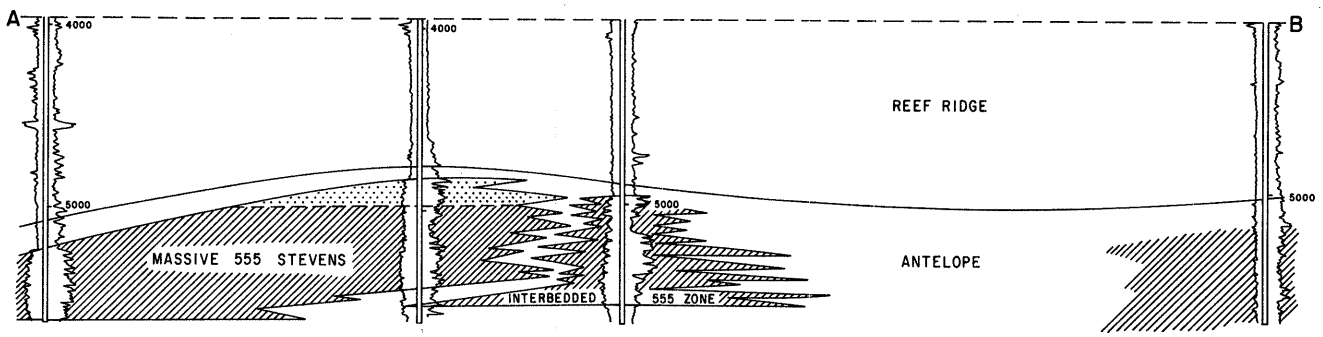


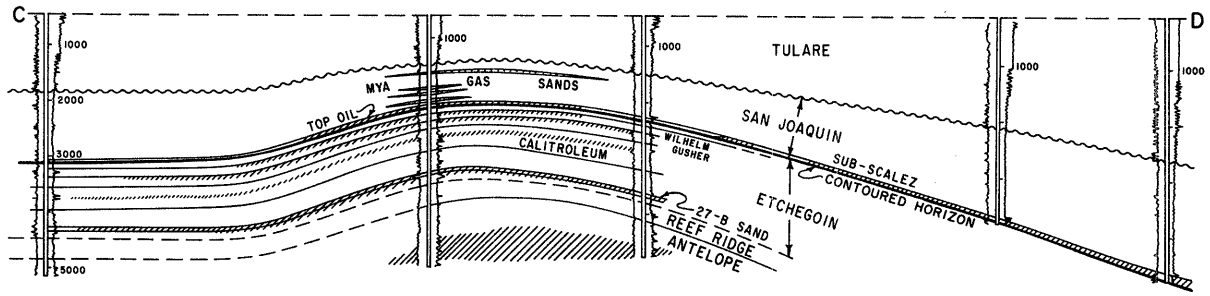


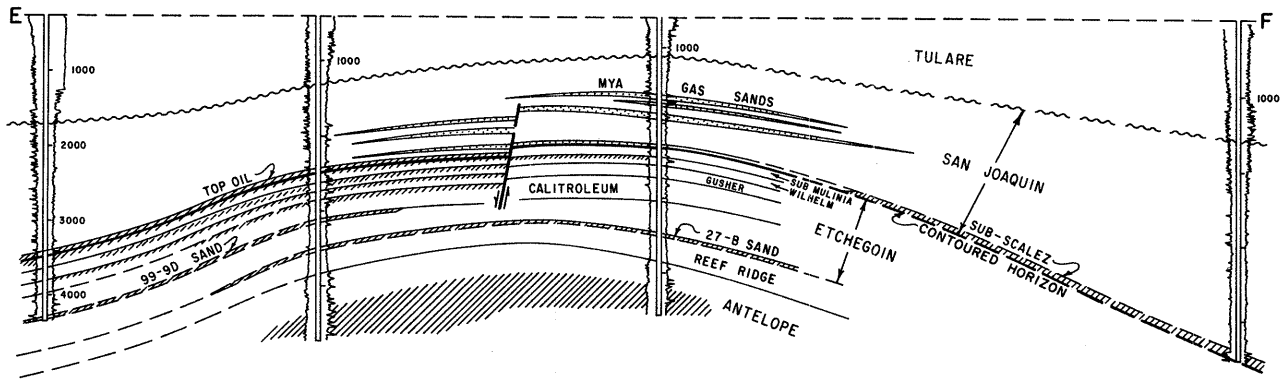
CONTOURS ON TOP OF ETCHEGOIN

FEBRUARY 1980

BUENA VISTA OIL FIELD

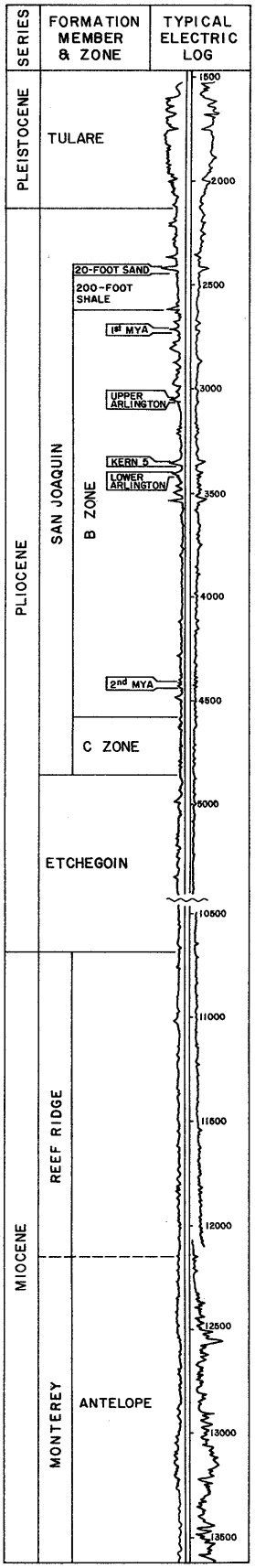




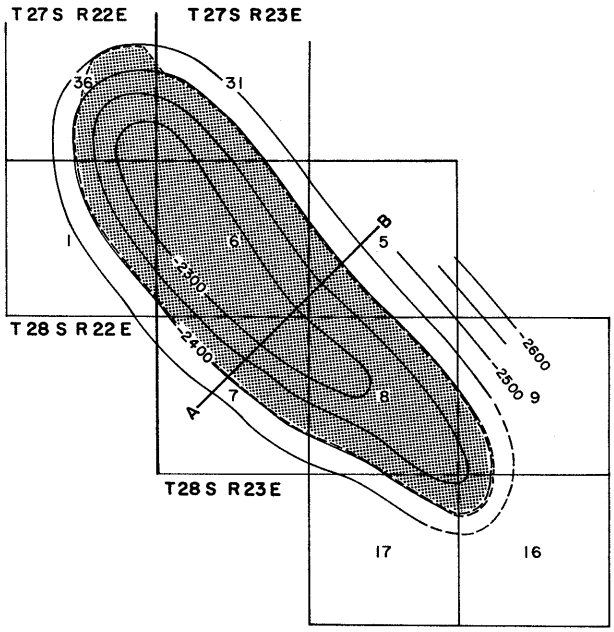


FEBRUARY 1980

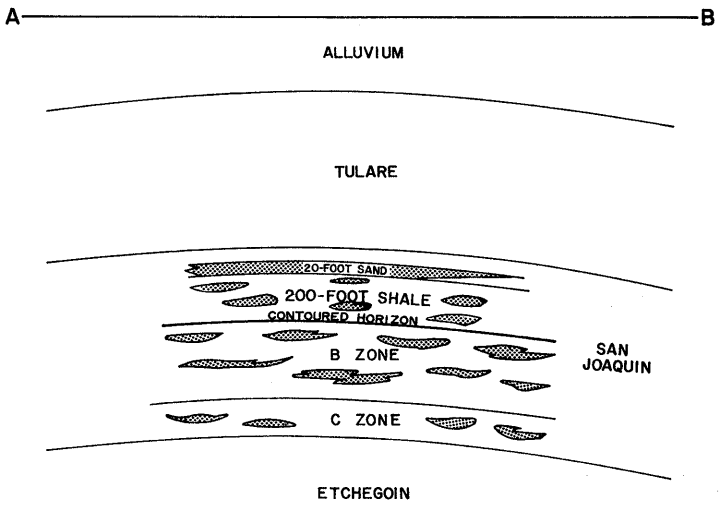
BUTTONWILLOW GAS FIELD



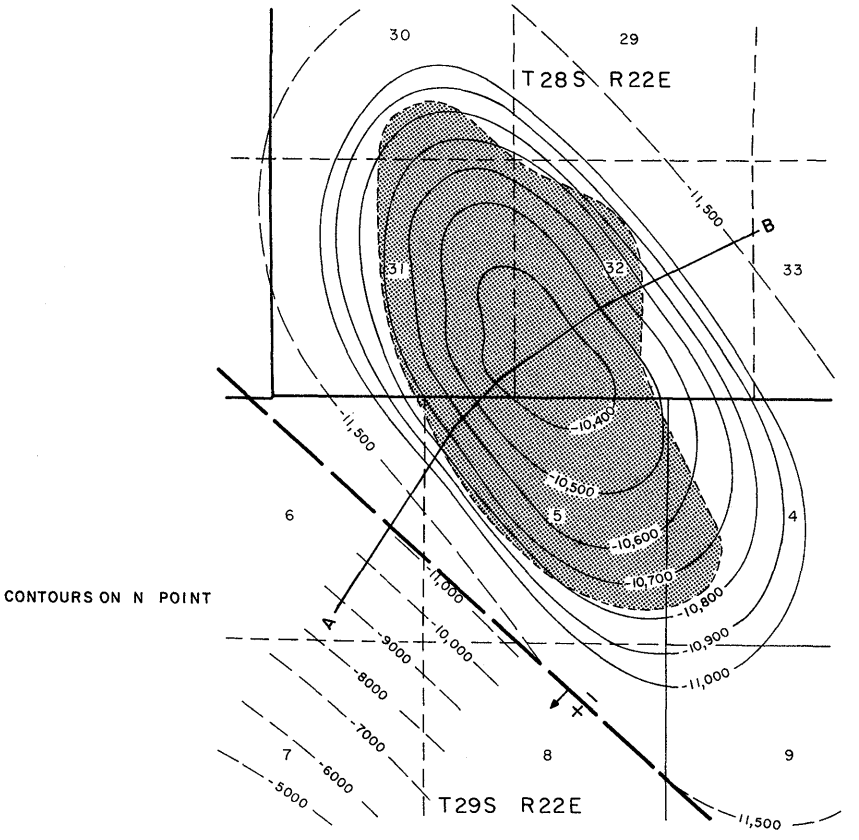
FEBRUARY 1980

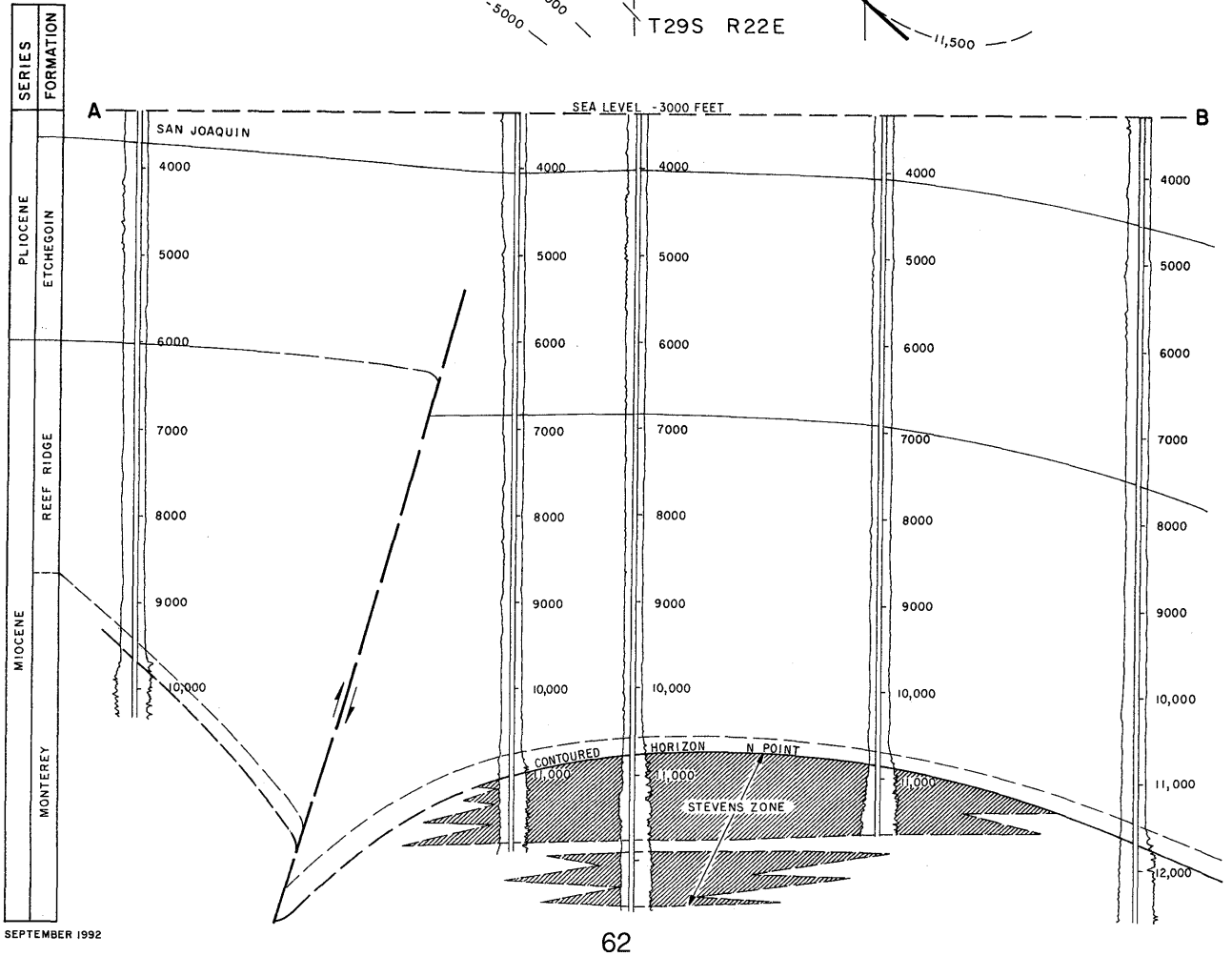


CONTOURS ON TOP OF B ZONE



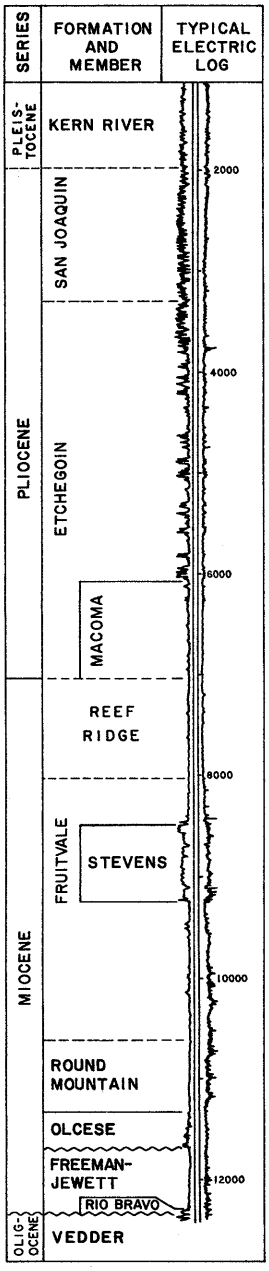
CAL CANAL GAS FIELD



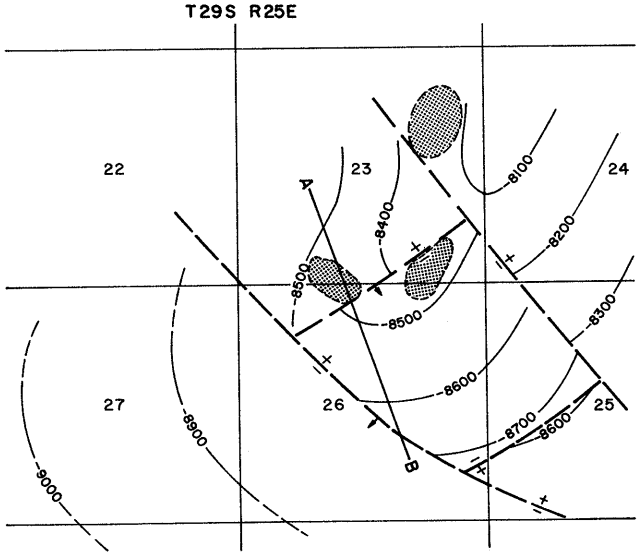


SEPTEMBER 1992

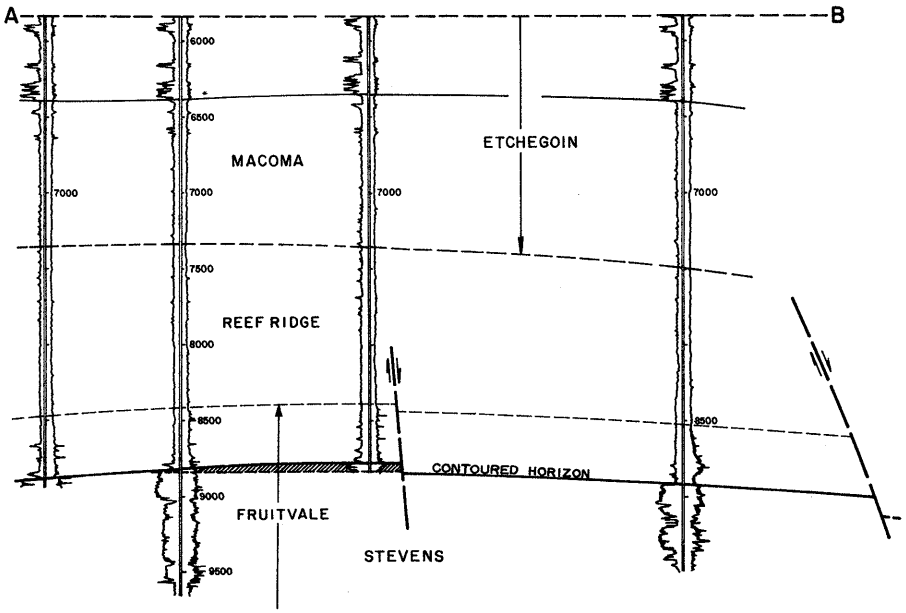
CALDERS CORNER OIL FIELD



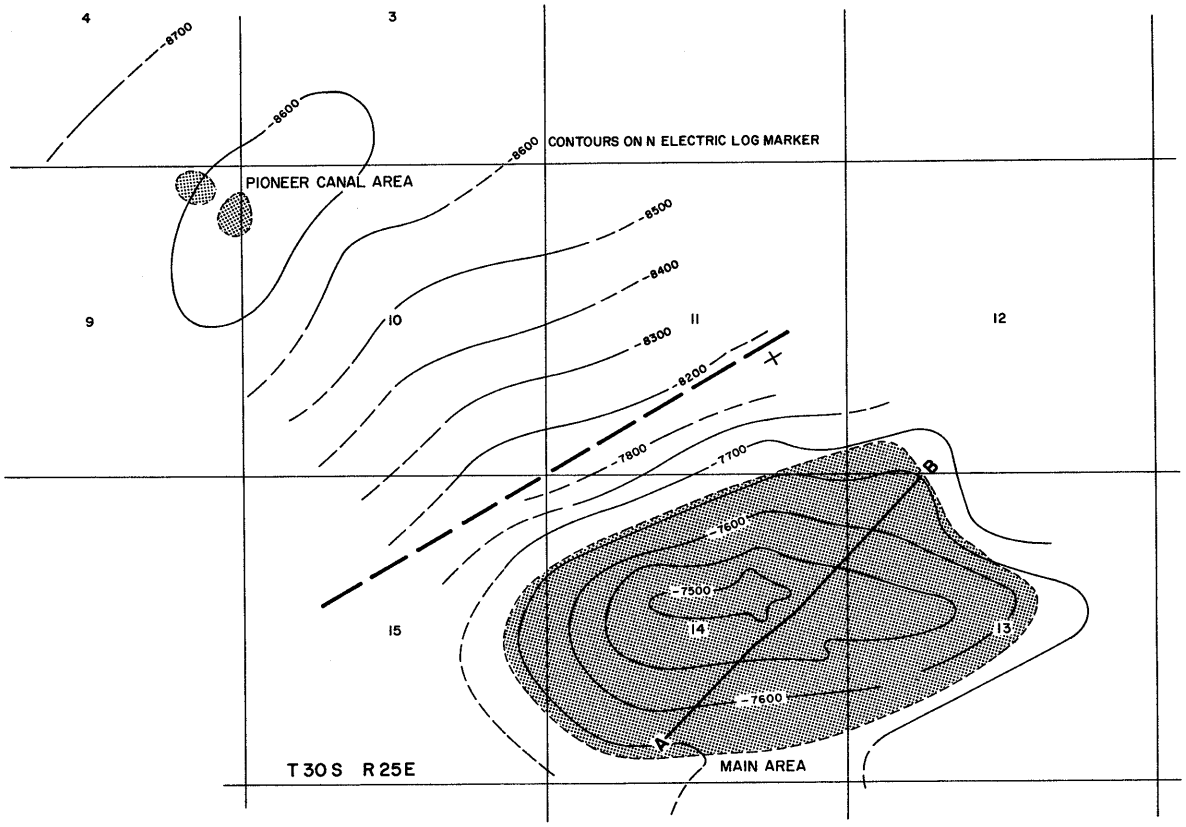
FEBRUARY 1980

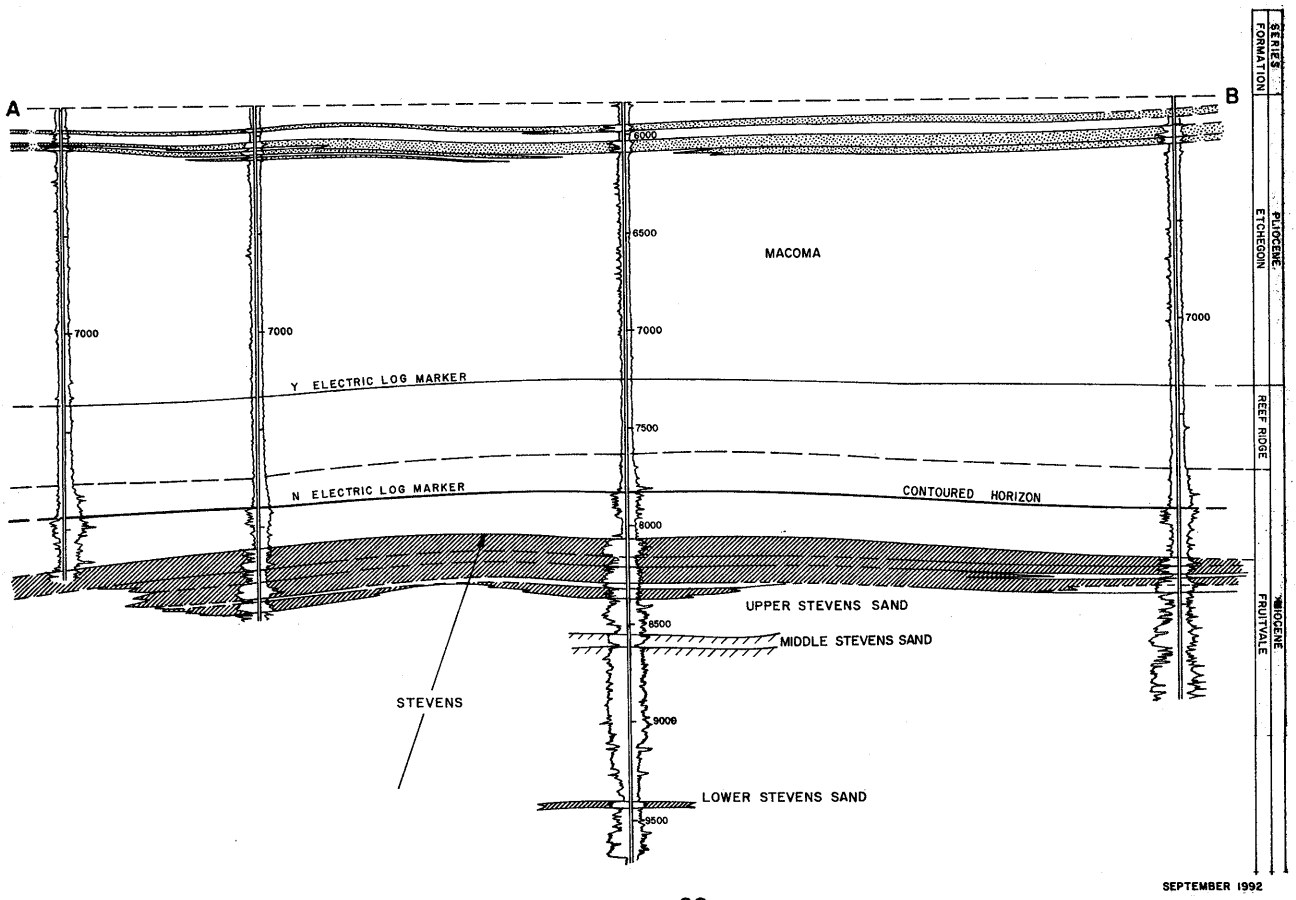


CONTOURS ON TOP OF STEVENS

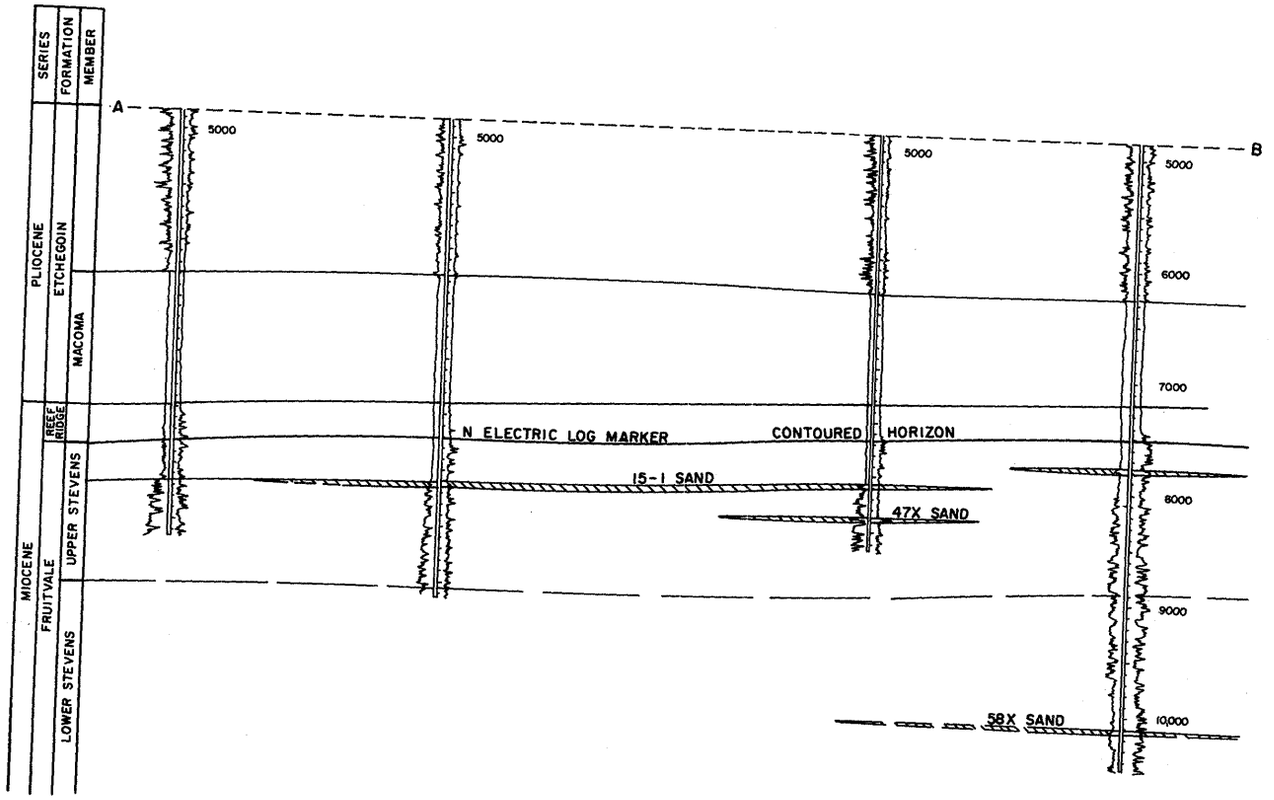


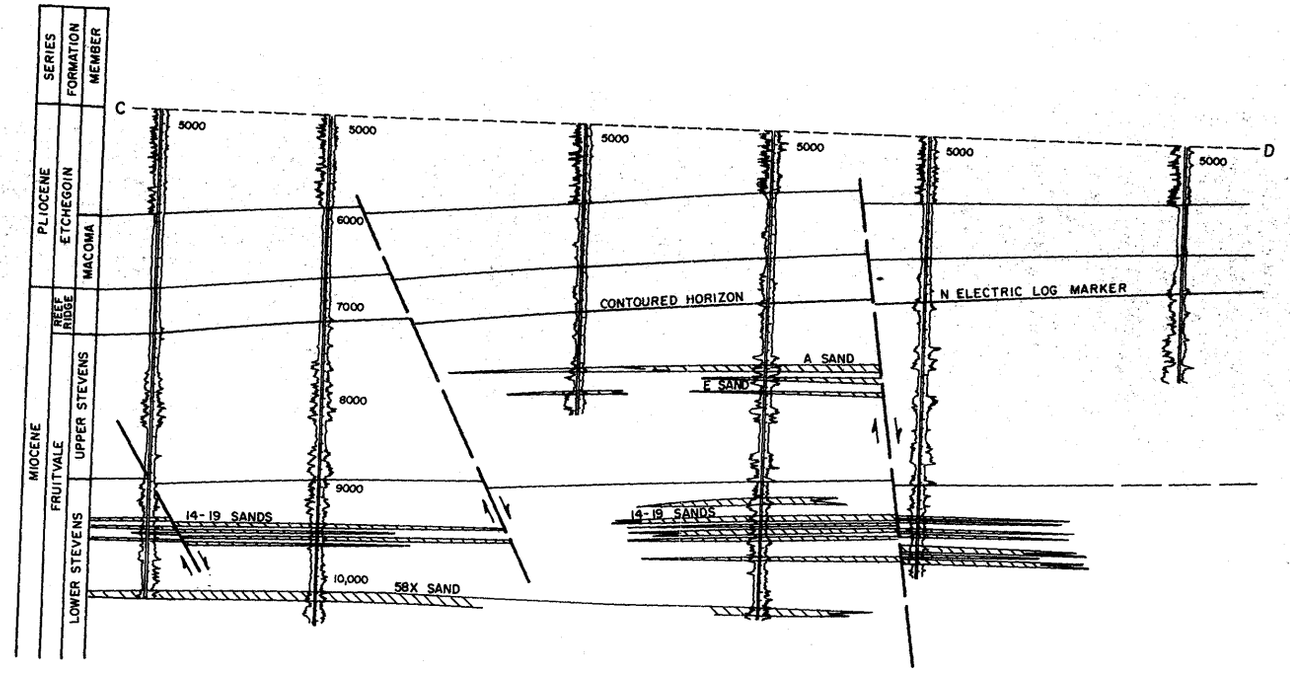
CANAL OIL FIELD





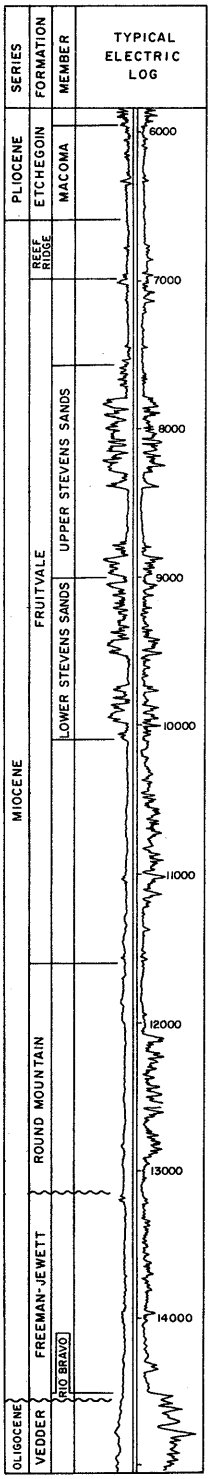
CANFIELD RANCH OIL FIELD



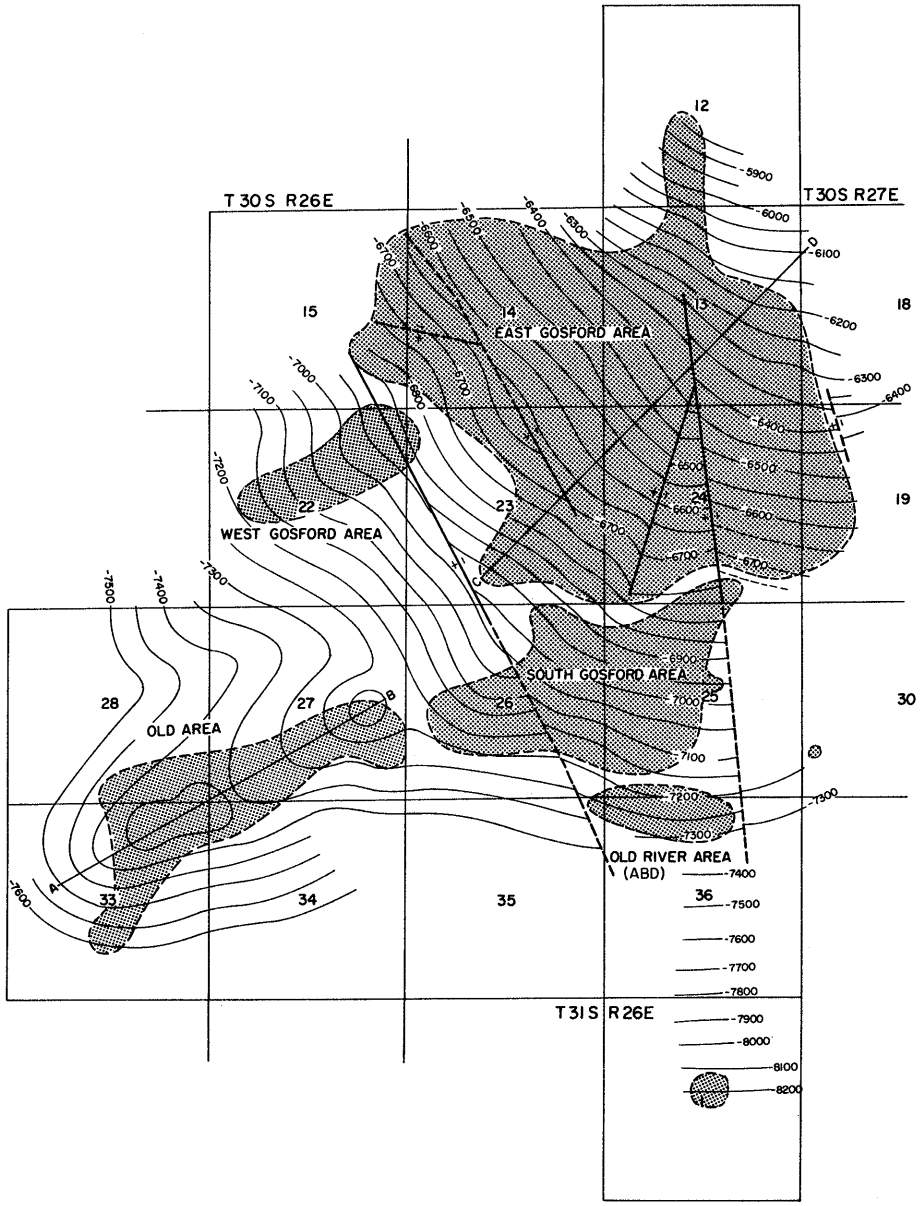


JANUARY 1980

CANFIELD RANCH OIL FIELD

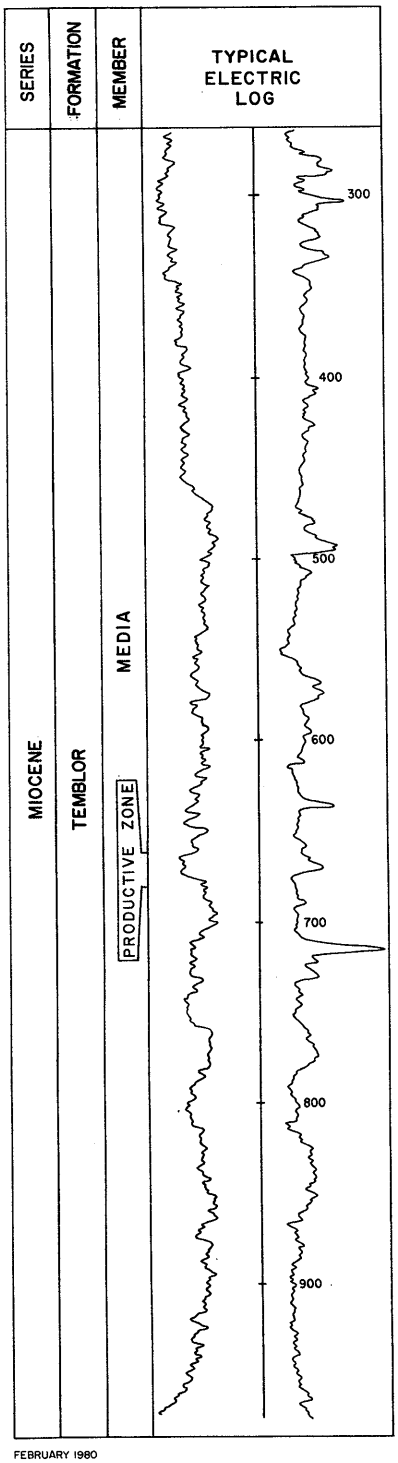


SEPTEMBER 1992

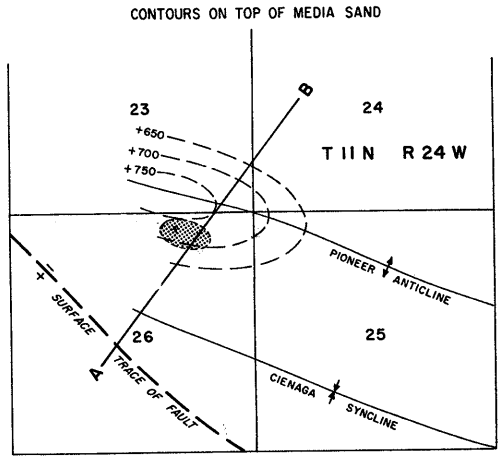


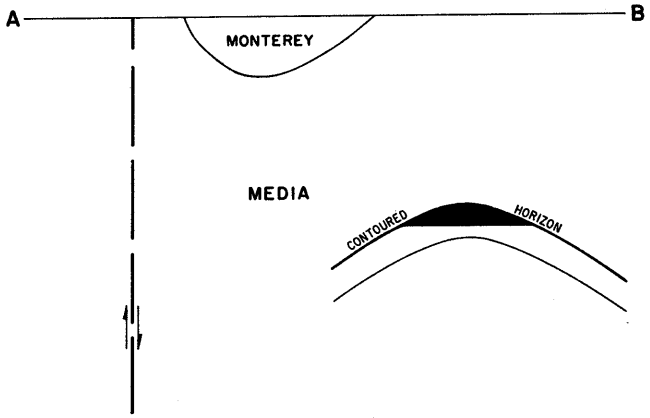
CONTOURS ON N ELECTRIC LOG MARKER

CAPITOLA PARK OIL FIELD

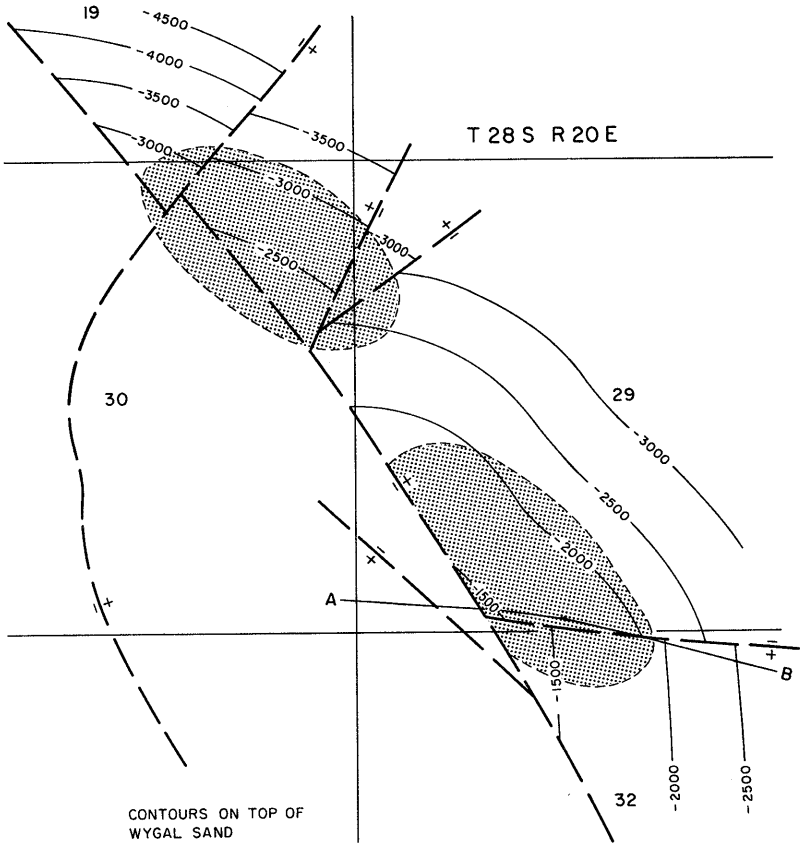


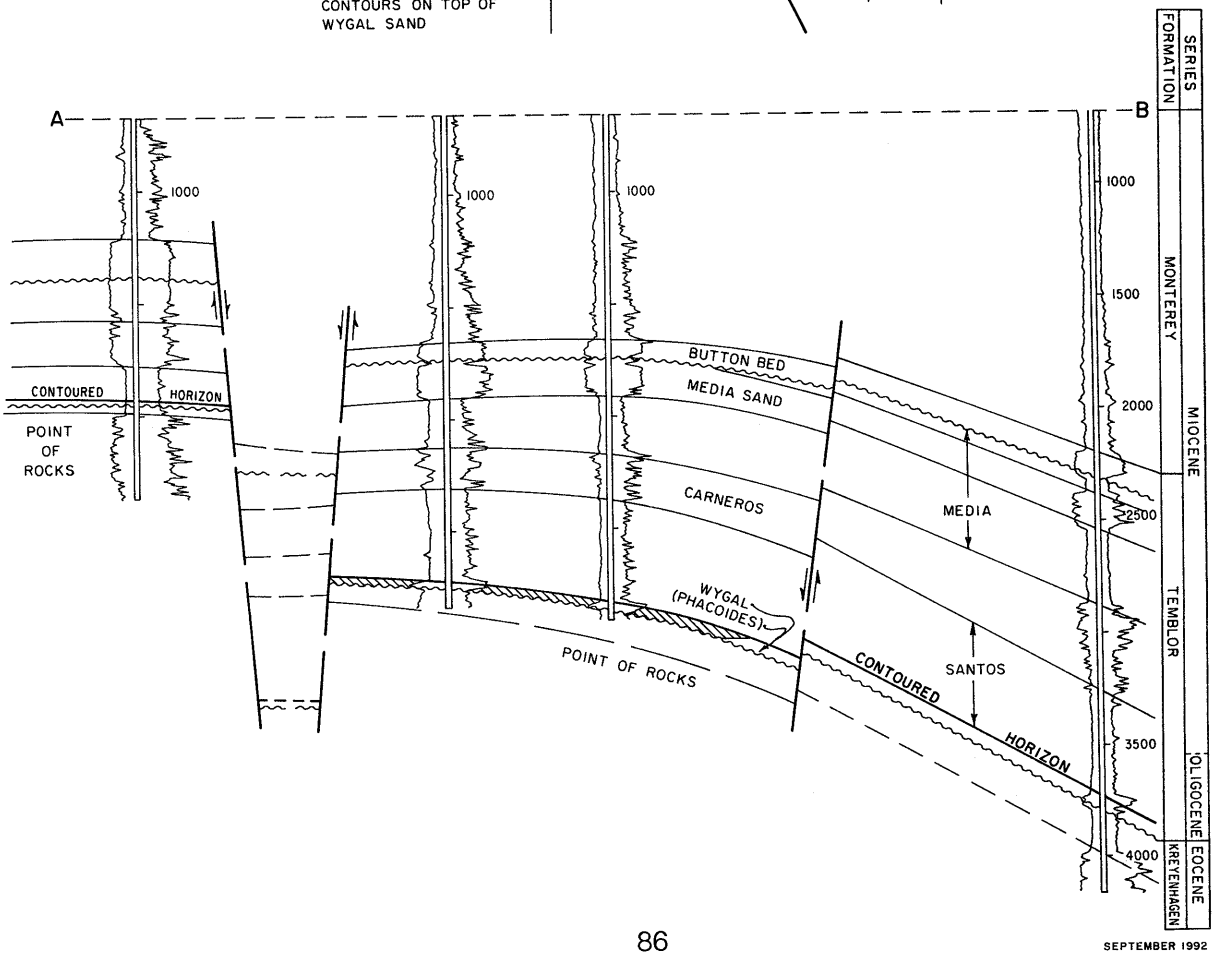
FEBRUARY 1980





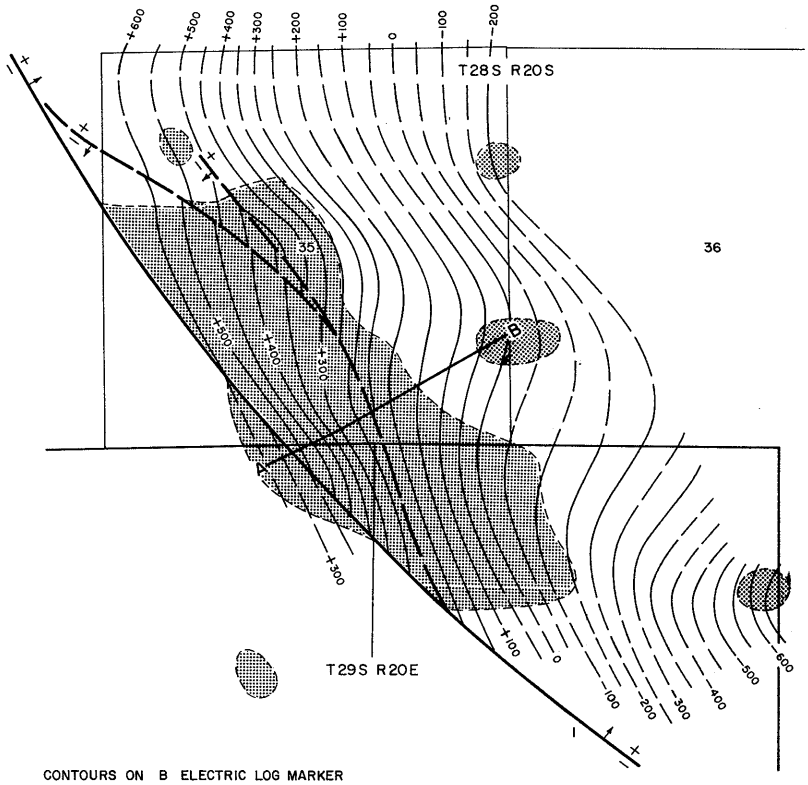
CARNEROS CREEK OIL FIELD

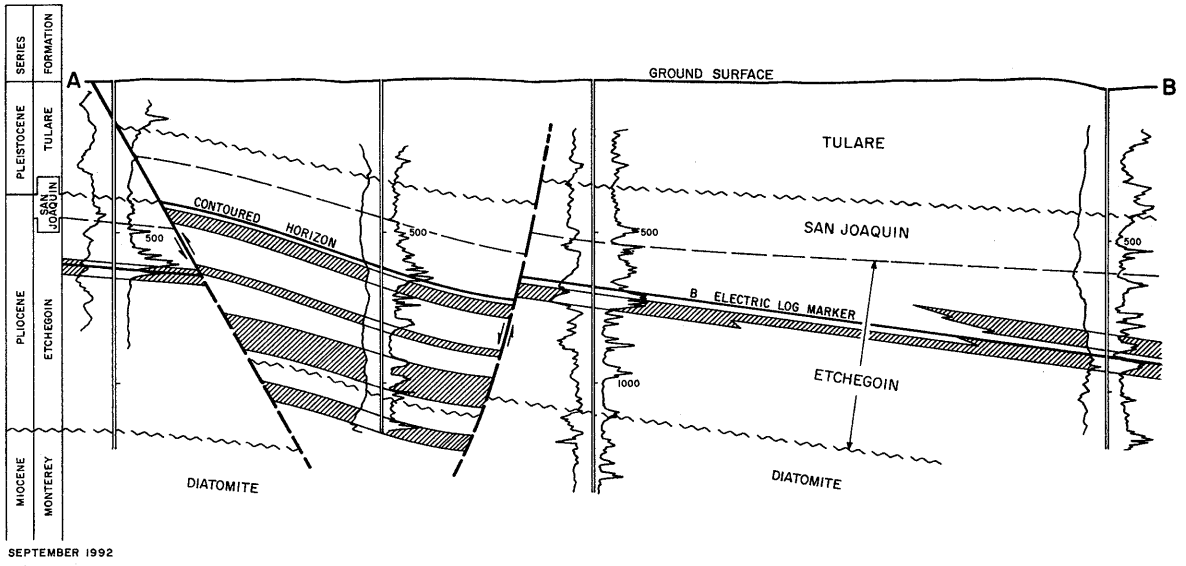




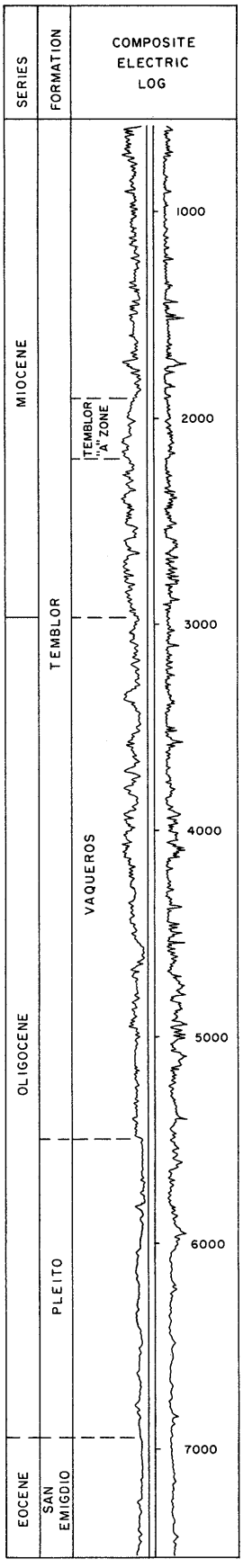
SEPTEMBER 1992

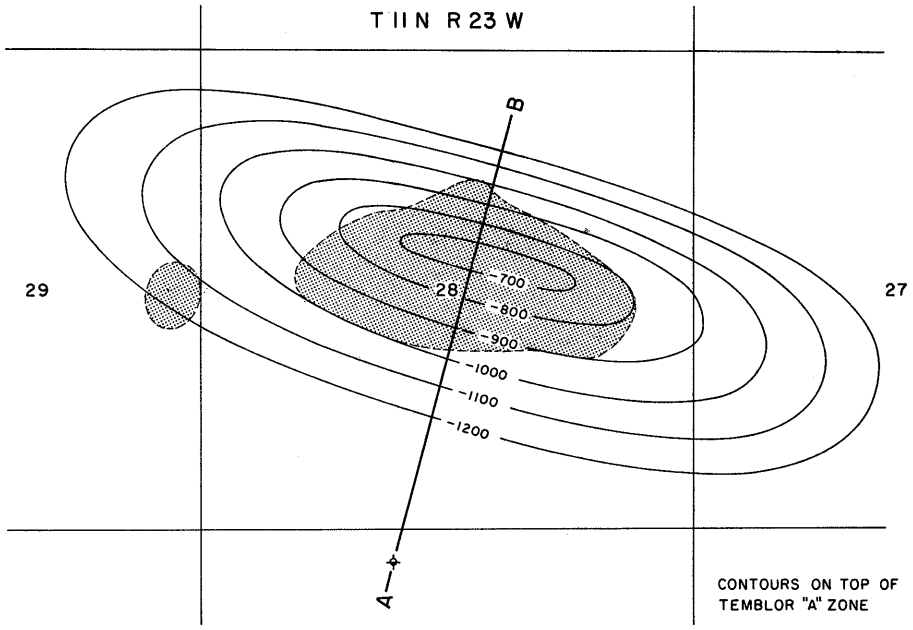
CHICO-MARTINEZ OIL FIELD

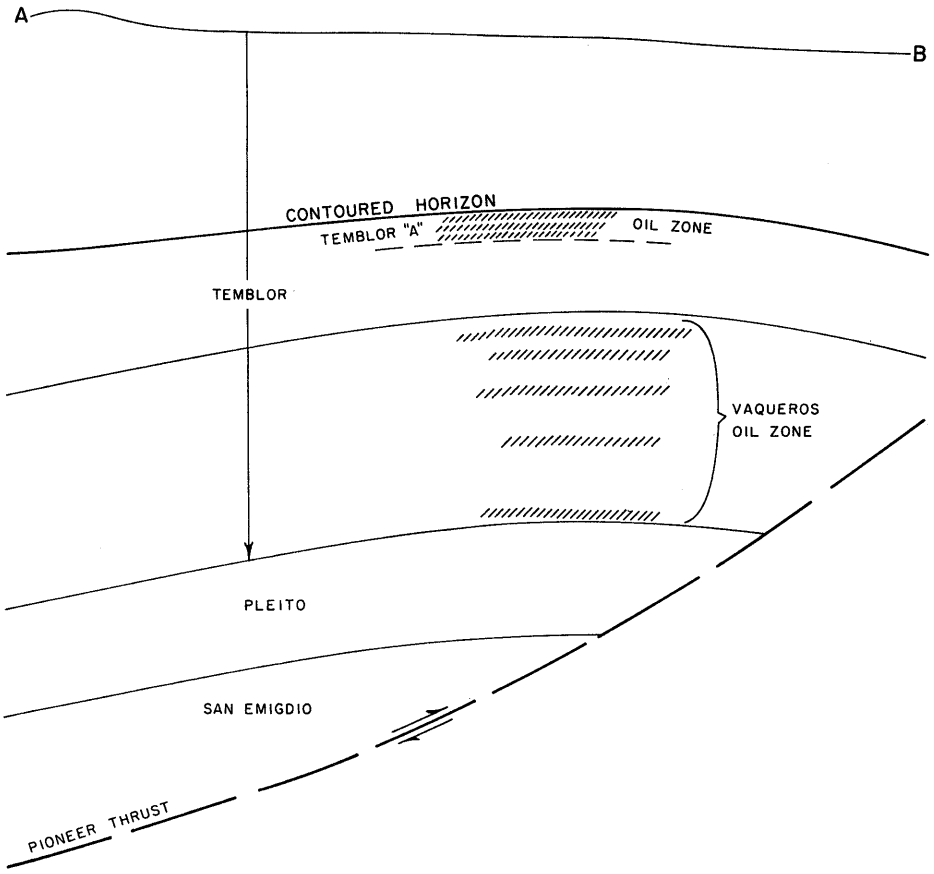




CIENAGA CANYON OIL FIELD

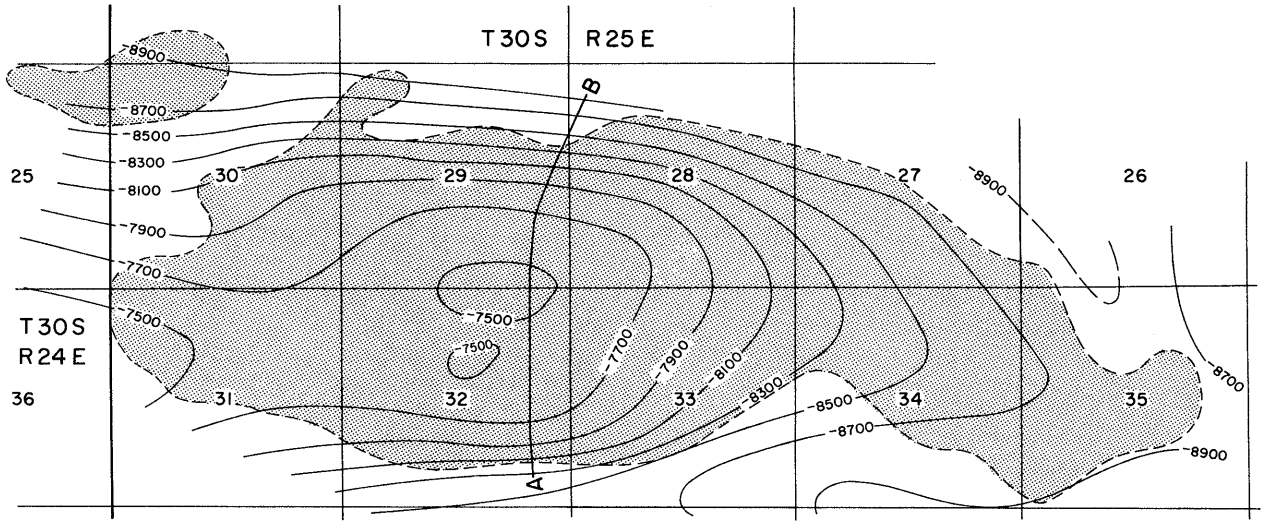




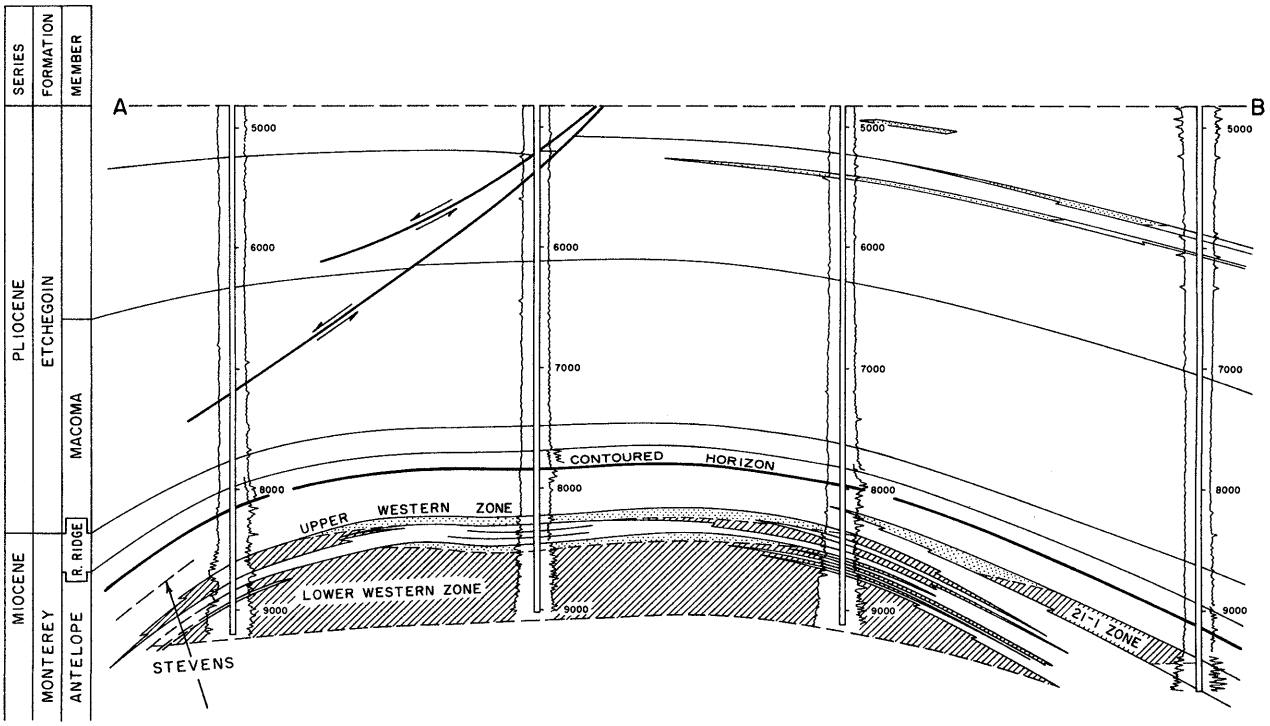


FEBRUARY 1980

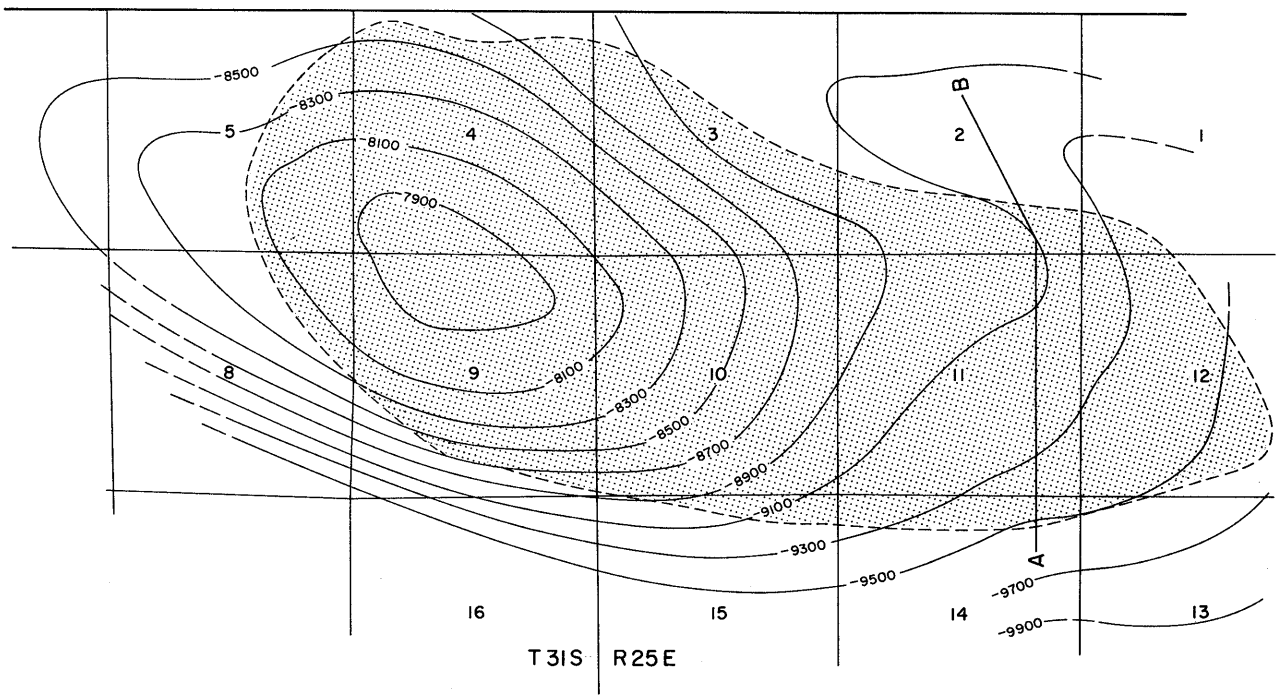
NORTH COLES LEVEE OIL FIELD



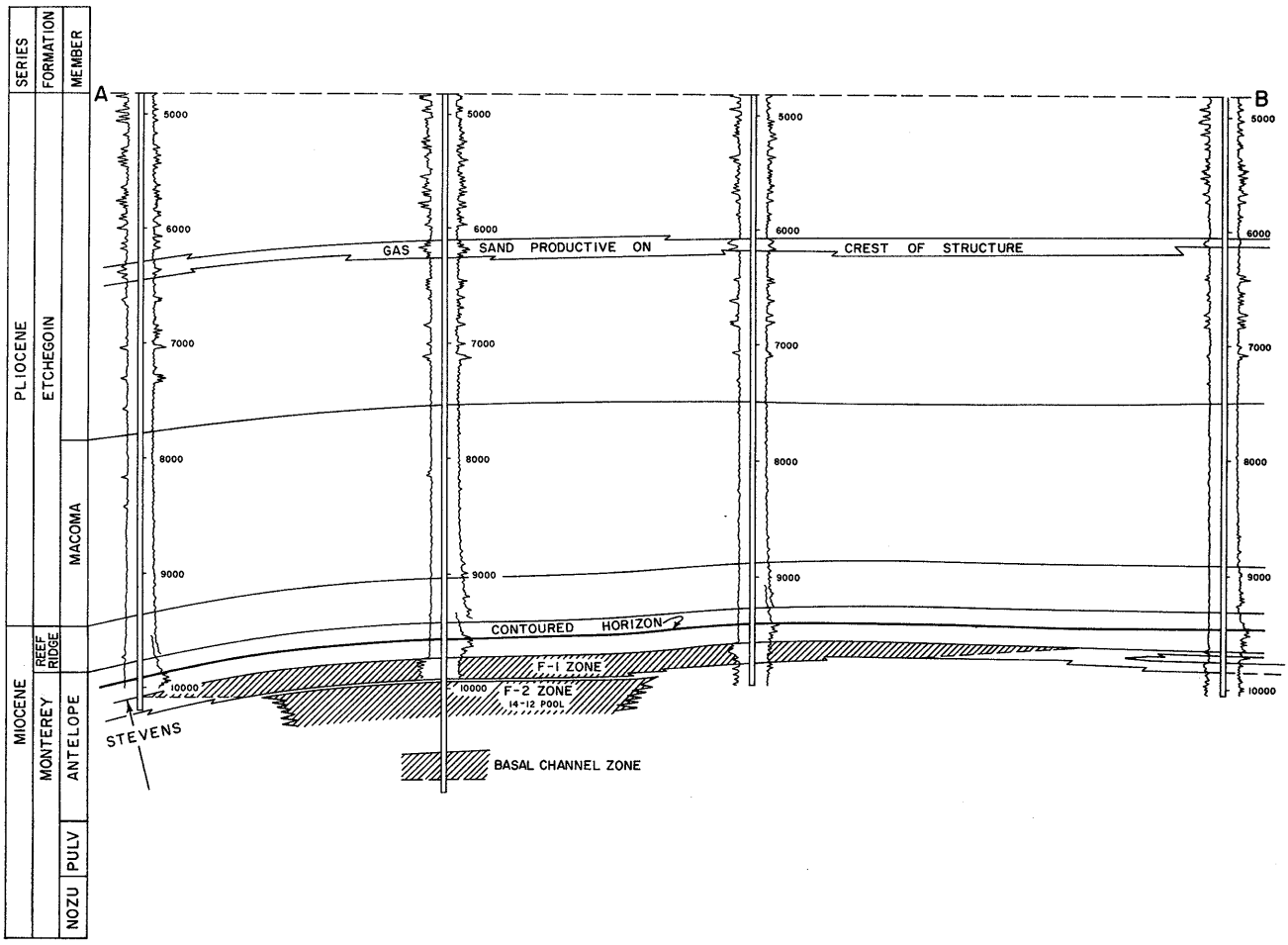
CONTOURS ON N ELECTRIC LOG MARKER



SOUTH COLES LEVEE OIL FIELD

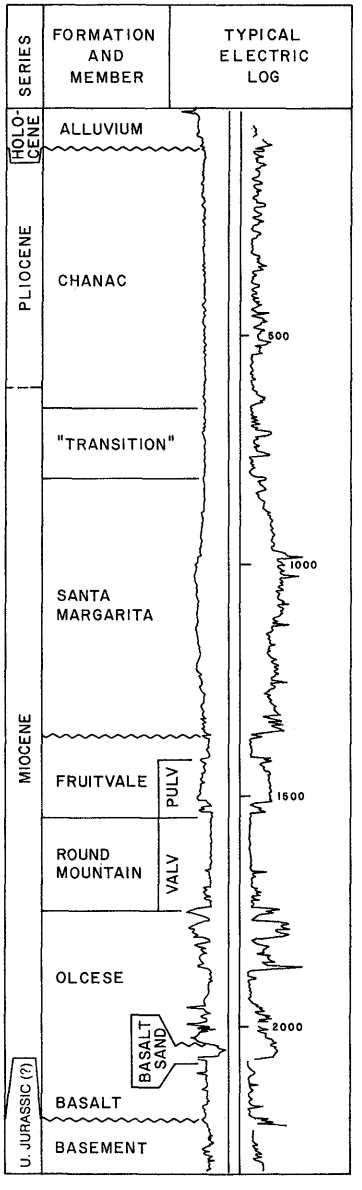


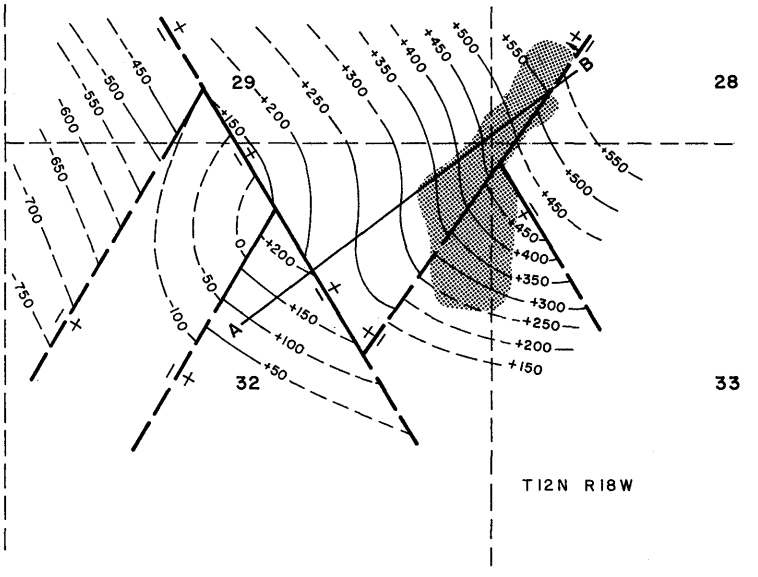
CONTOURS ON N ELECTRIC LOG MARKER



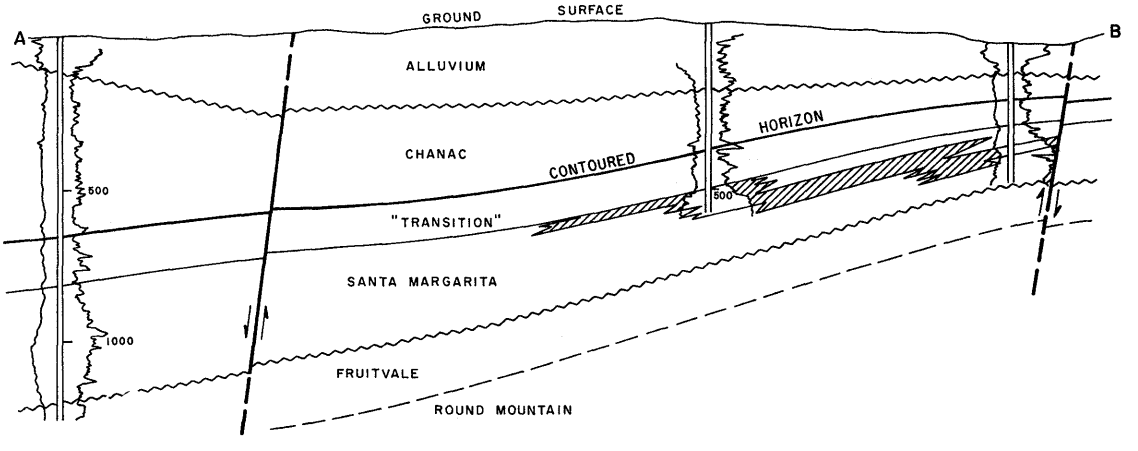
SEPTEMBER 1992

COMANCHE POINT OIL FIELD



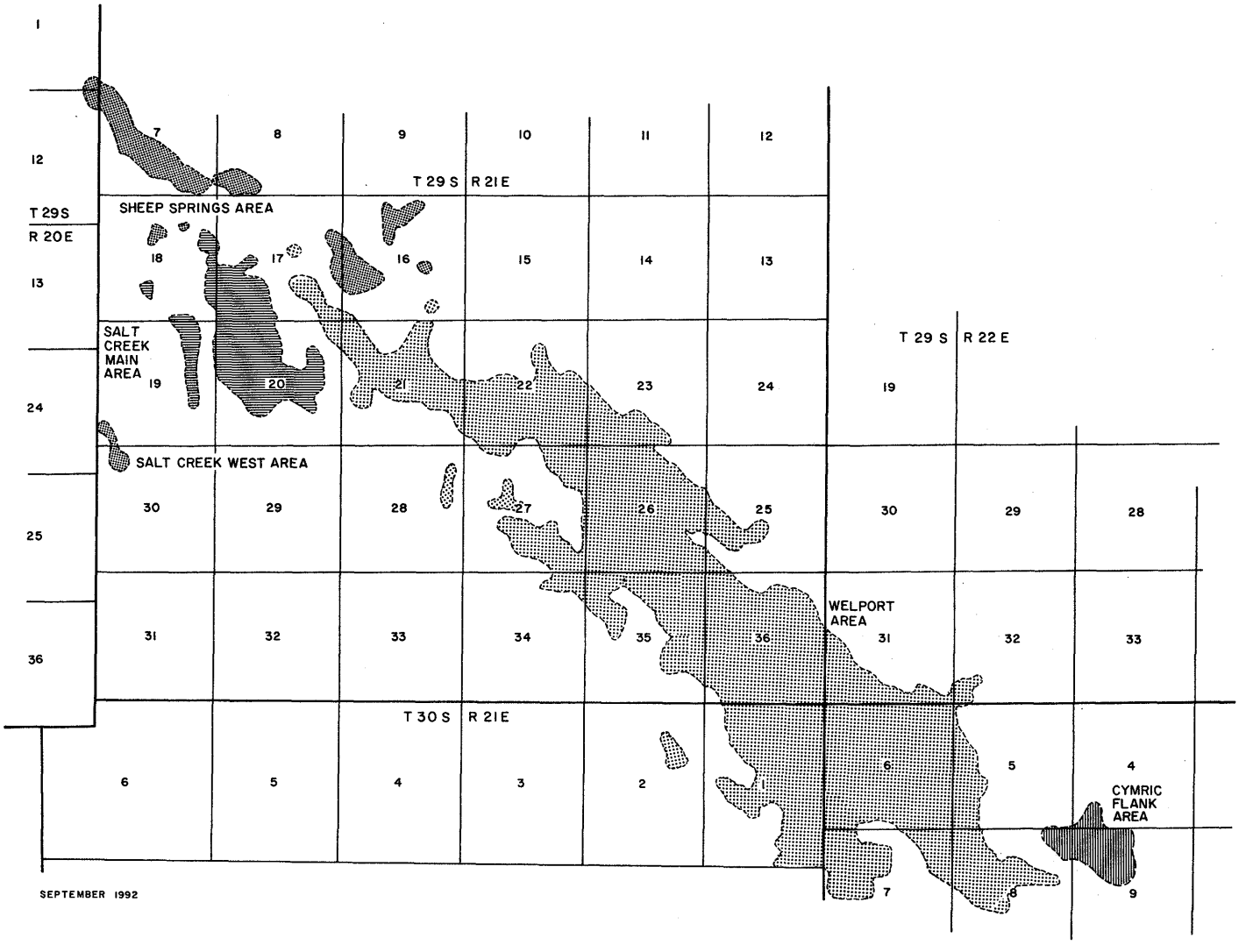


CONTOURS ON TOP OF "TRANSITION"



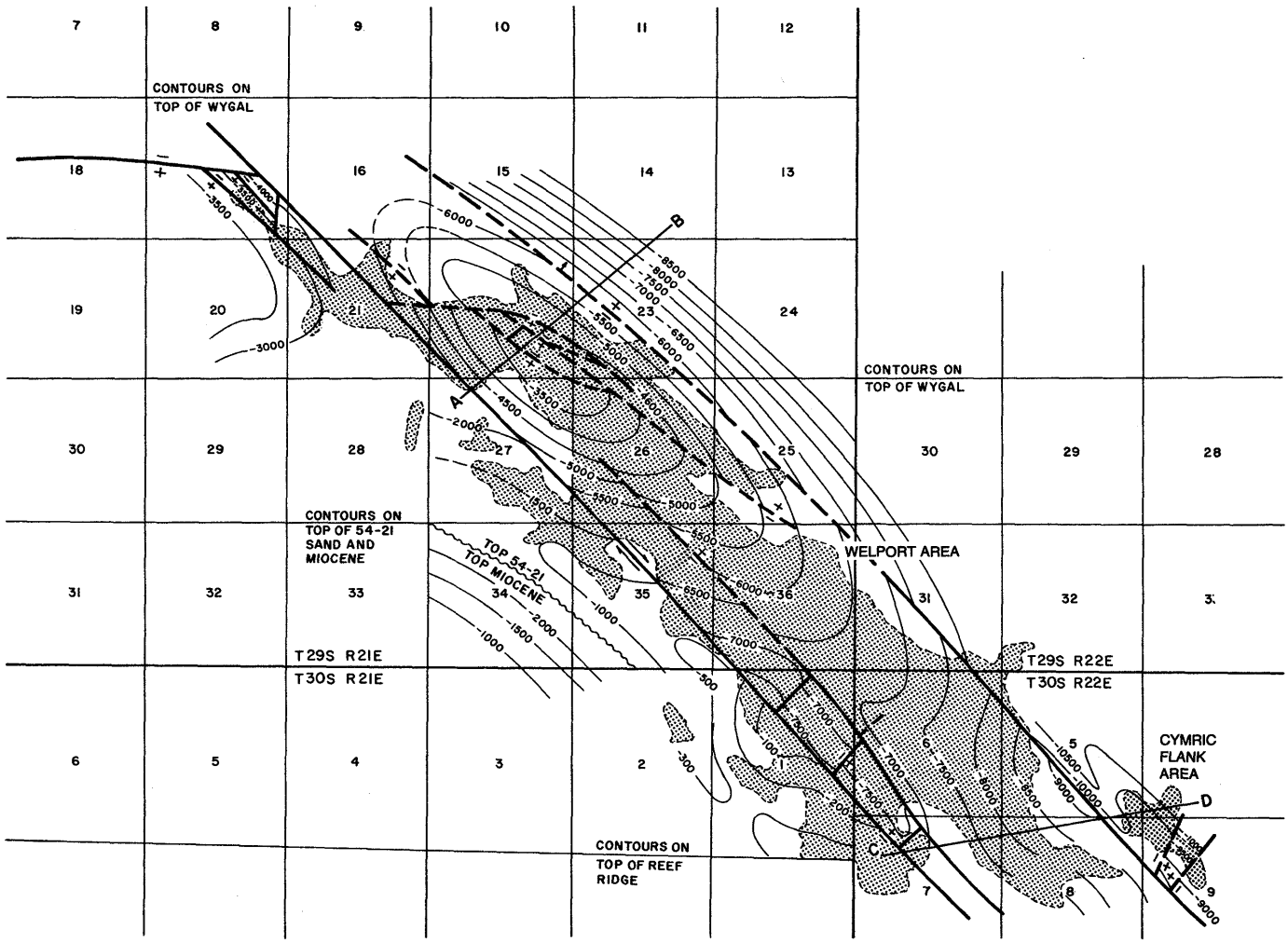
FEBRUARY 1980

CYMRIC OIL FIELD
Index Map



CYMRIC OIL FIELD

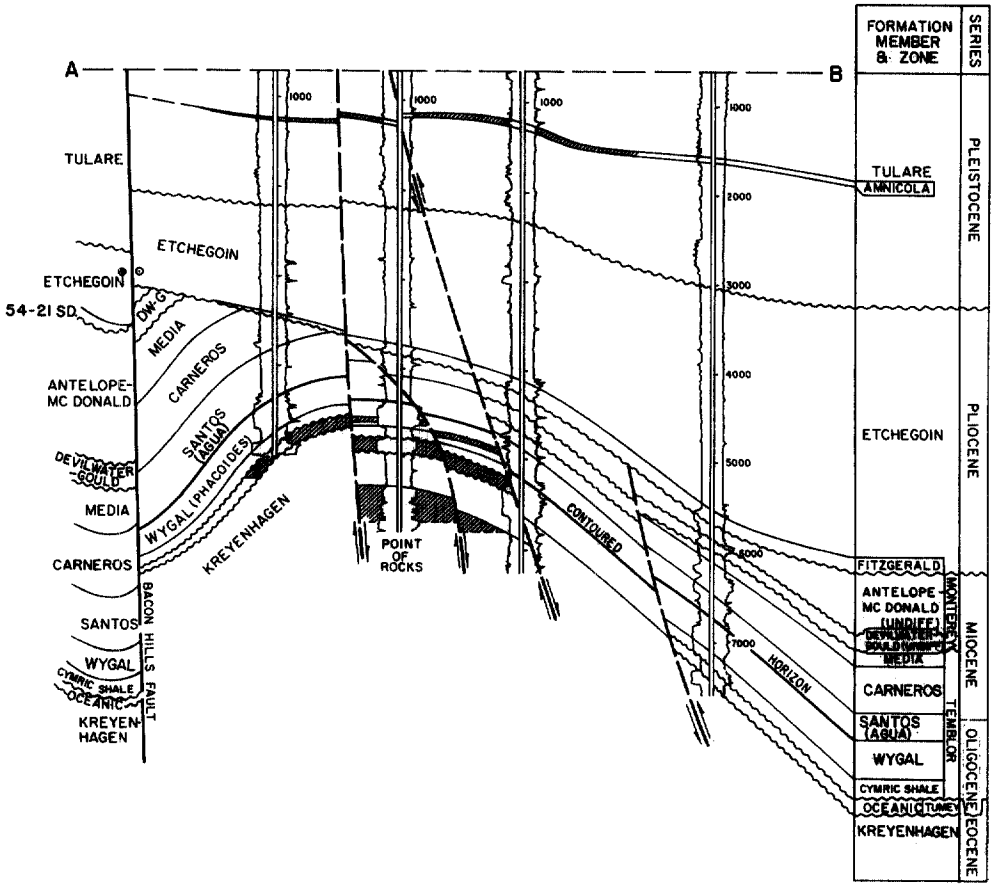
Cymric Flank Area and Welport Area

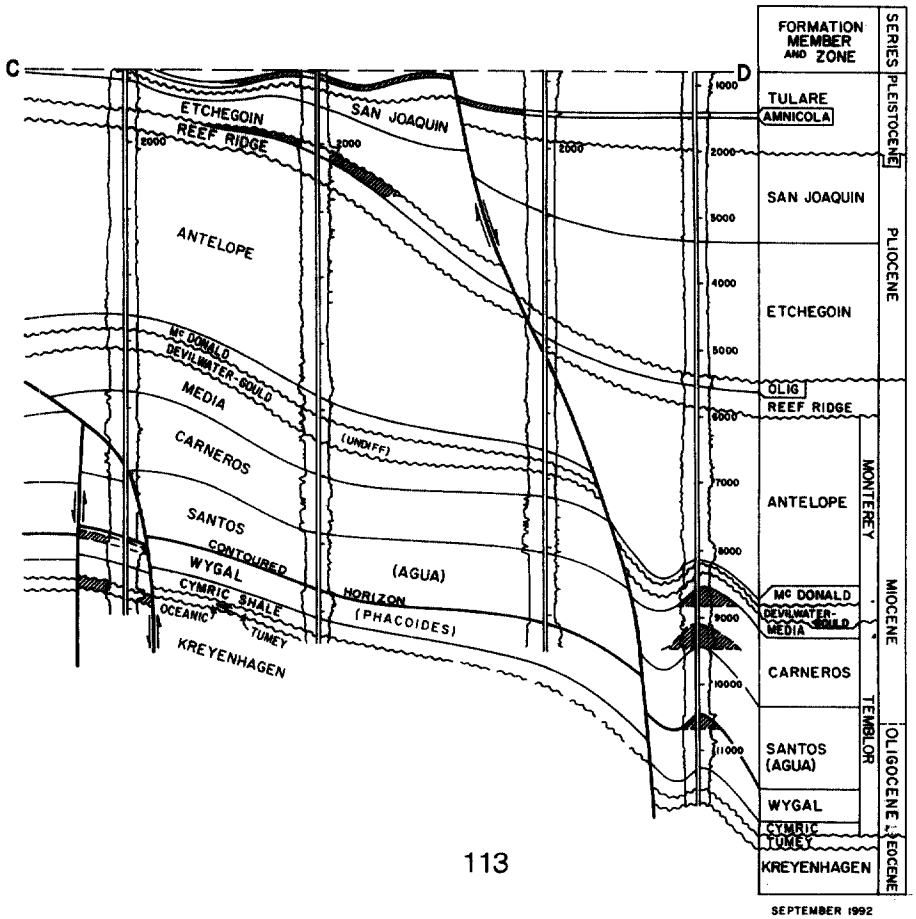


SEPTEMBER 1992

CYMRIC OIL FIELD

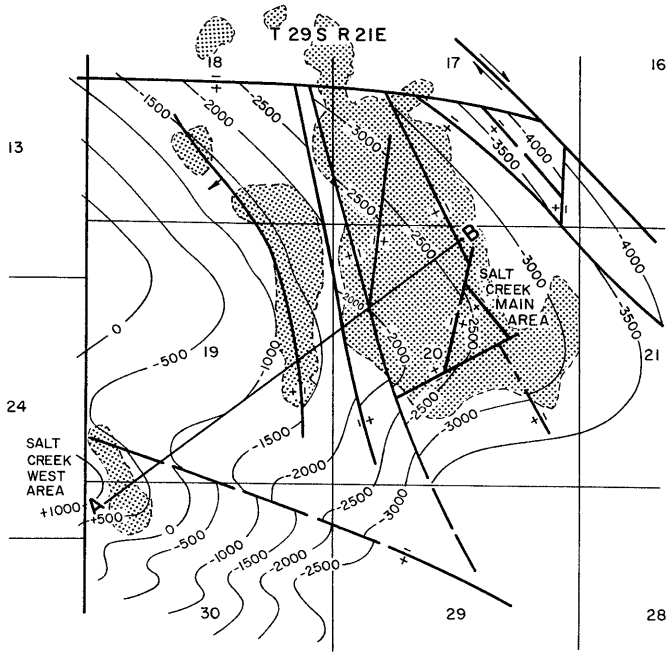
Cymric Flank Area and Welport Area



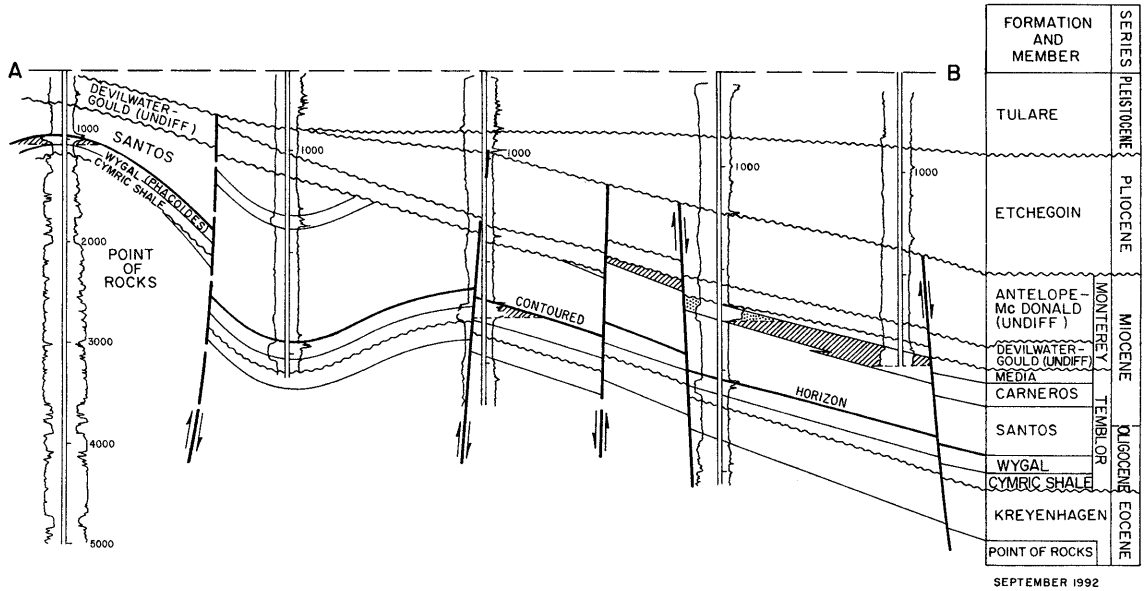


SEPTEMBER 1992

CYMRIC OIL FIELD
Salt Creek Main Area and Salt Creek West Area

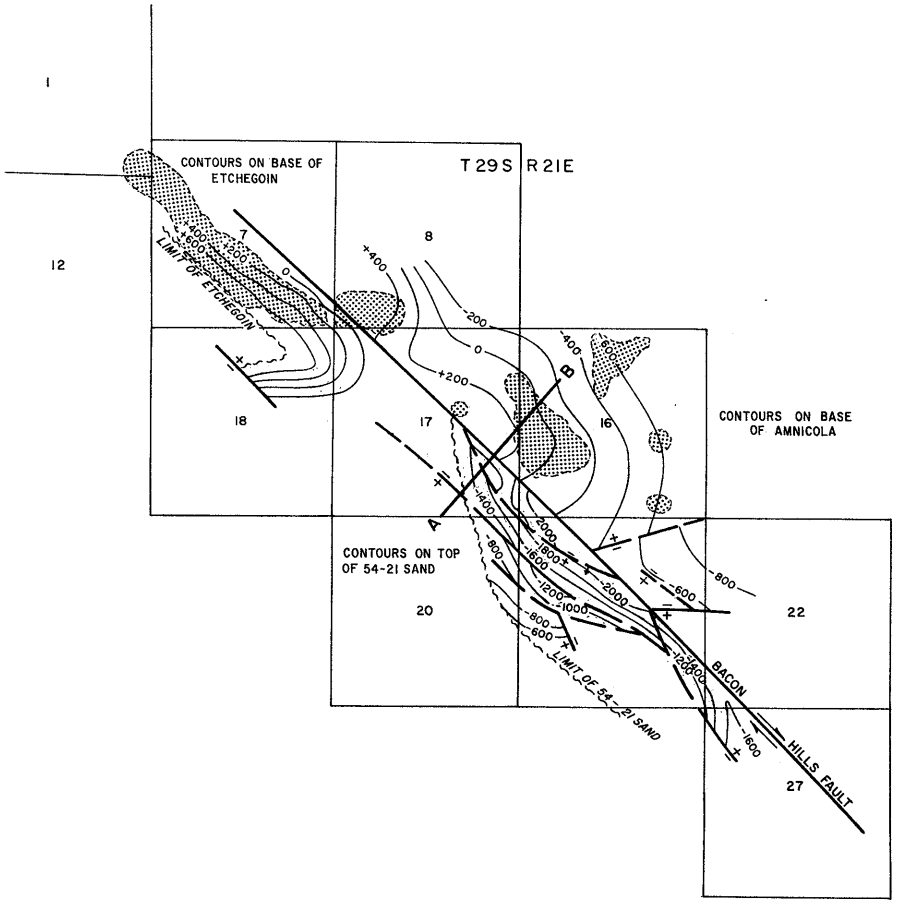


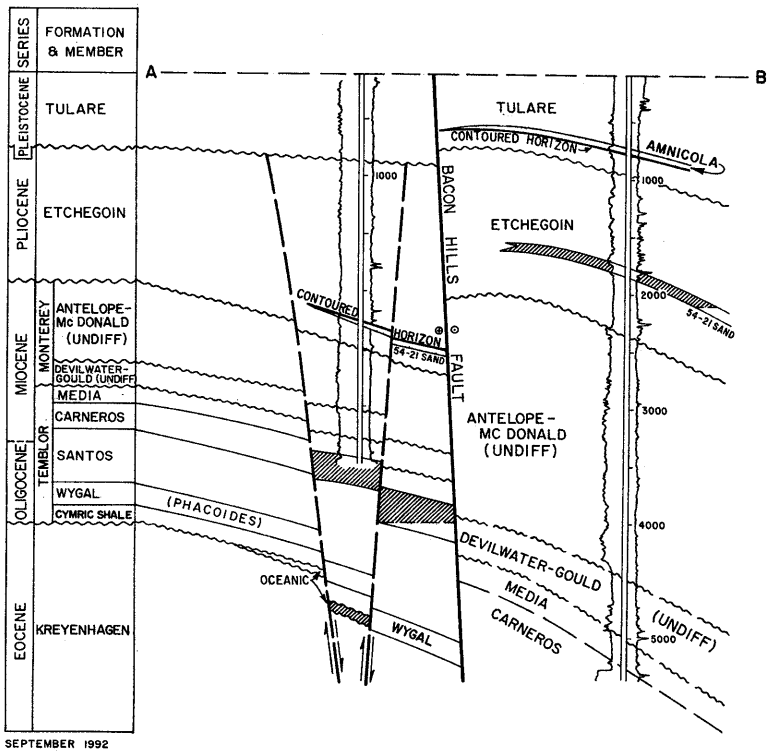
CONTOURS ON TOP OF WYGAL



SEPTEMBER 1992

CYMRIC OIL FIELD
Sheep Springs Area

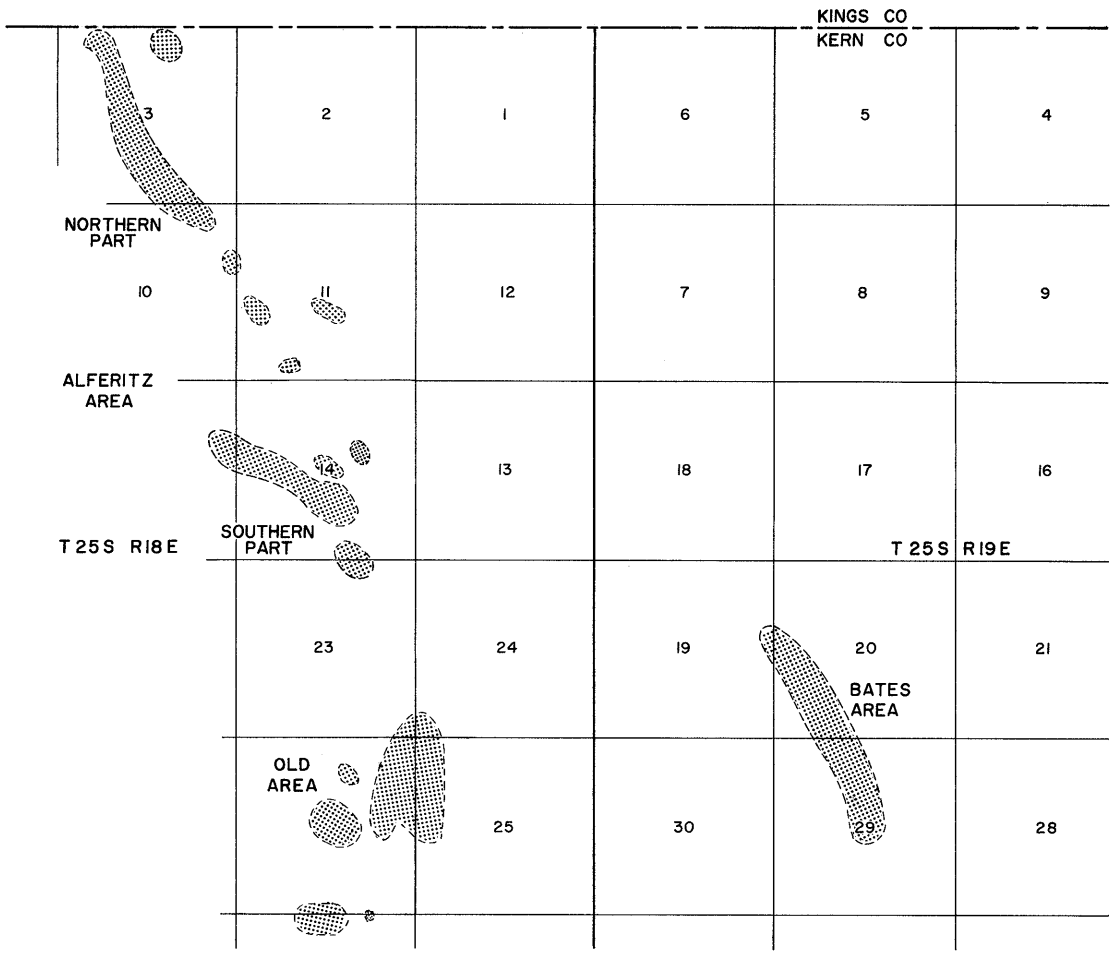




SEPTEMBER 1992

DEVILS DEN OIL FIELD

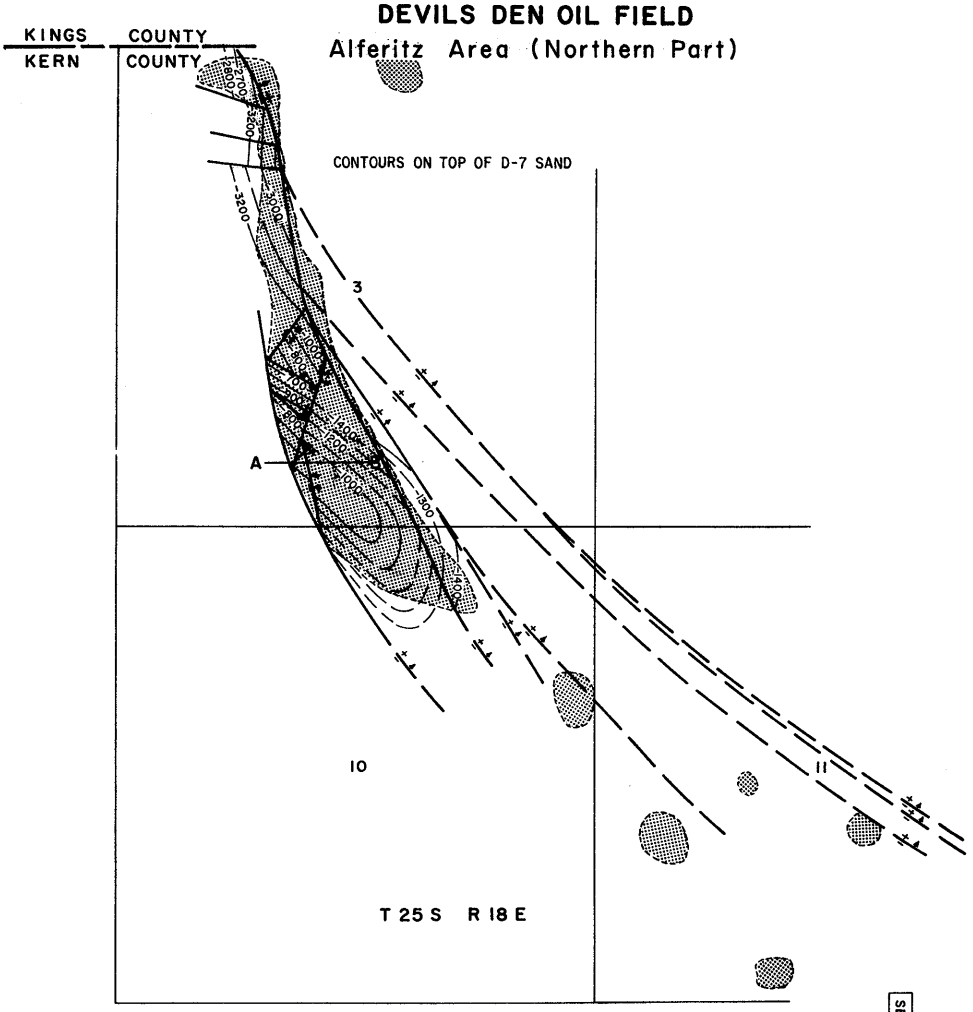
Index Map

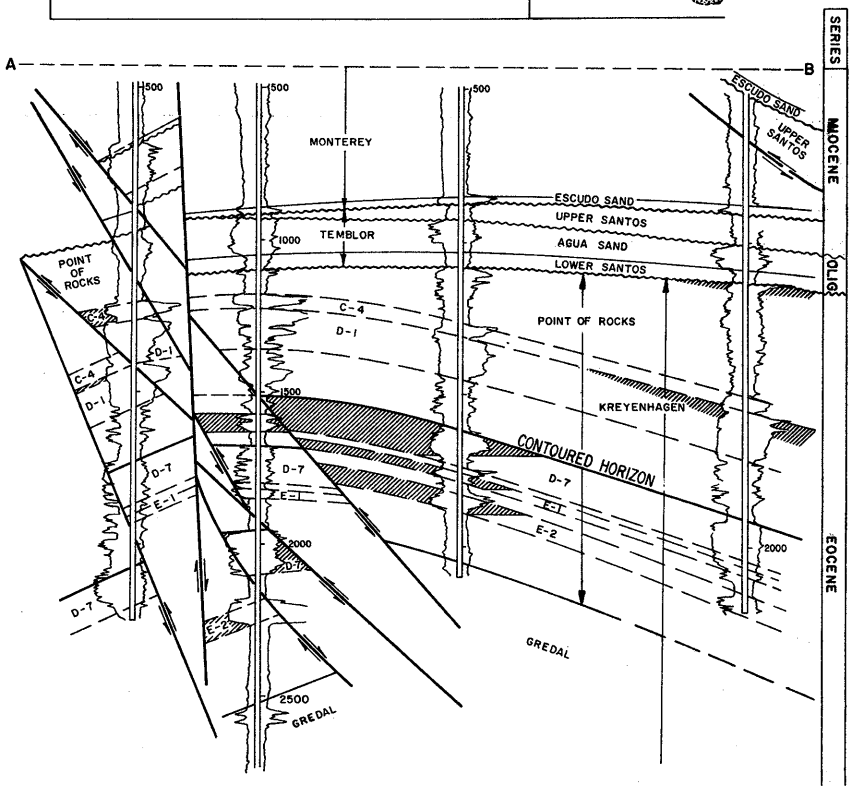


MARCH 1980

DEVILS DEN OIL FIELD

Alferitz Area (Northern Part)

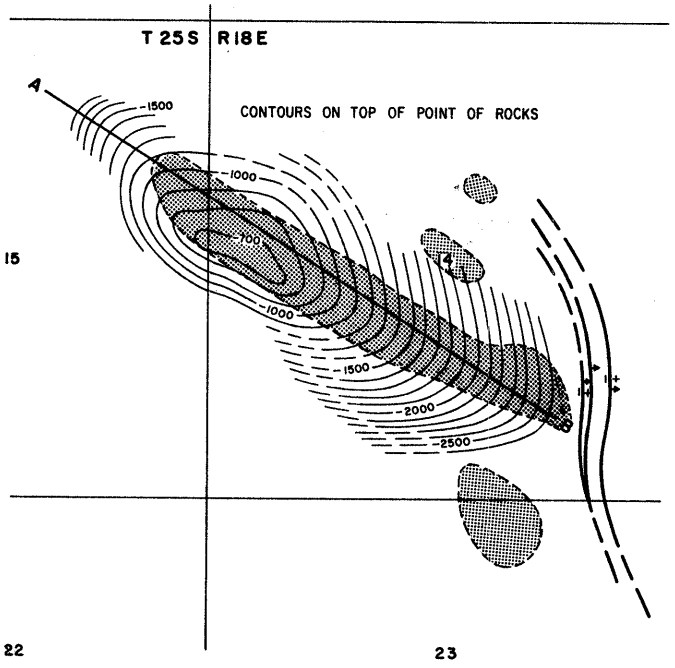


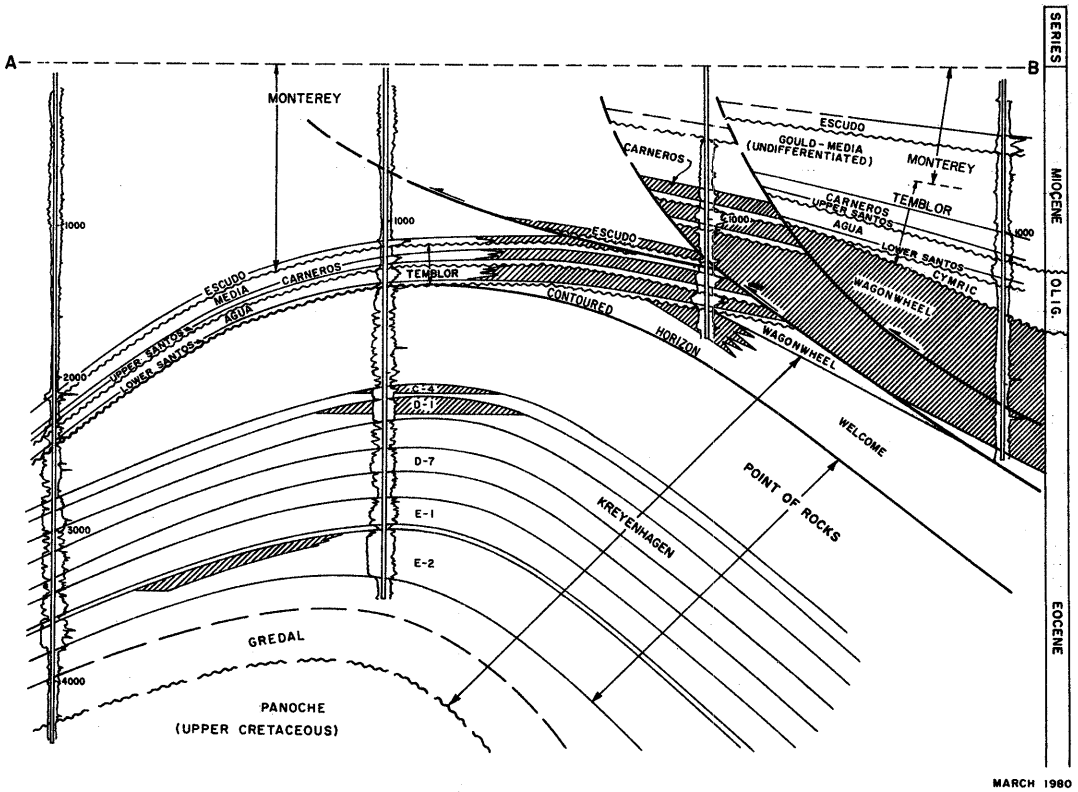


MARCH 1980

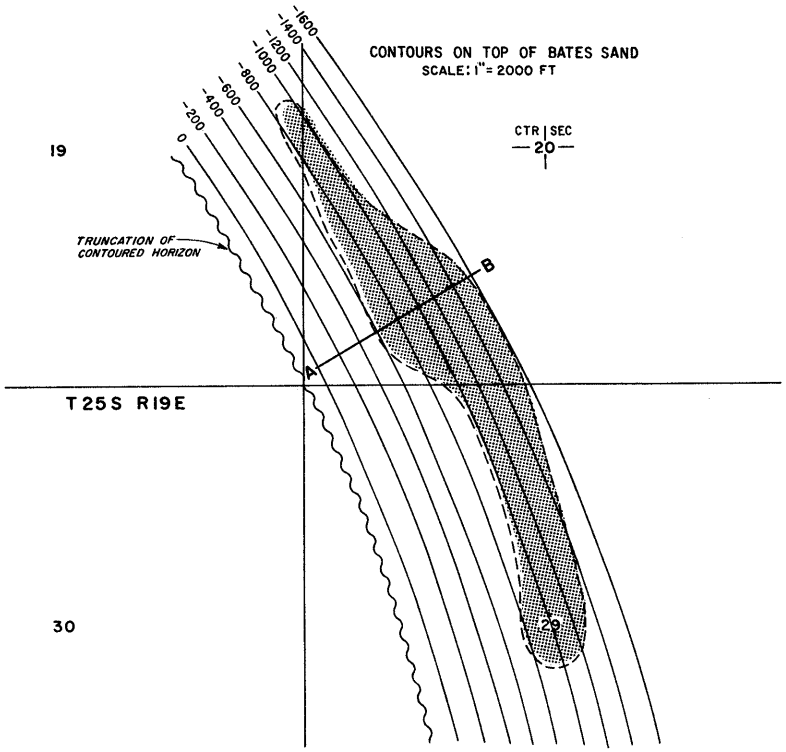
DEVILS DEN OIL FIELD

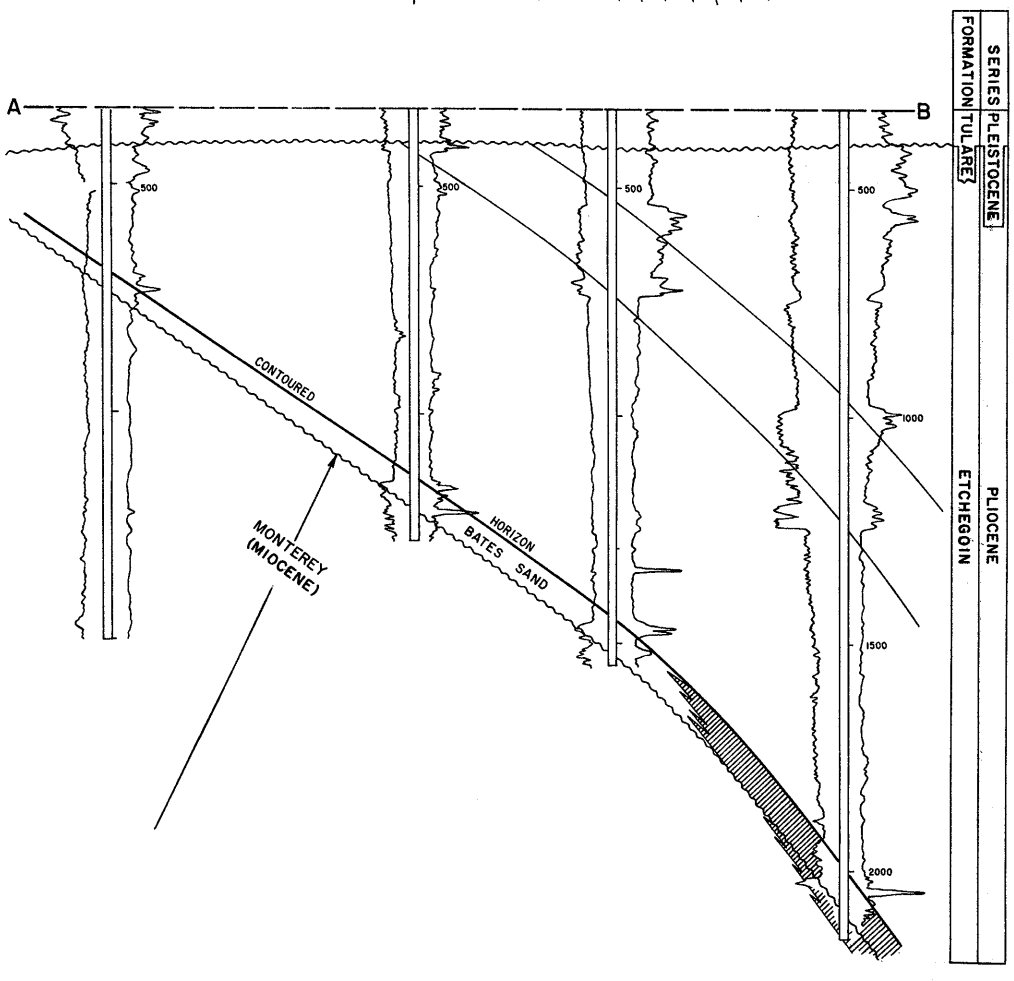
Alferitz Area (Southern Part)





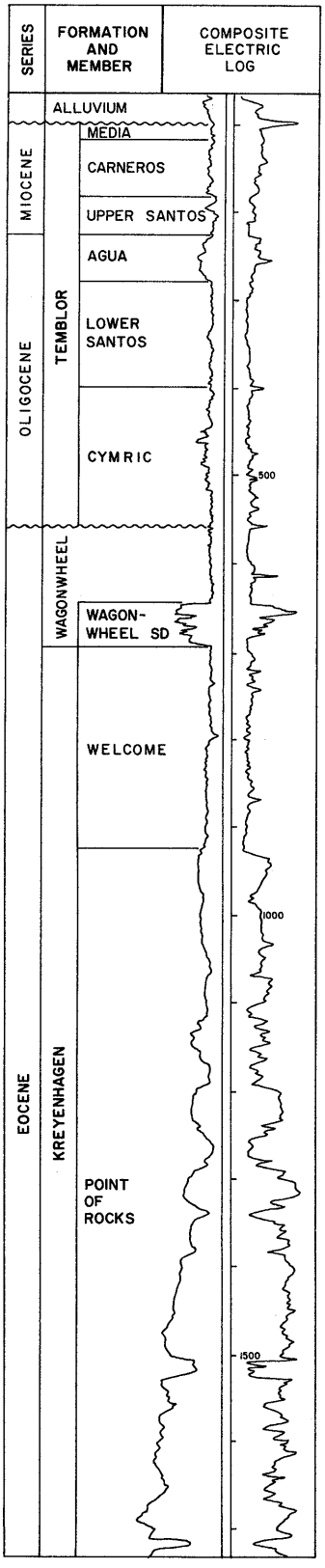
DEVILS DEN OIL FIELD
Bates Area

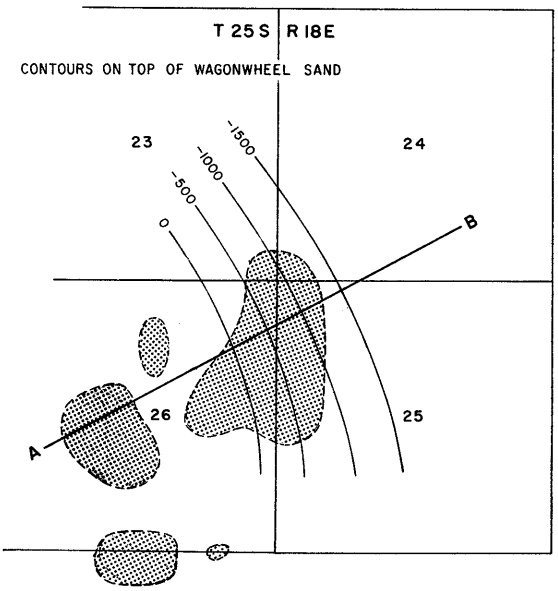


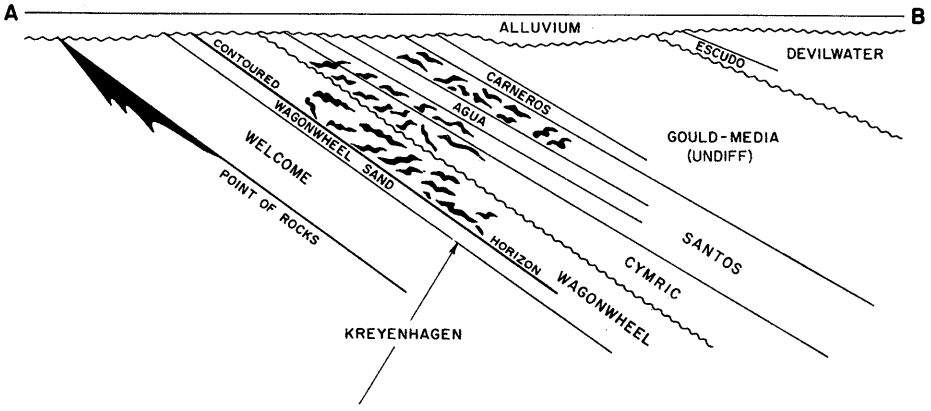


MARCH 1980

DEVILS DEN OIL FIELD
Old Area

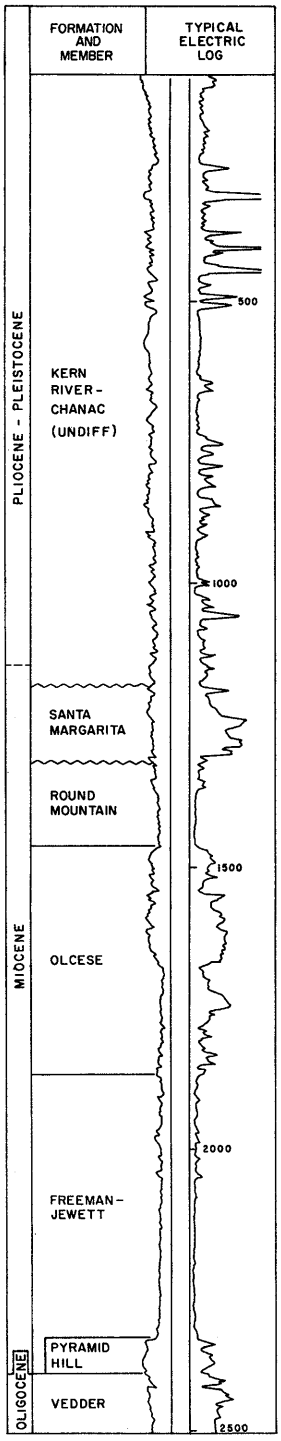


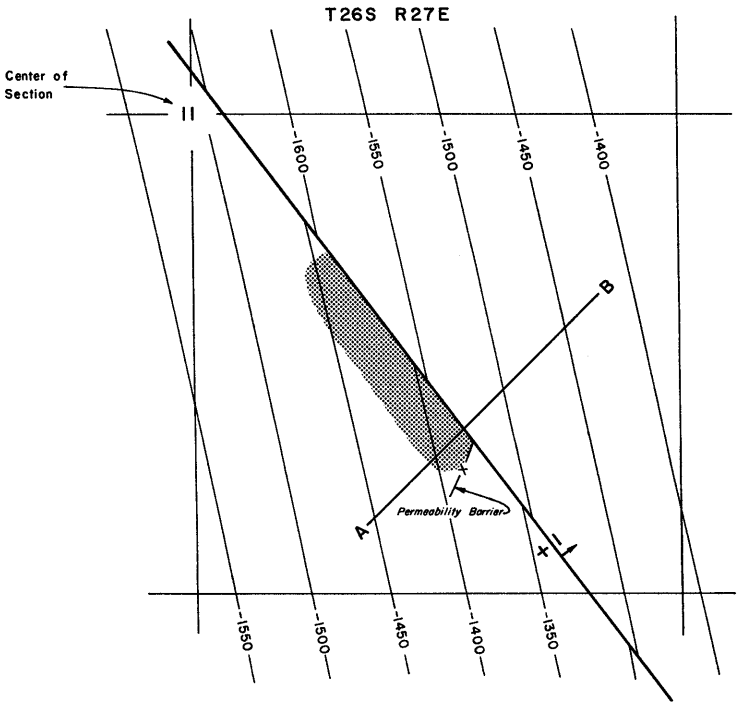




MARCH 1980

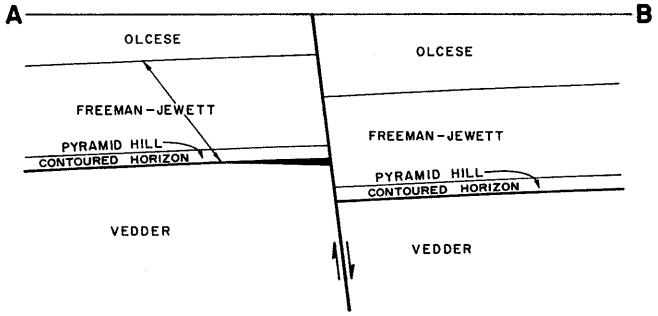
DYER CREEK OIL FIELD
(Abandoned)





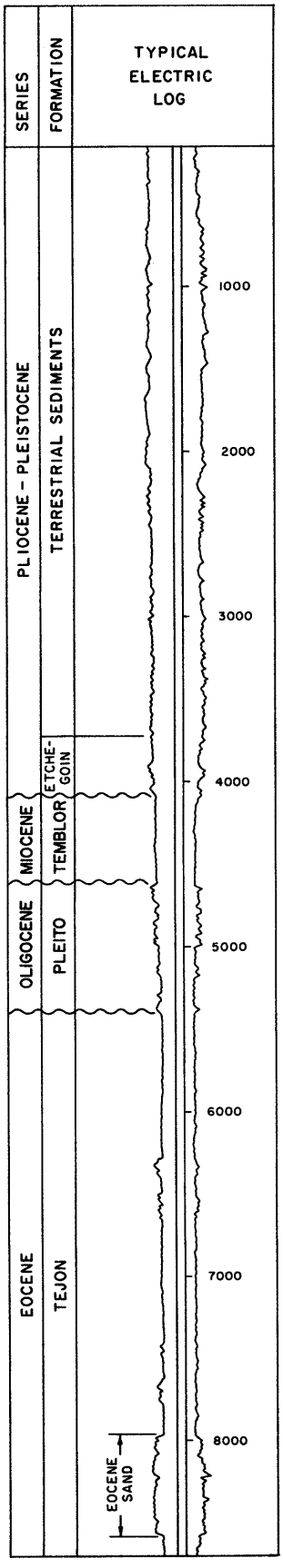
CONTOURS ON TOP OF VEDDER

SCALE: 1"= 1000 FT

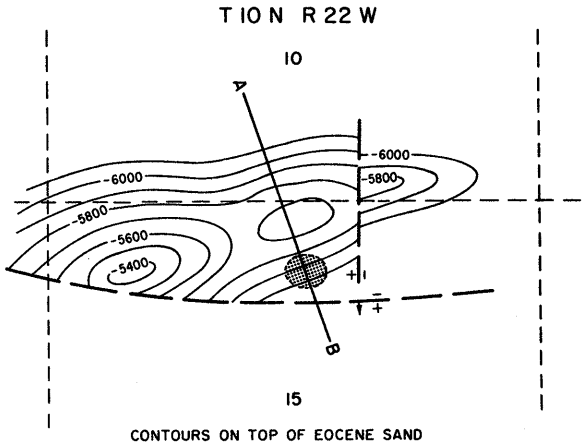


APRIL 1980

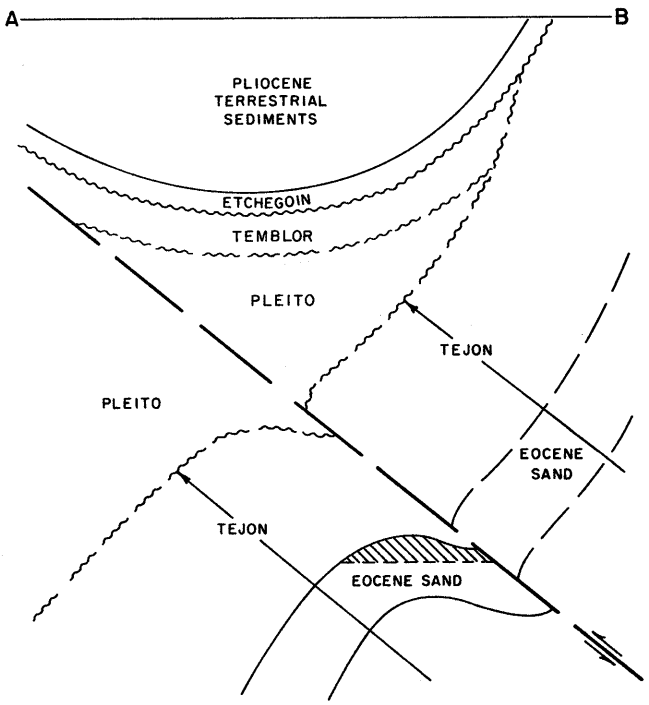
EAGLE REST OIL FIELD



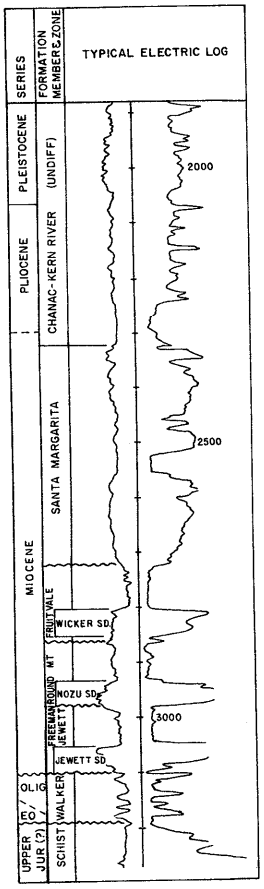
SEPTEMBER 1992



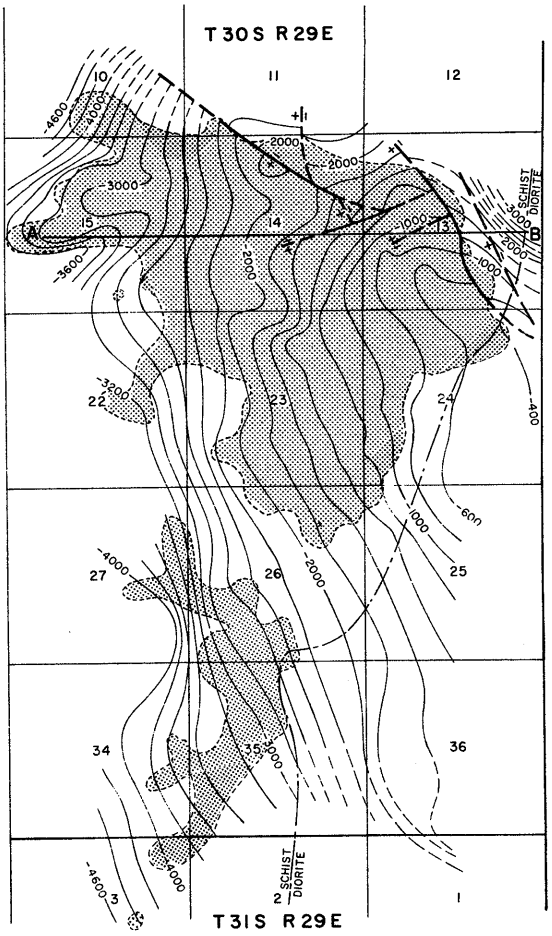
CONTOURS ON TOP OF EOCENE SAND



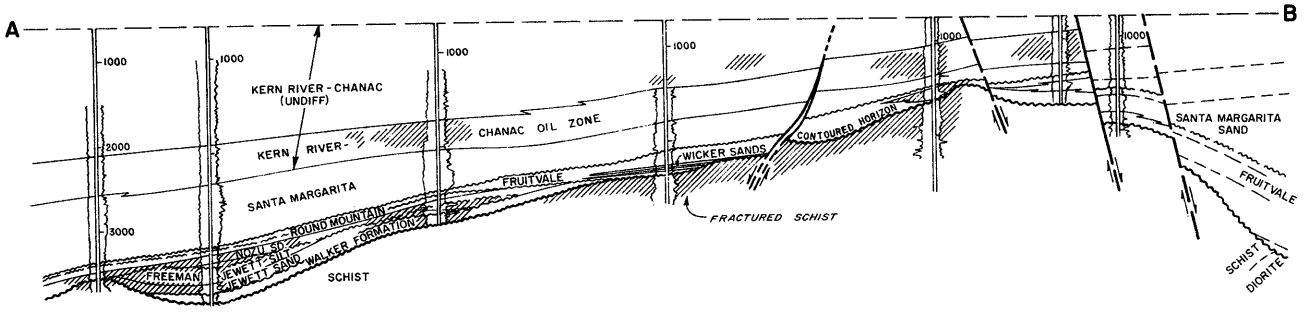
EDISON OIL FIELD
Main Area



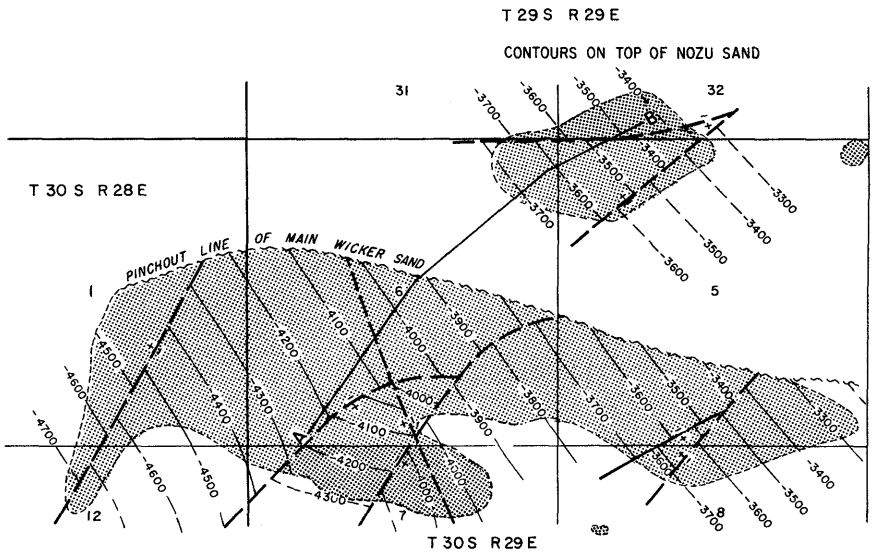
SEPTEMBER 1992

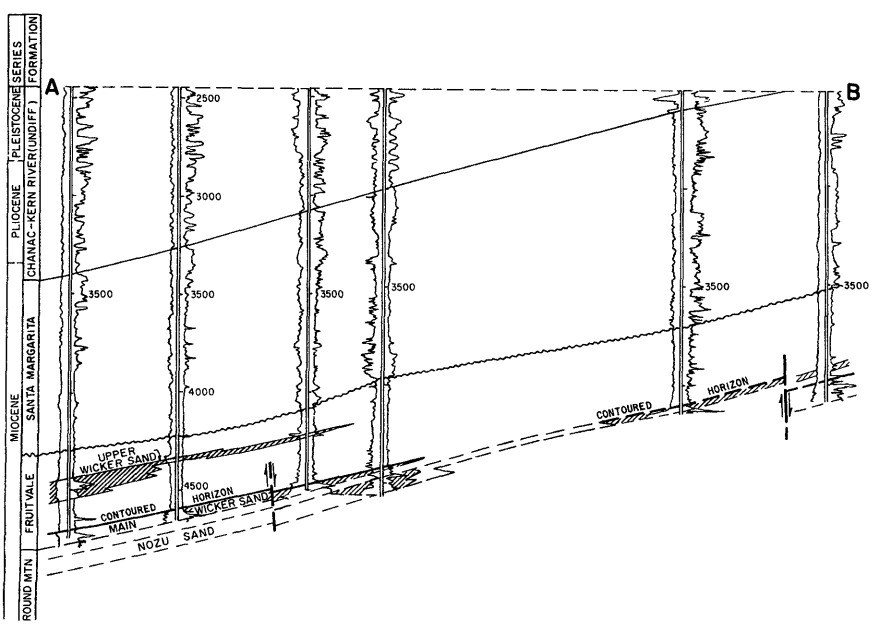


CONTOURS ON TOP OF BASEMENT COMPLEX



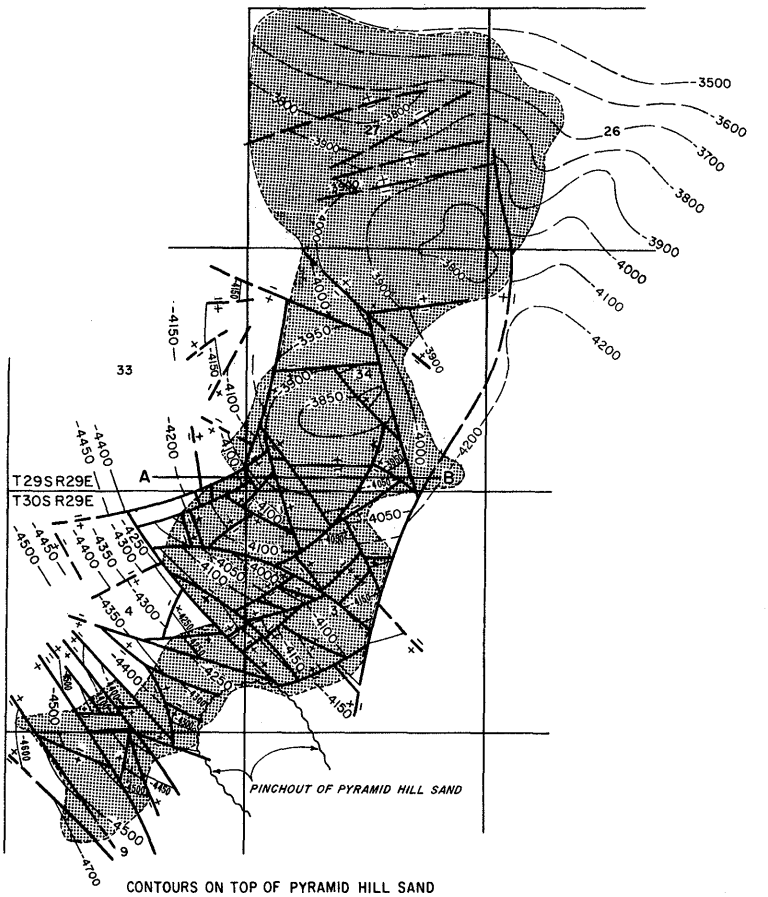
EDISON OIL FIELD
Portals - Fairfax Area



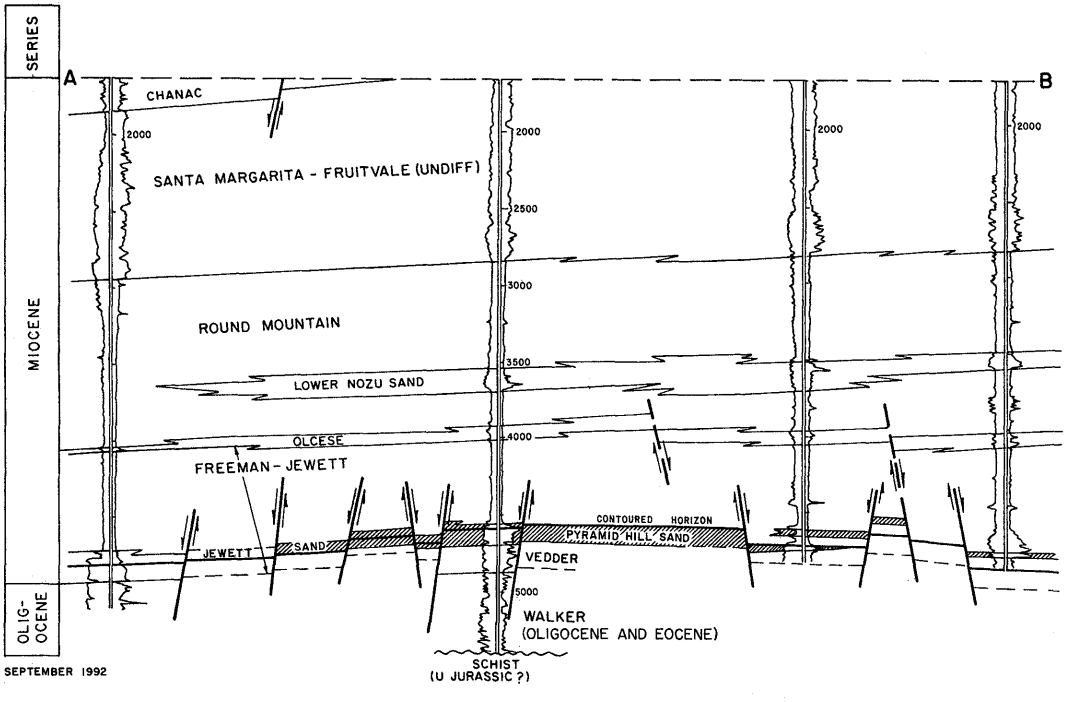


SEPTEMBER 1992

EDISON OIL FIELD
Race Track Hill Area

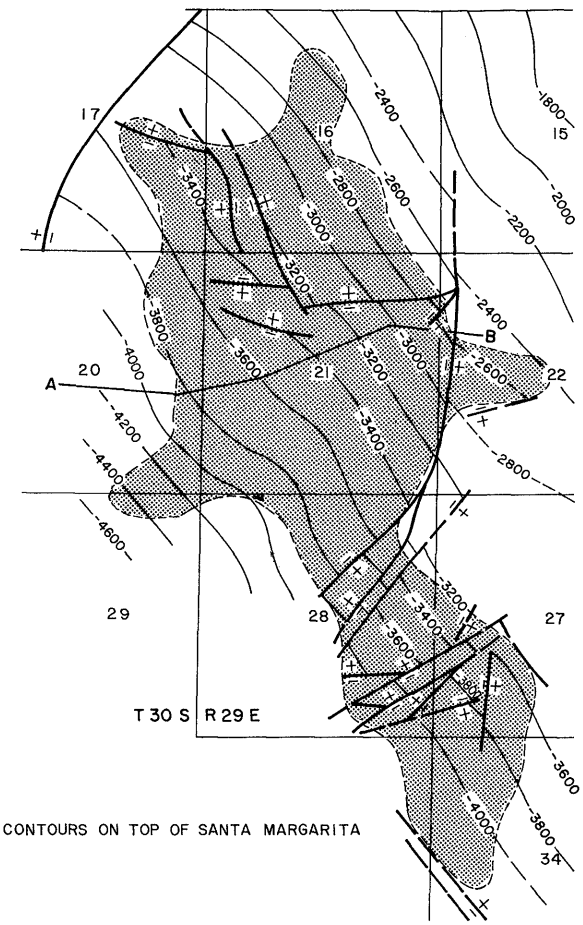


CONTOURS ON TOP OF PYRAMID HILL SAND

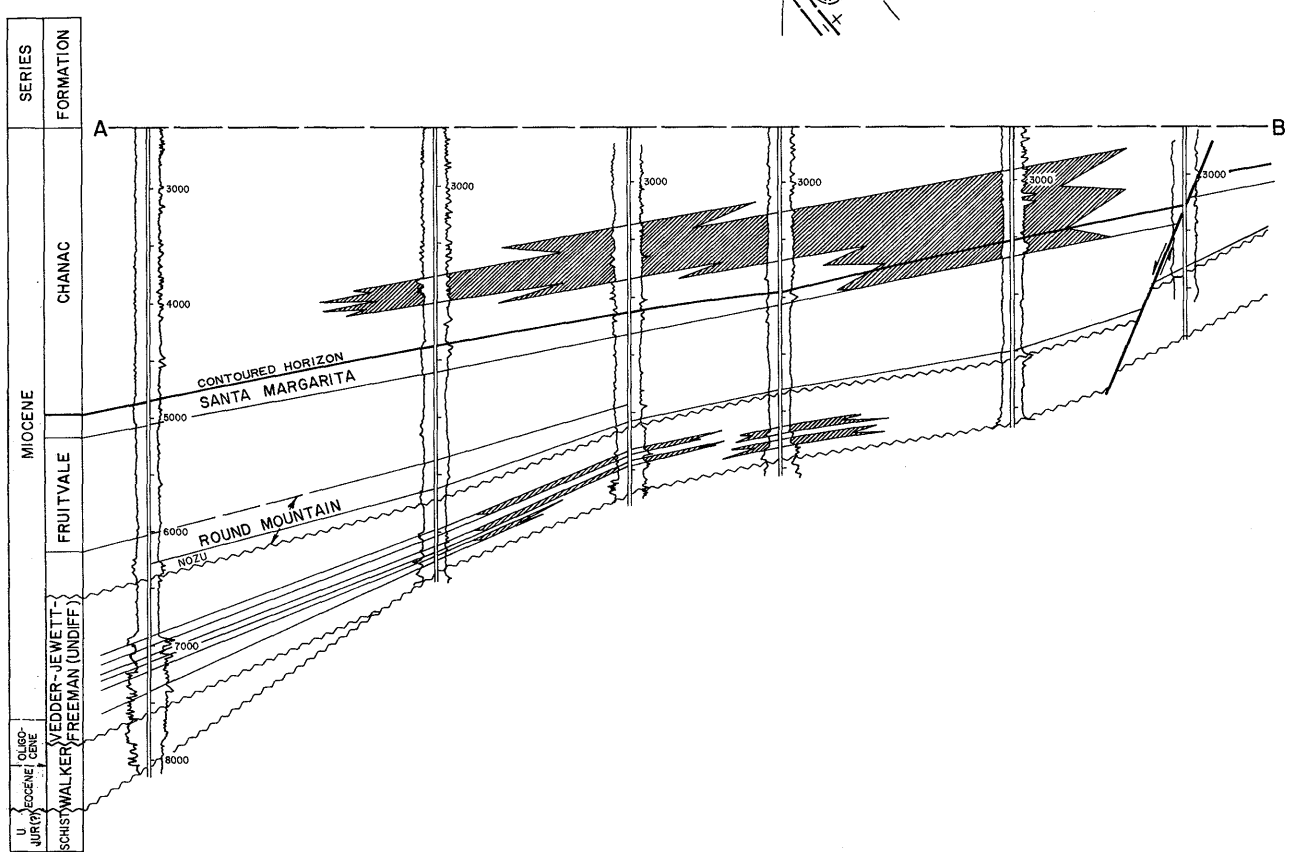


SEPTEMBER 1992

EDISON OIL FIELD
West Area

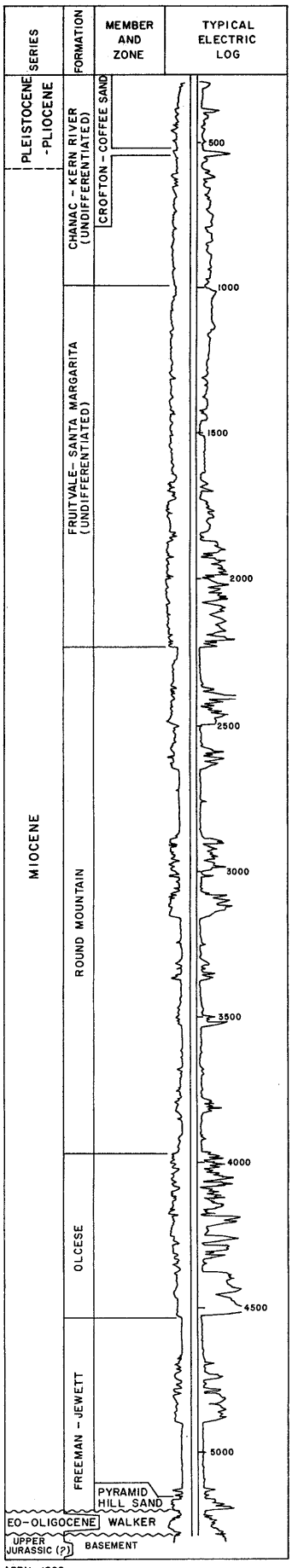


CONTOURS ON TOP OF SANTA MARGARITA

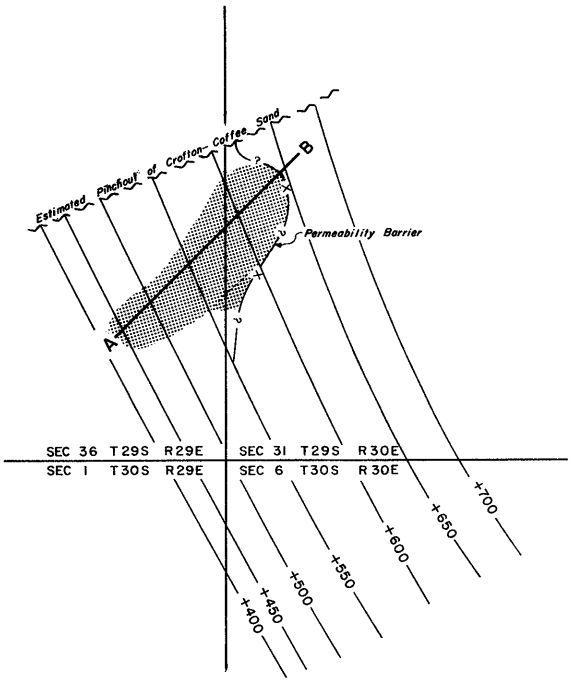


DECEMBER 1994

NORTHEAST EDISON OIL FIELD

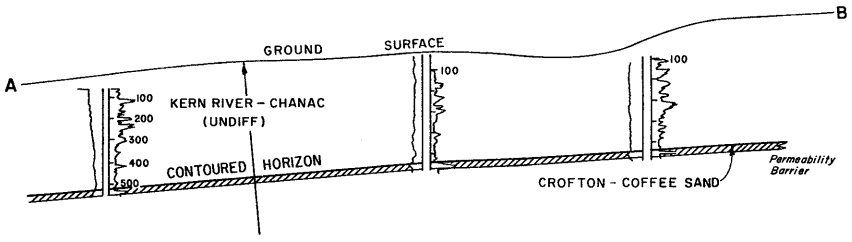


APRIL 1980

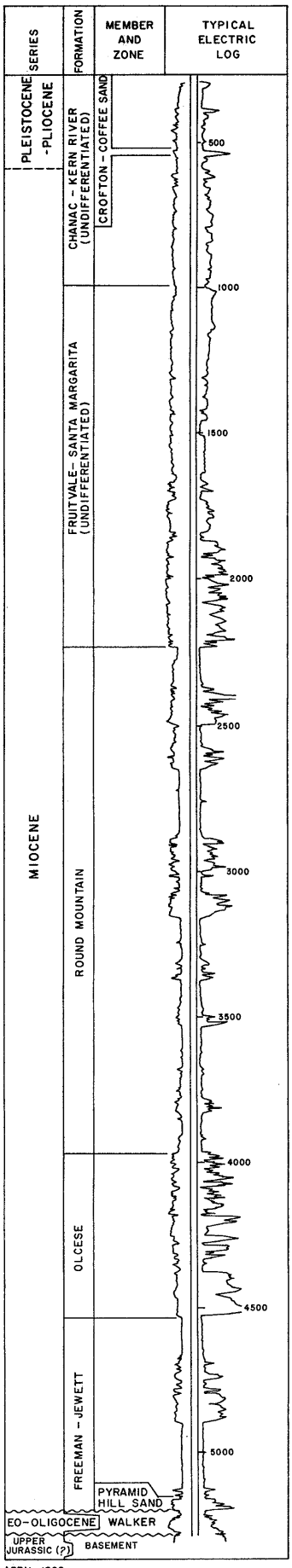


CONTOURS ON TOP OF CROFTON-COFFEE SAND

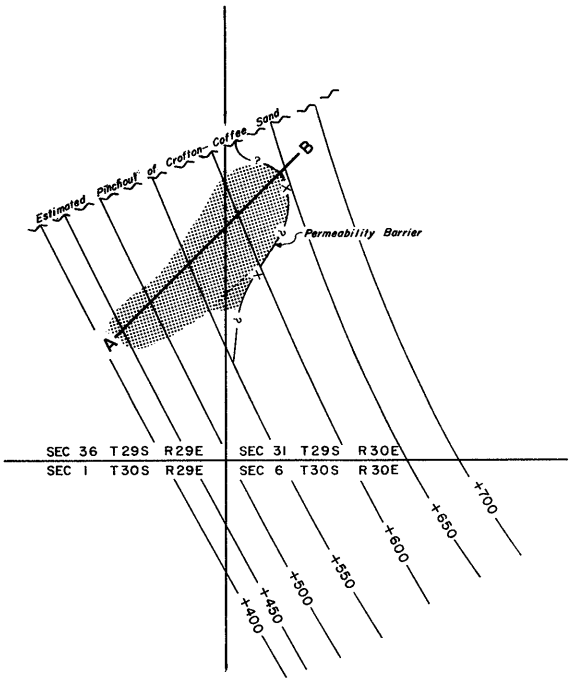
SCALE 1" = 2,000'



NORTHEAST EDISON OIL FIELD

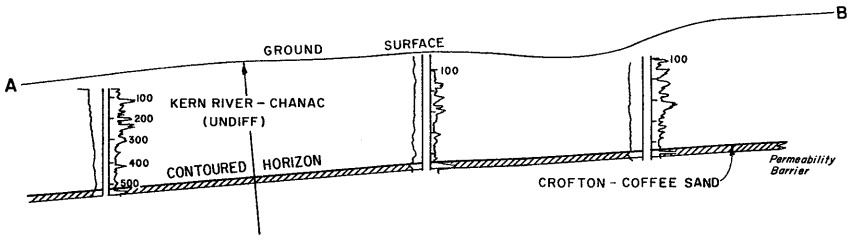


APRIL 1980

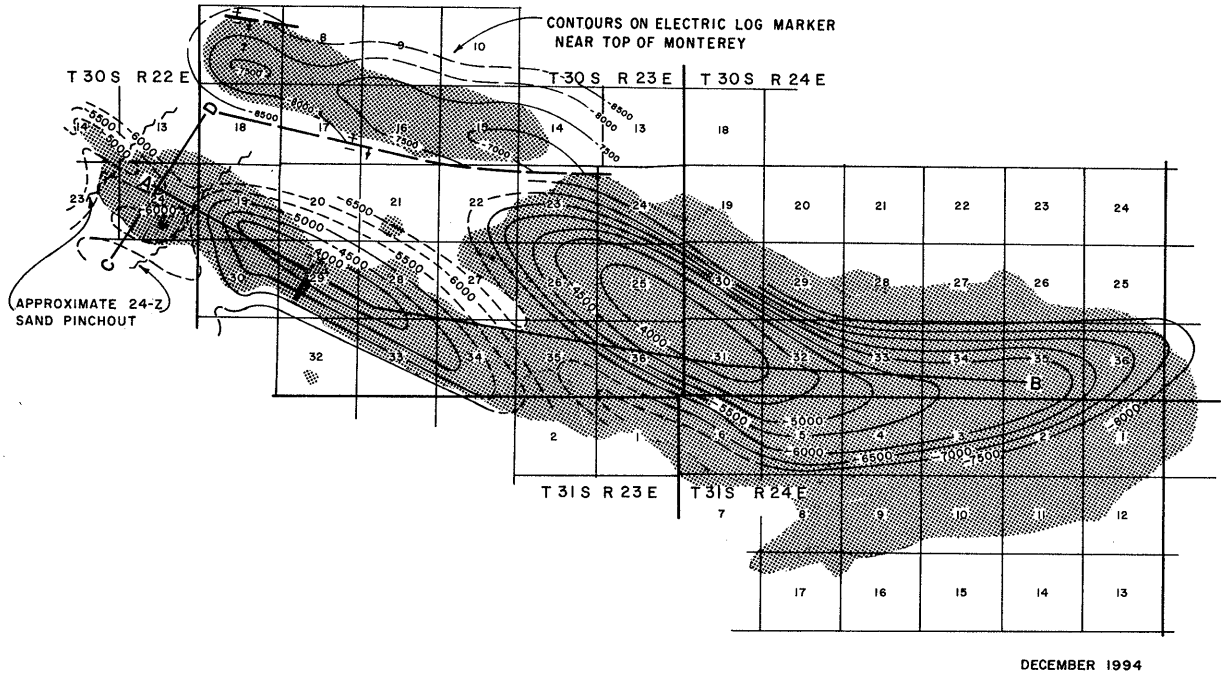


CONTOURS ON TOP OF CROFTON-COFFEE SAND

SCALE 1" = 2,000'

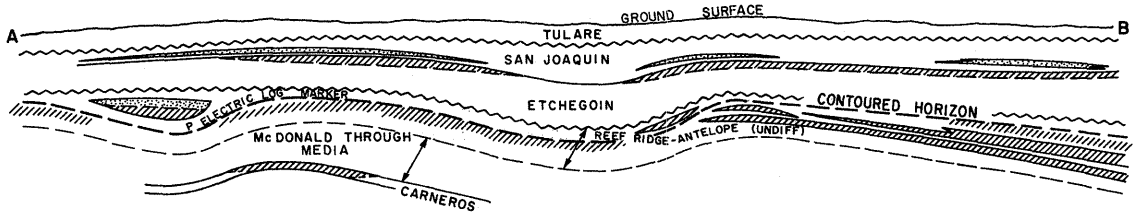


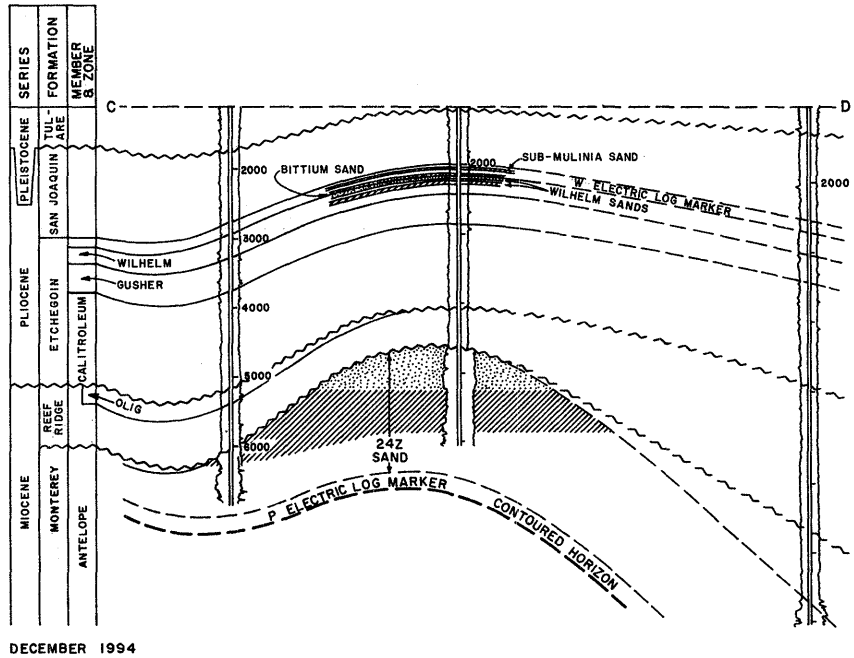
ELK HILLS OIL FIELD



CONTOURS ON P ELECTRIC LOG MARKER

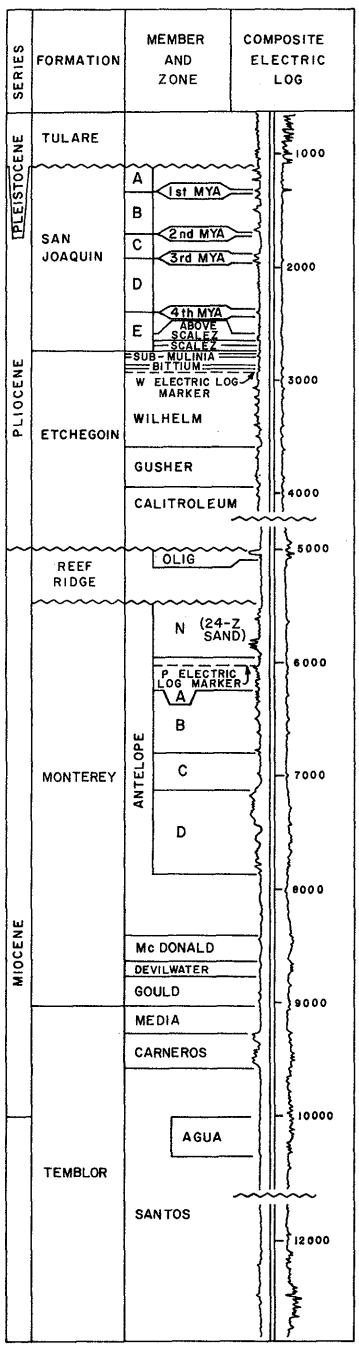
ELK HILLS OIL FIELD



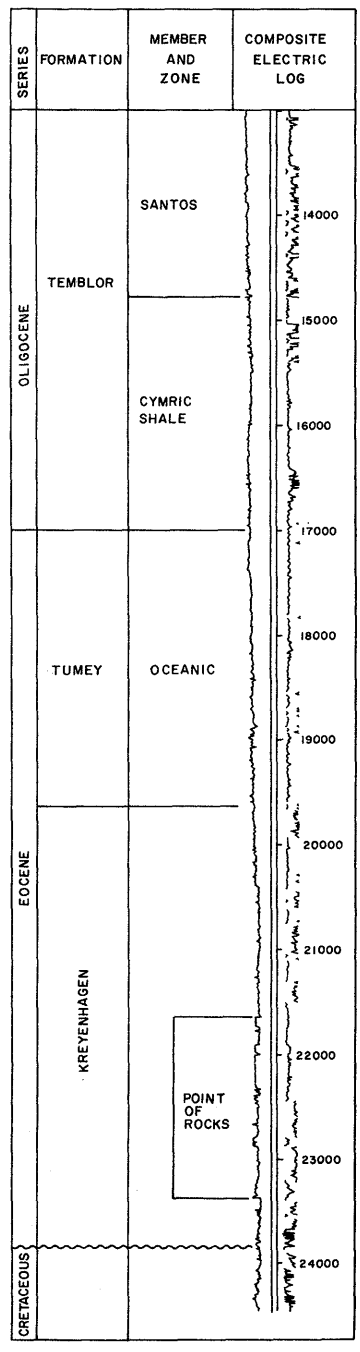


DECEMBER 1994

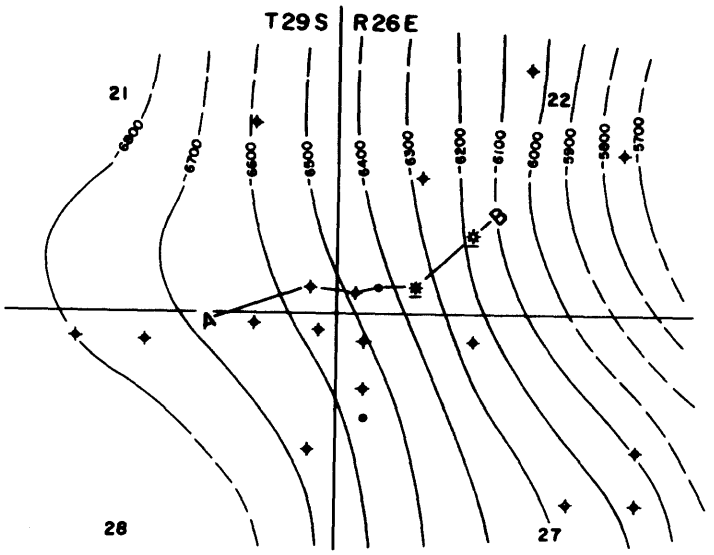
ELK HILLS OIL FIELD



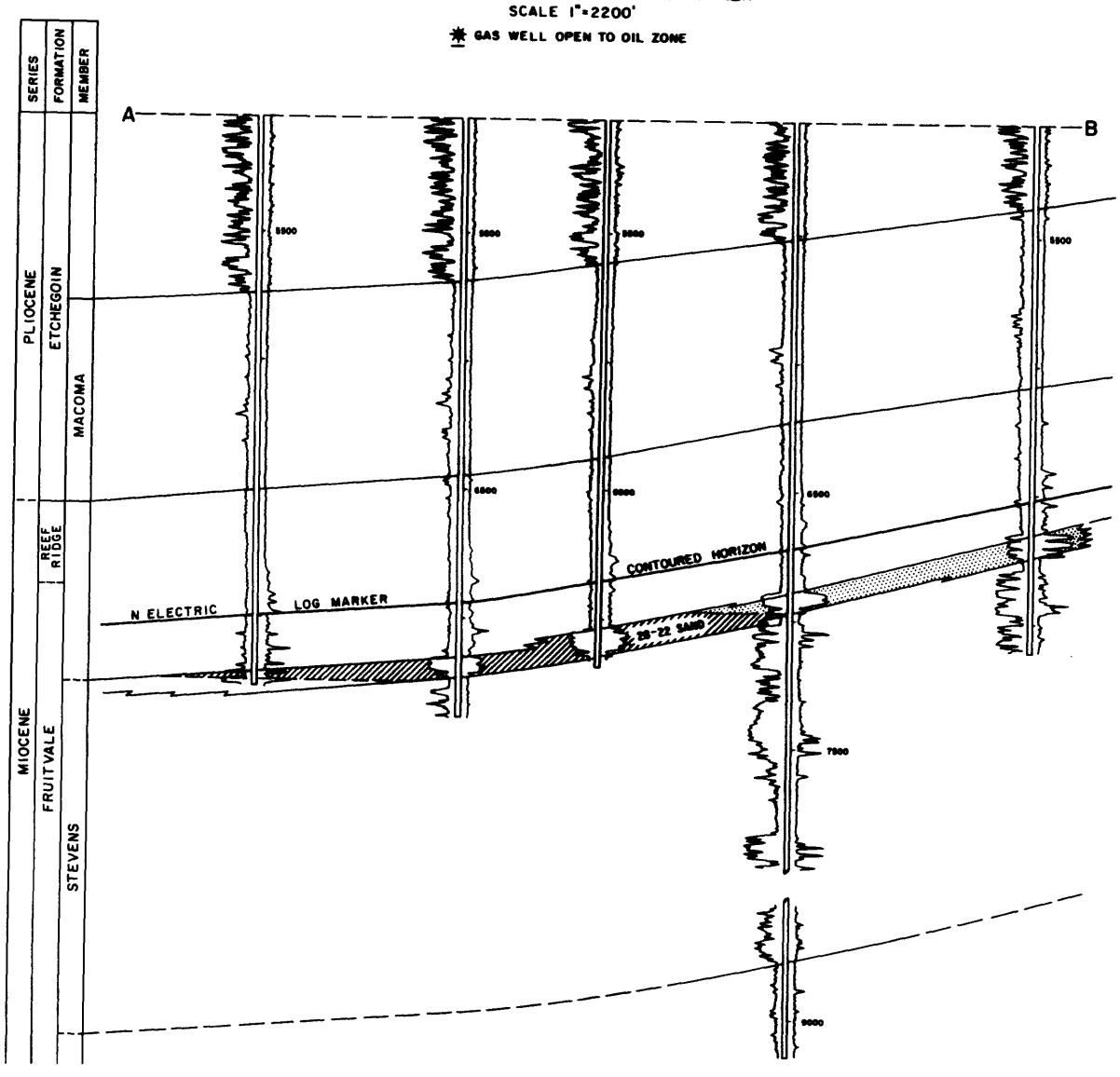
SEPTEMBER 1992



ENGLISH COLONY OIL FIELD

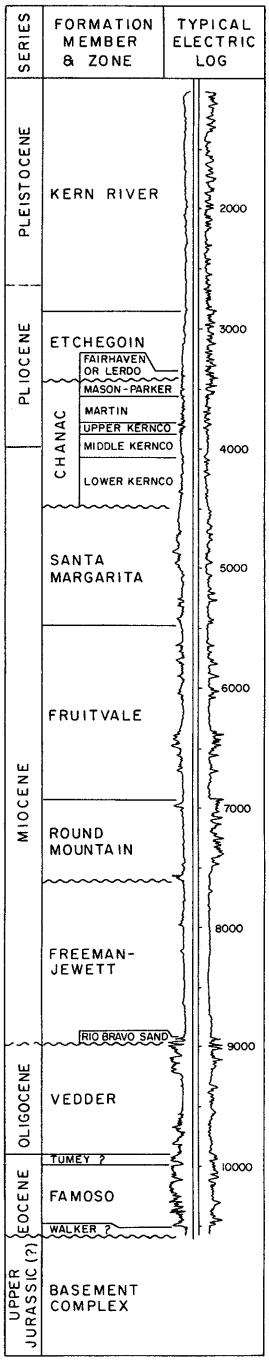


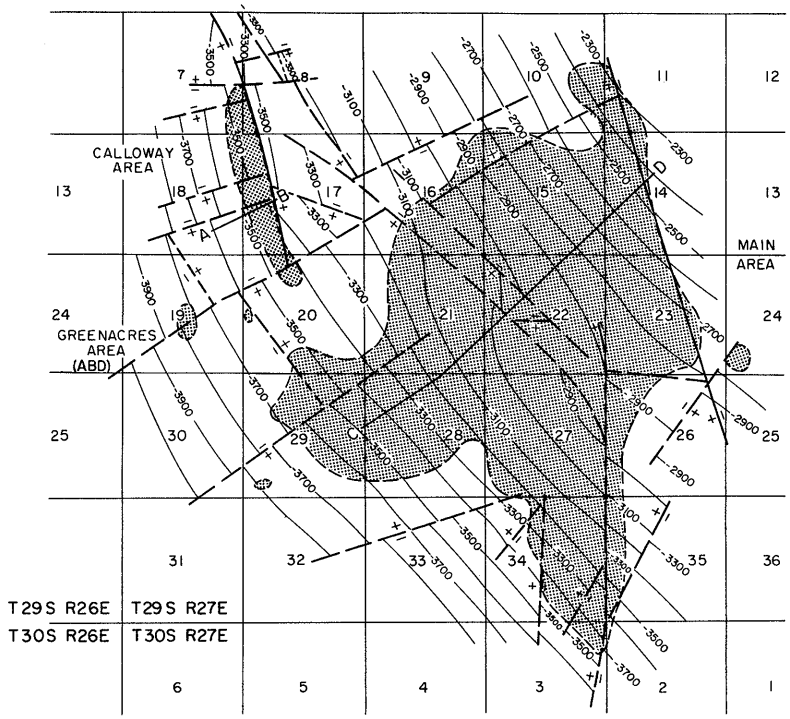
CONTOURS ON N ELECTRIC LOG MARKER
SCALE 1"=2200'
✱ GAS WELL OPEN TO OIL ZONE



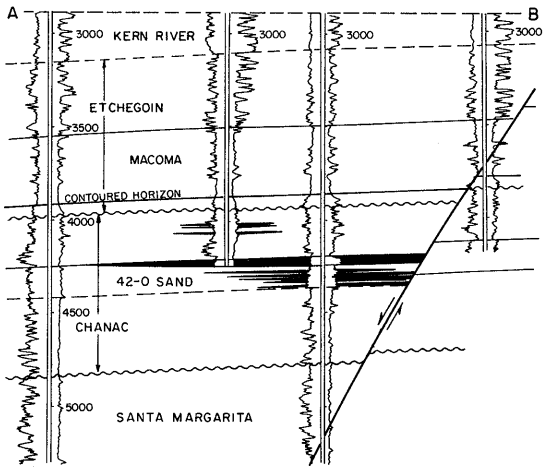
APRIL 1960

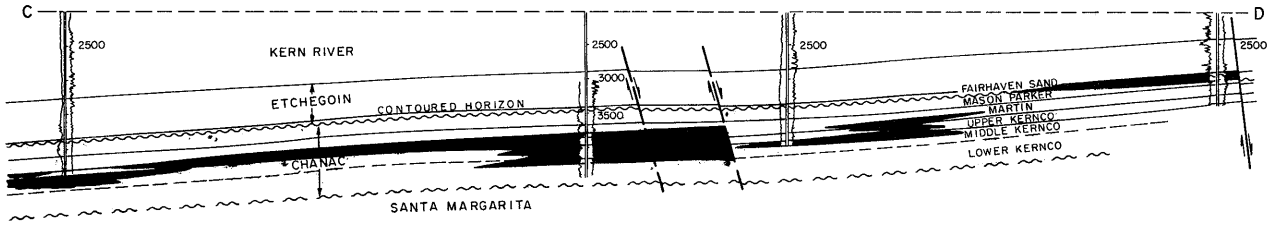
FRUITVALE OIL FIELD





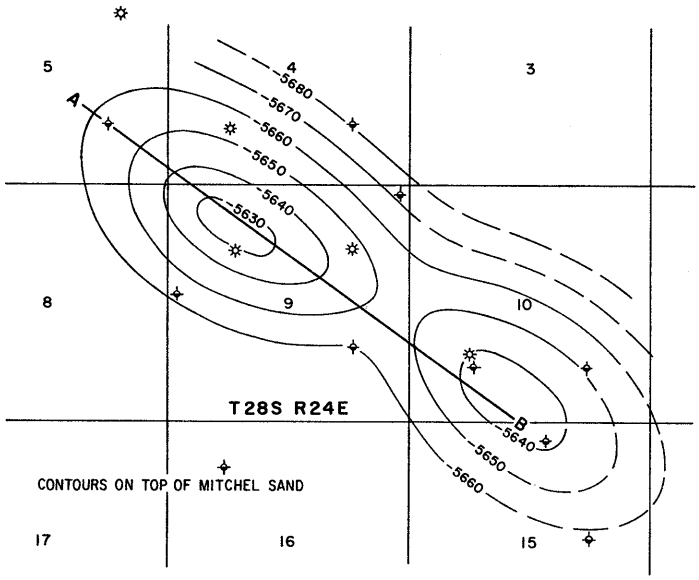
CONTOURS ON TOP OF BASAL ETCHEGOIN SAND (FAIRHAVEN OR LERDO)

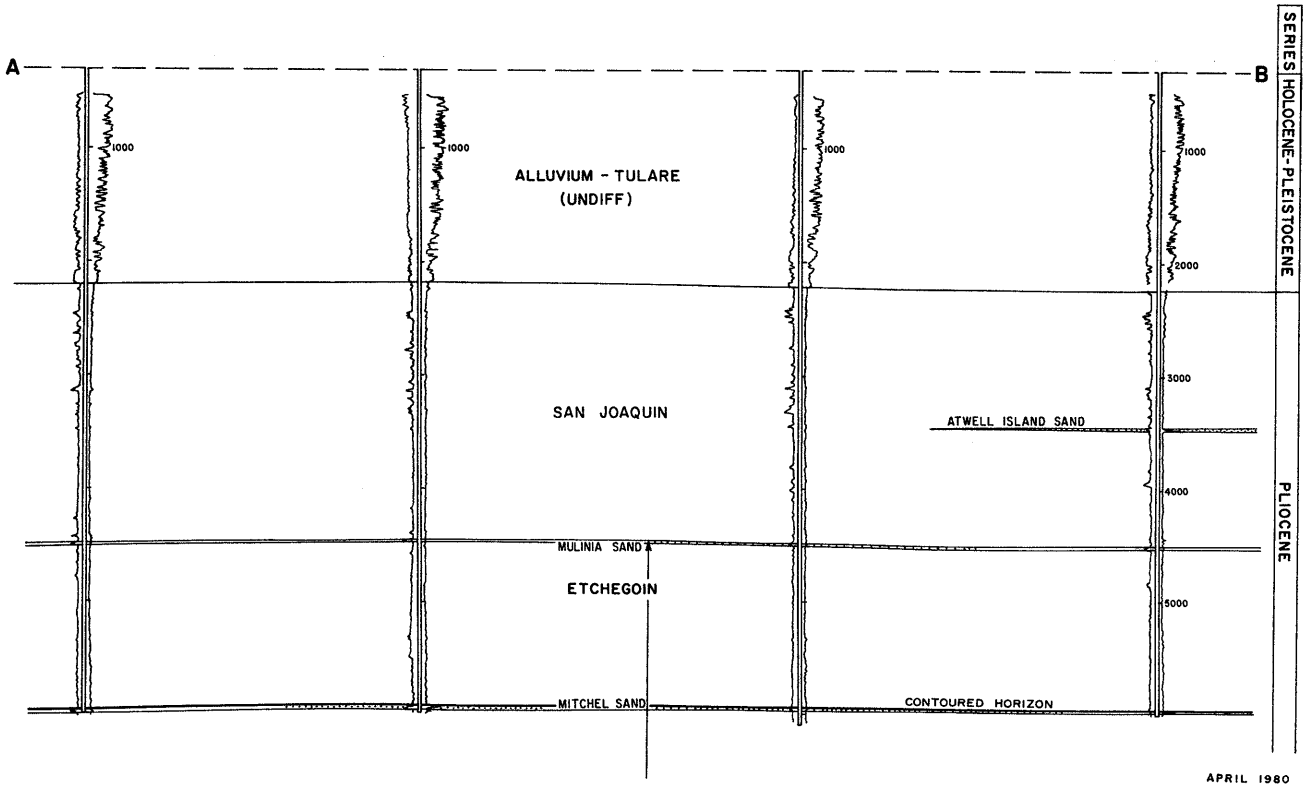




APRIL 1980

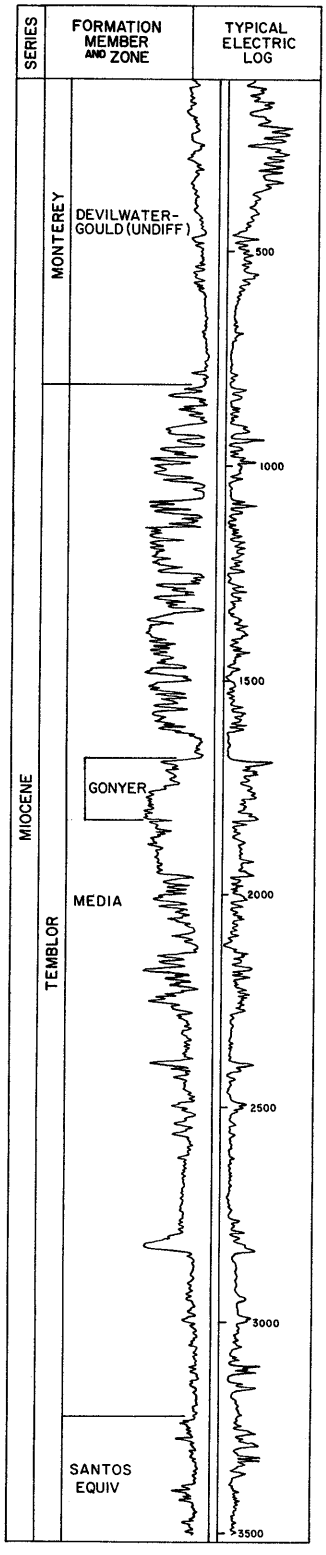
GARRISON CITY GAS FIELD
(Abandoned)



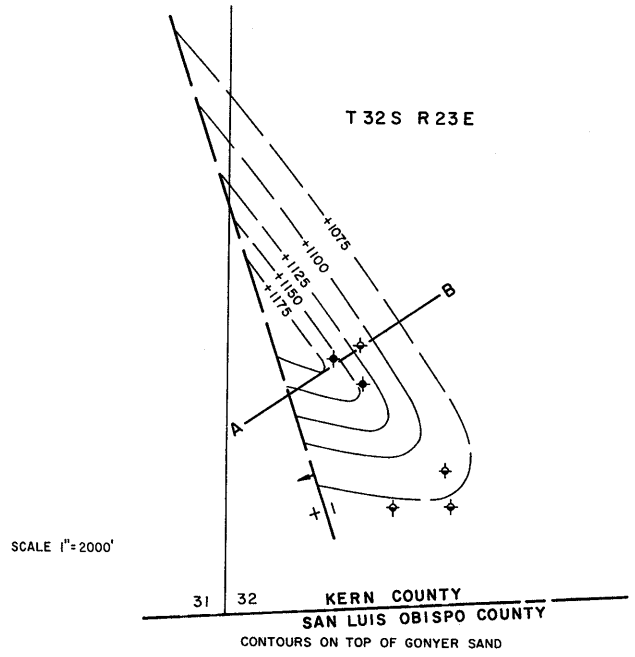


APRIL 1980

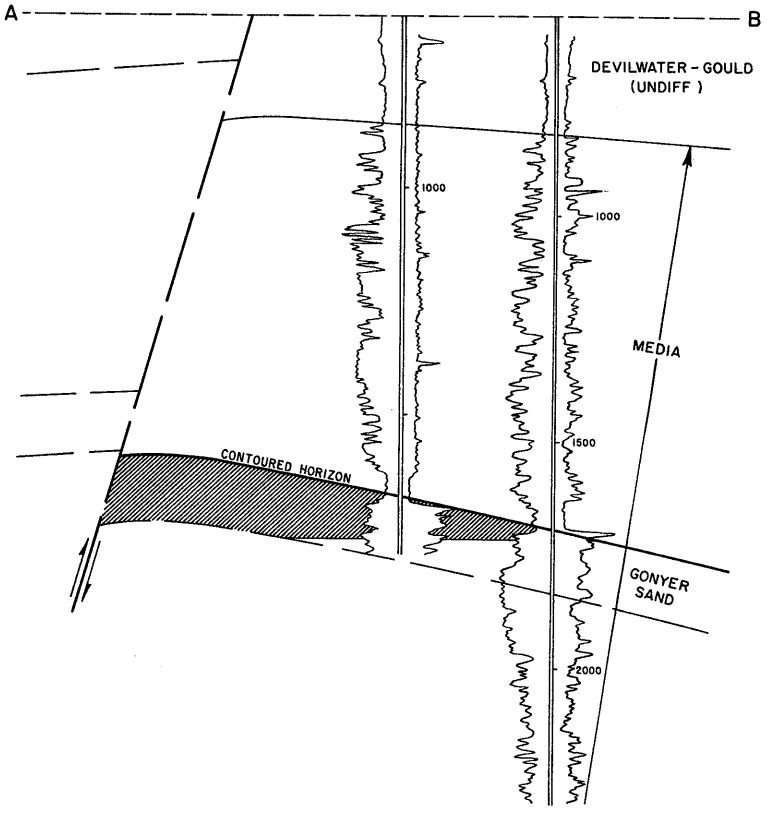
GONYER ANTICLINE OIL FIELD
(Abandoned)



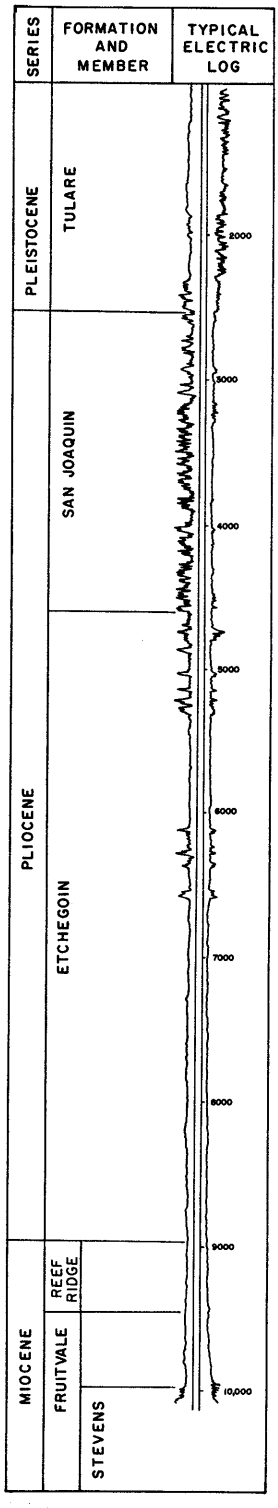
APRIL 1980



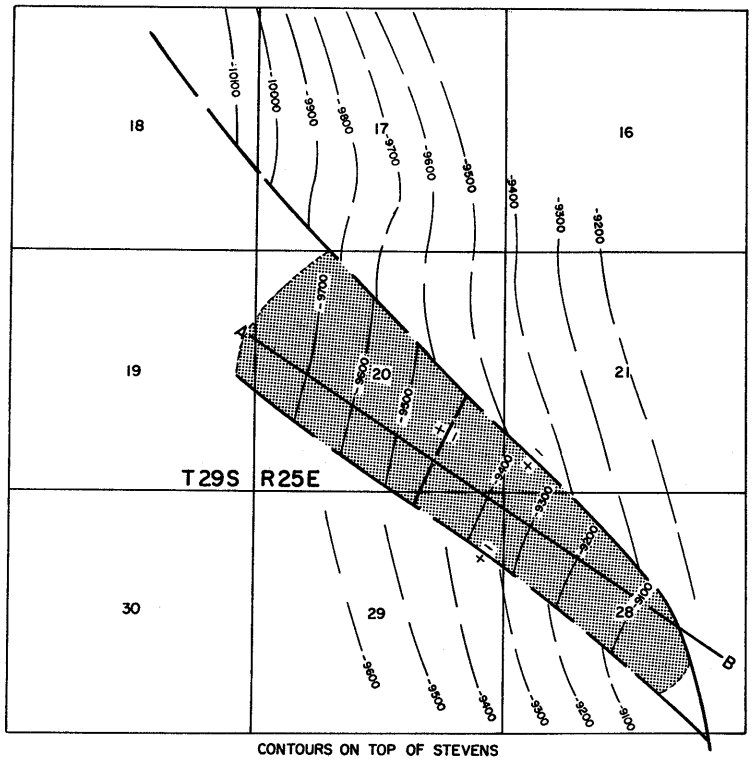
CONTOURS ON TOP OF GONYER SAND



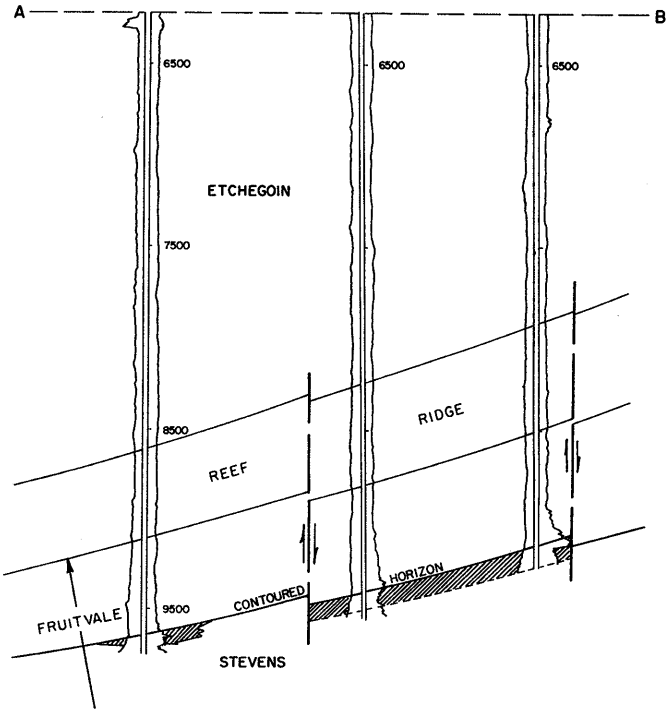
GOOSLOO OIL FIELD



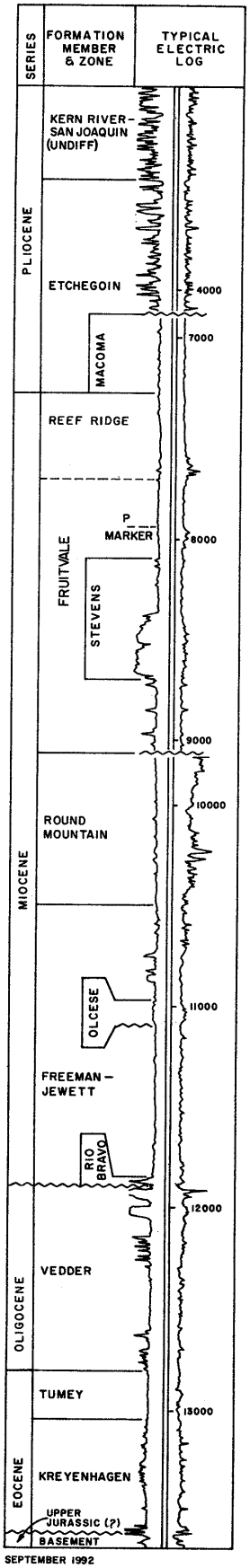
SEPTEMBER 1992

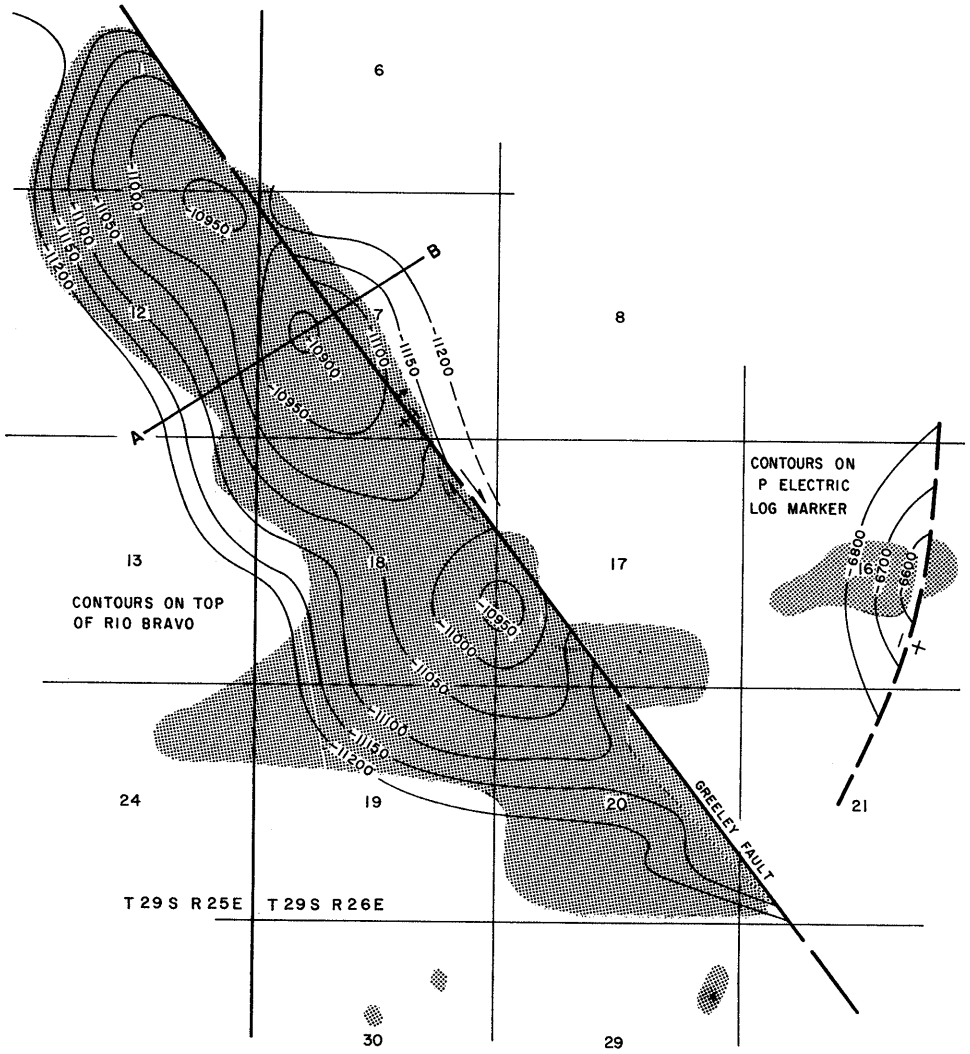


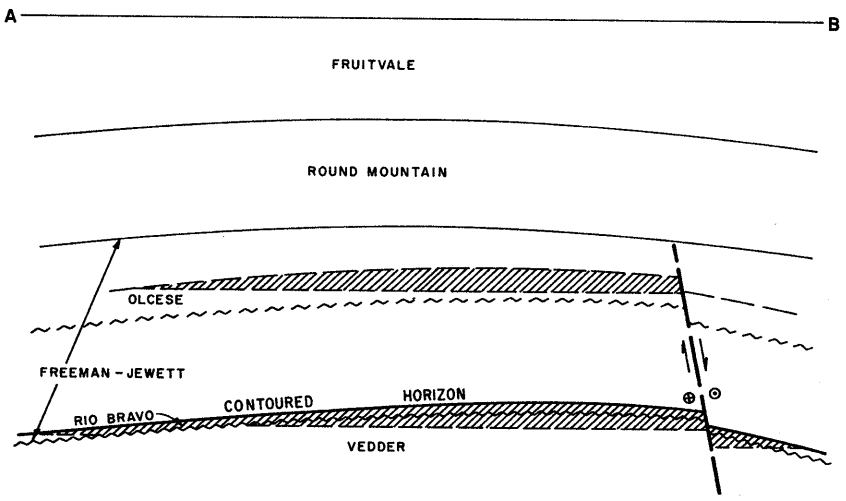
CONTOURS ON TOP OF STEVENS



GREELEY OIL FIELD

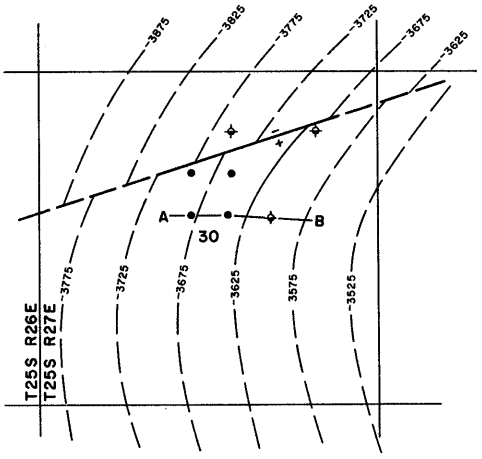




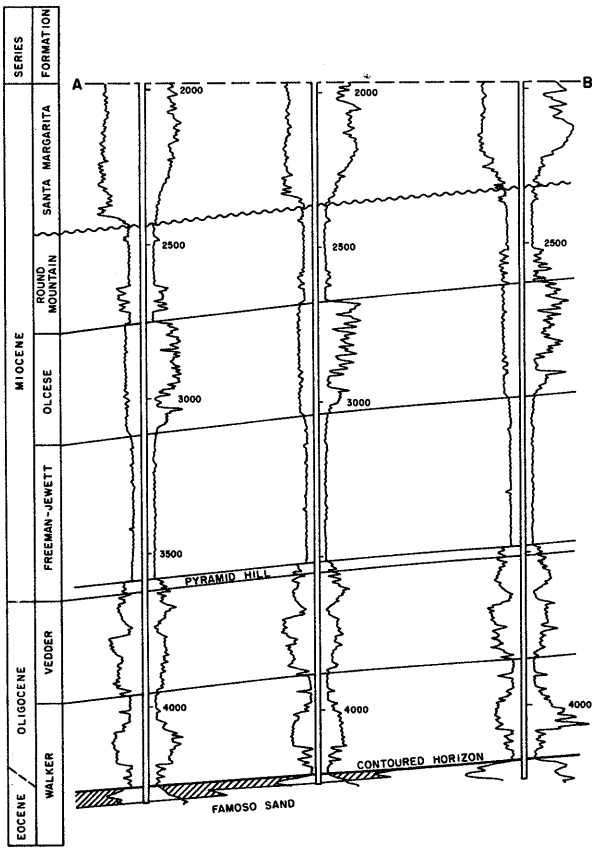


SEPTEMBER 1992

WEST JASMIN OIL FIELD

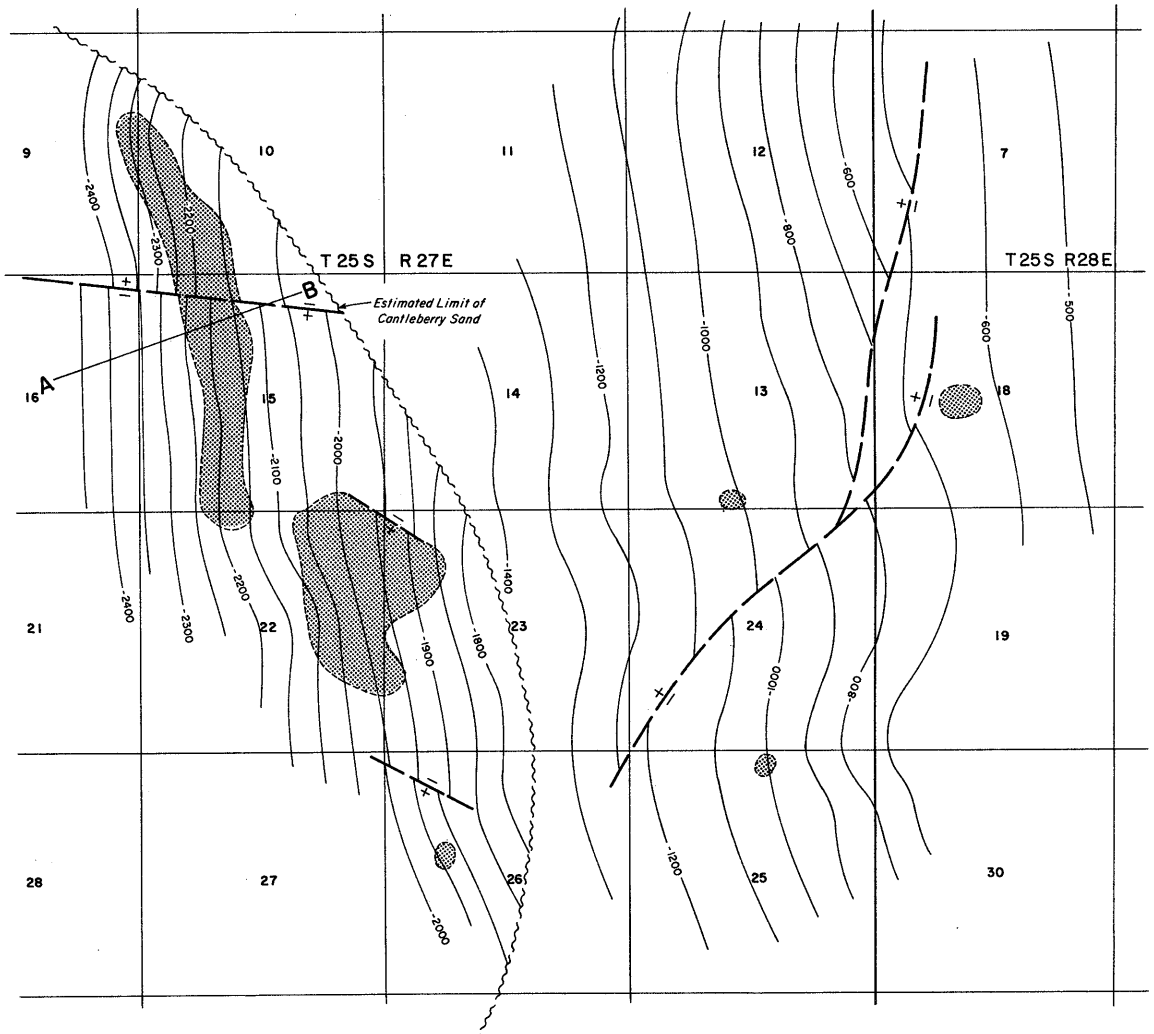


CONTOURS ON TOP OF FAMOSO SAND



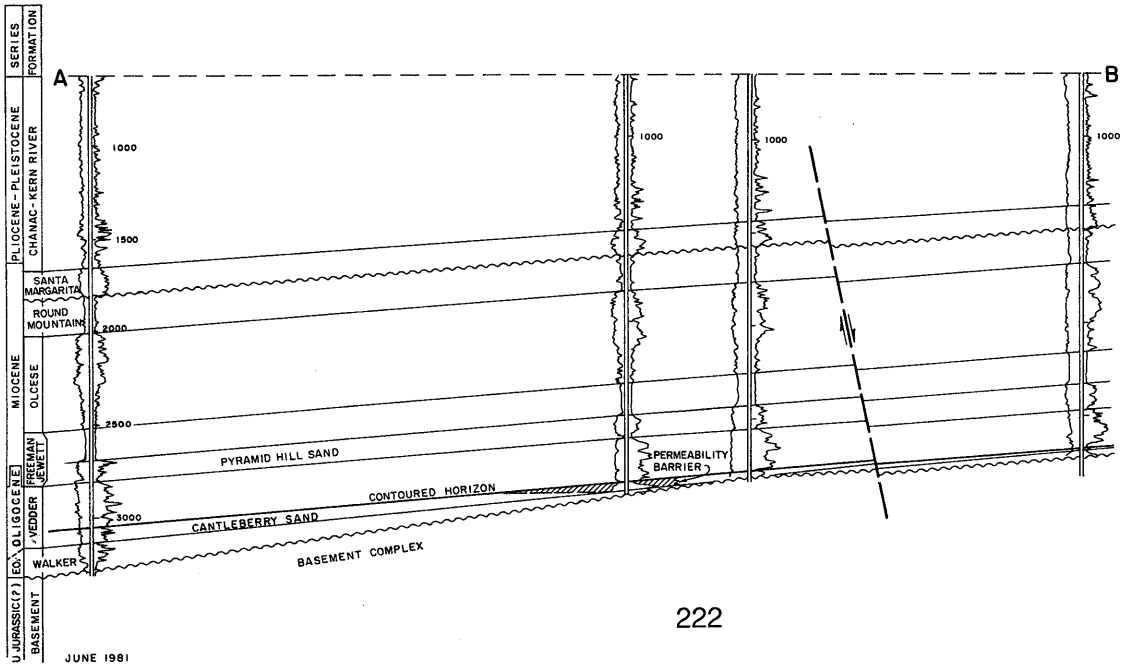
APRIL 1980

JASMIN OIL FIELD

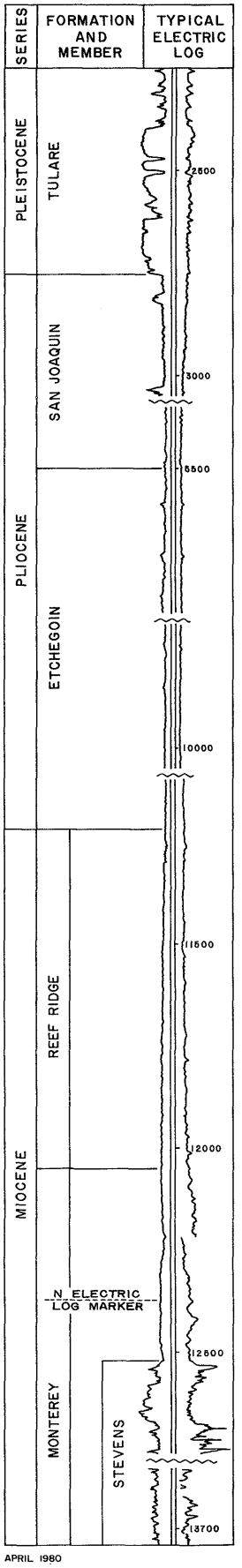


CONTOURS ON TOP OF CANTLEBERRY SAND

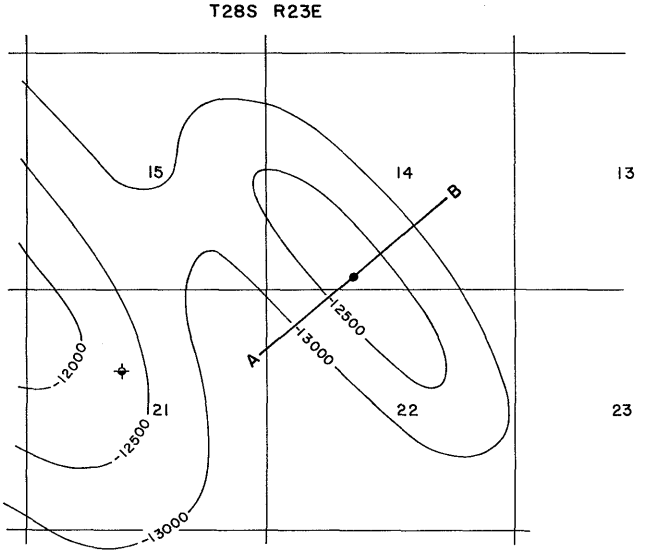
CONTOURS ON TOP OF PYRAMID HILL SAND



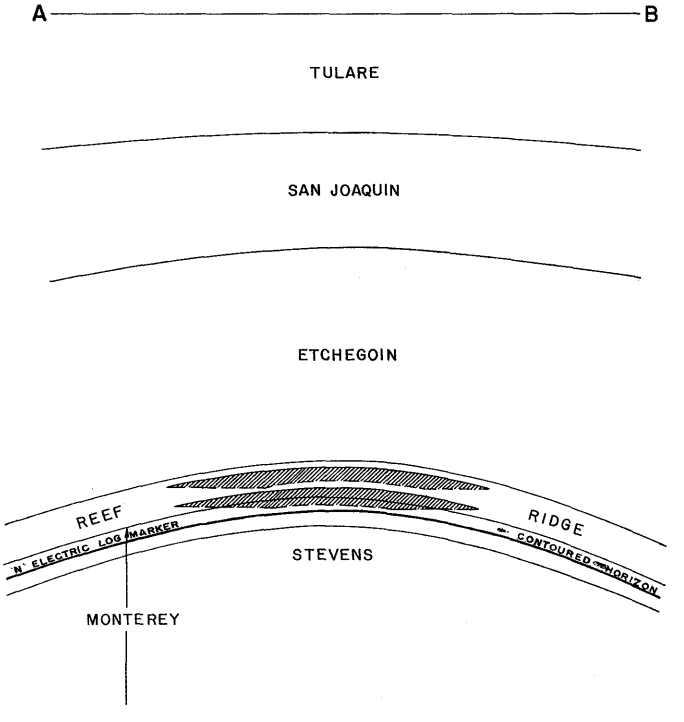
JERRY SLOUGH OIL FIELD



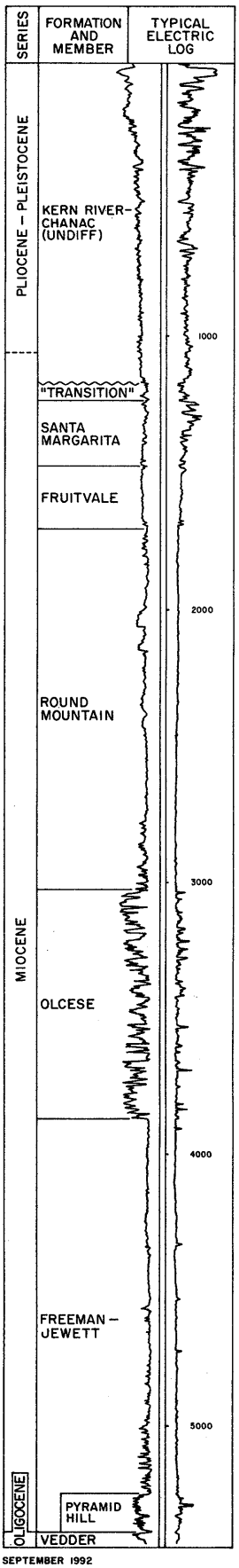
APRIL 1980



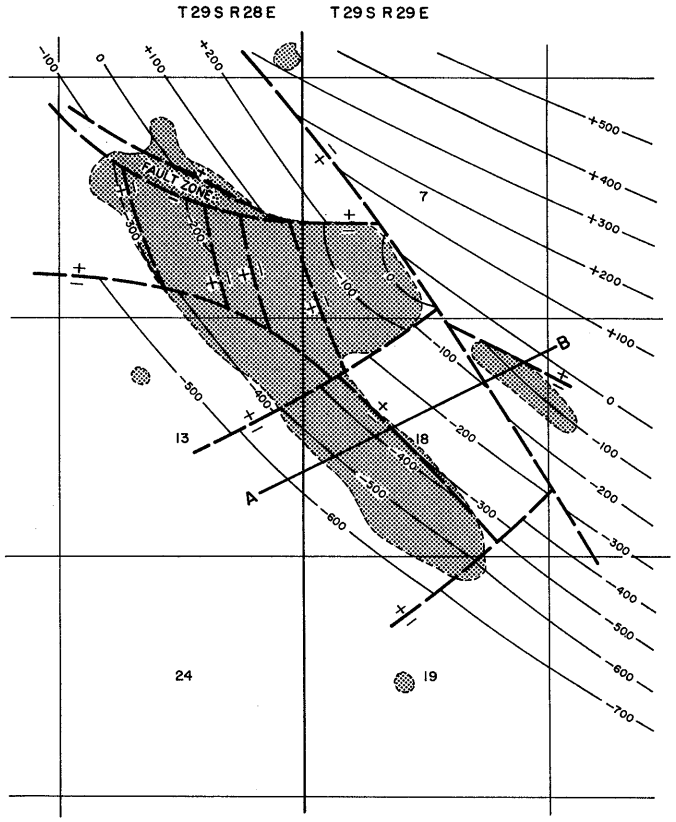
CONTOURS ON N ELECTRIC LOG MARKER



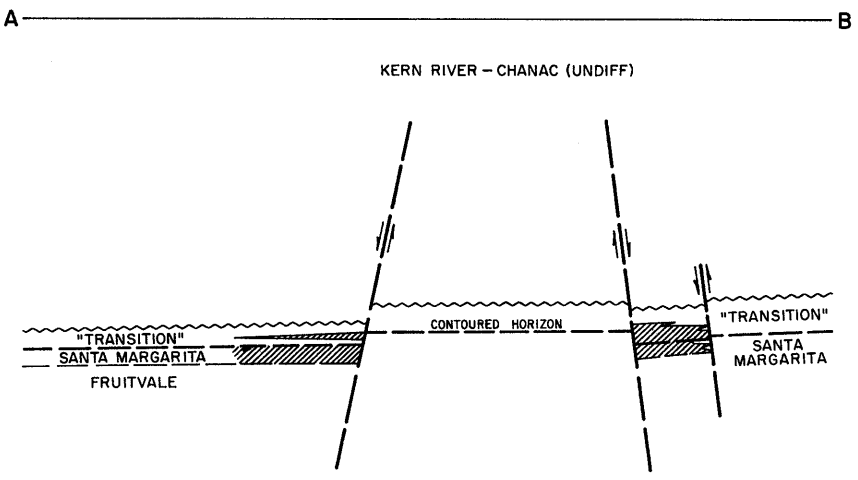
KERN BLUFF OIL FIELD



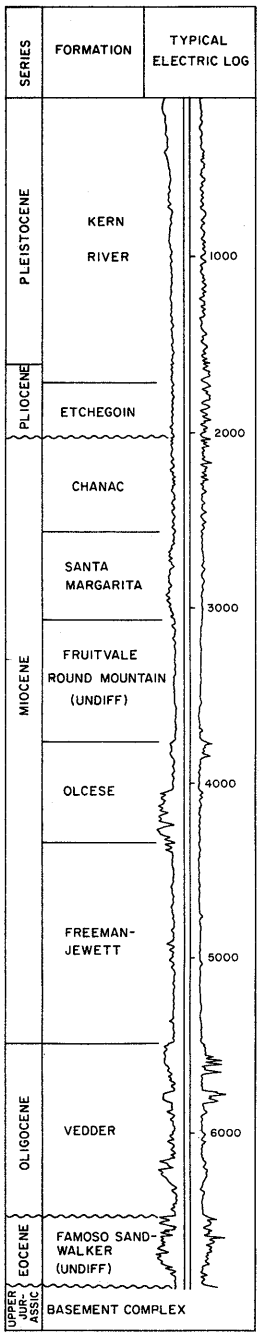
SEPTEMBER 1992



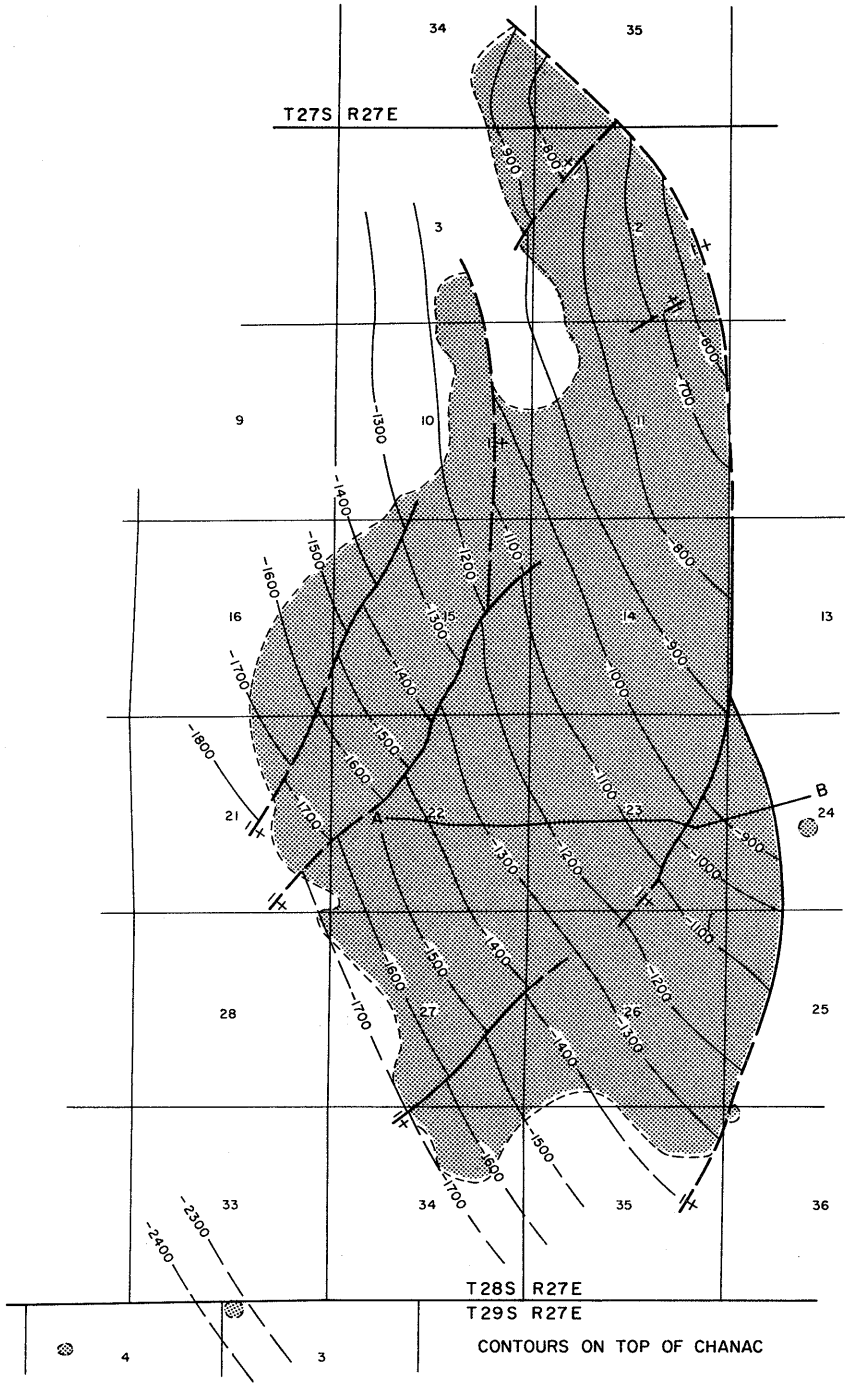
CONTOURS ON TOP OF SANTA MARGARITA

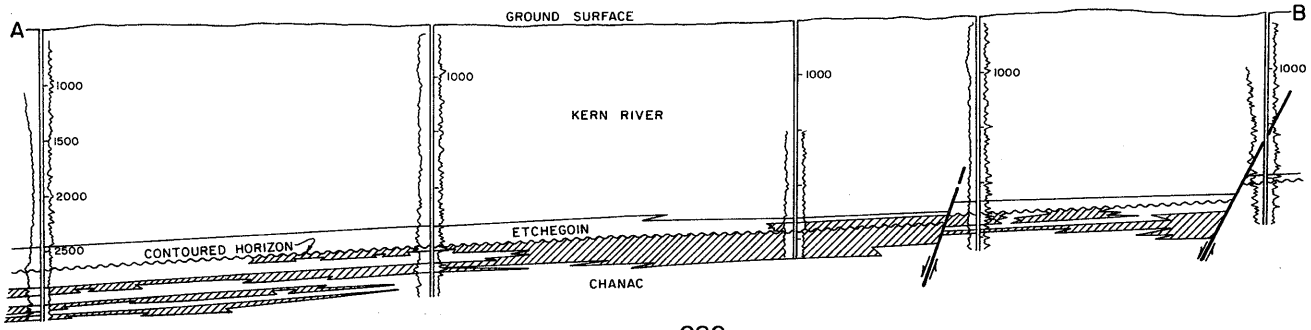


KERN FRONT OIL FIELD

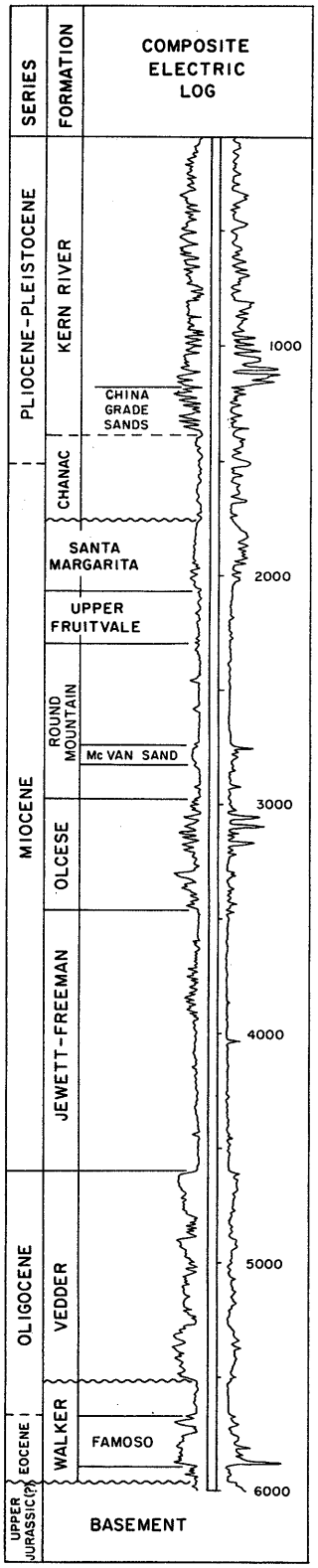


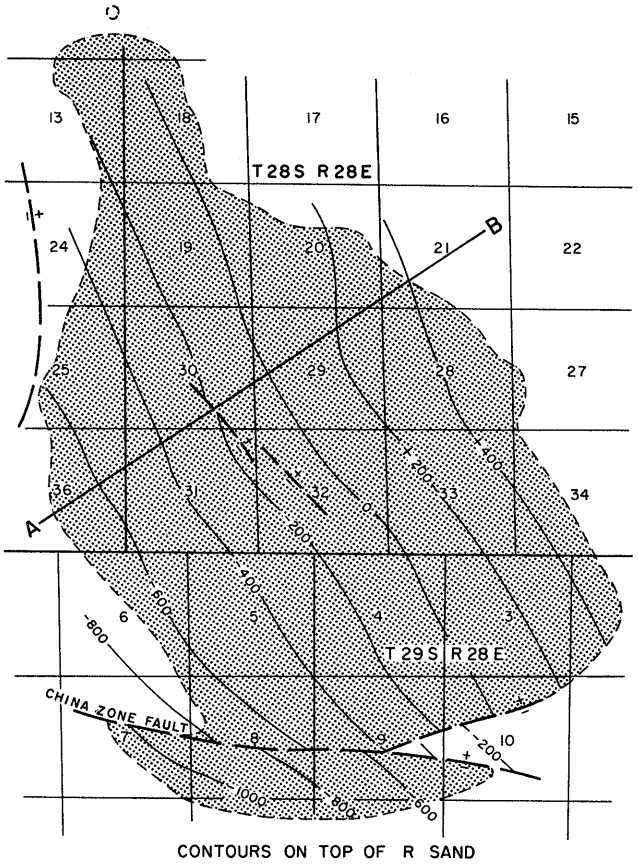
JUNE 1981



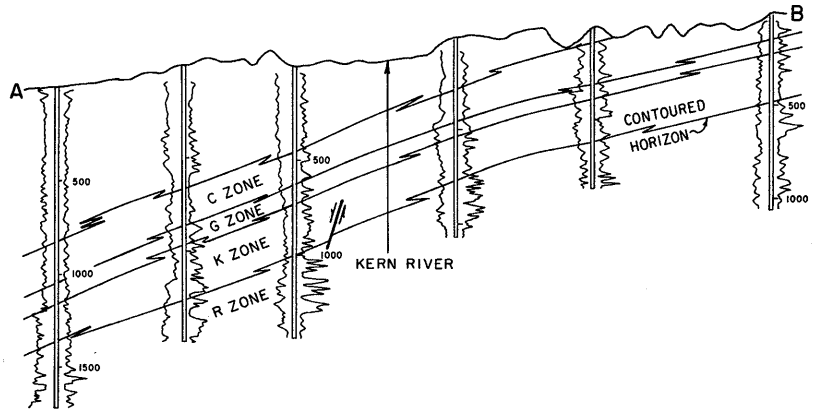


KERN RIVER OIL FIELD



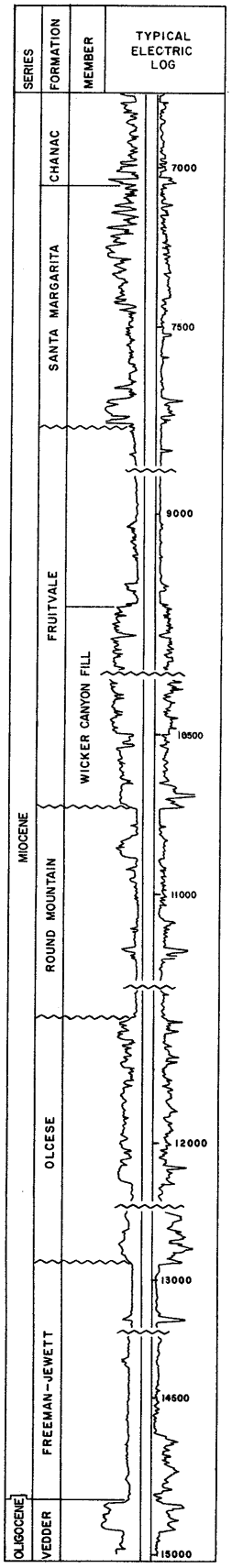


CONTOURS ON TOP OF R SAND

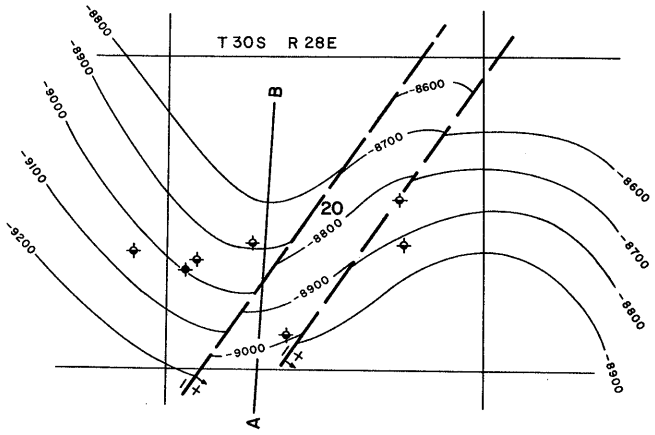


KERNSUMNER OIL FIELD

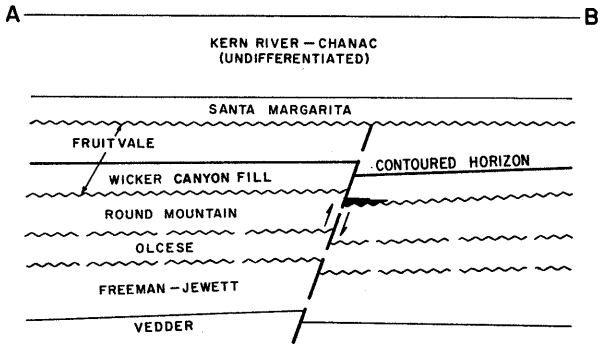
(Abandoned)



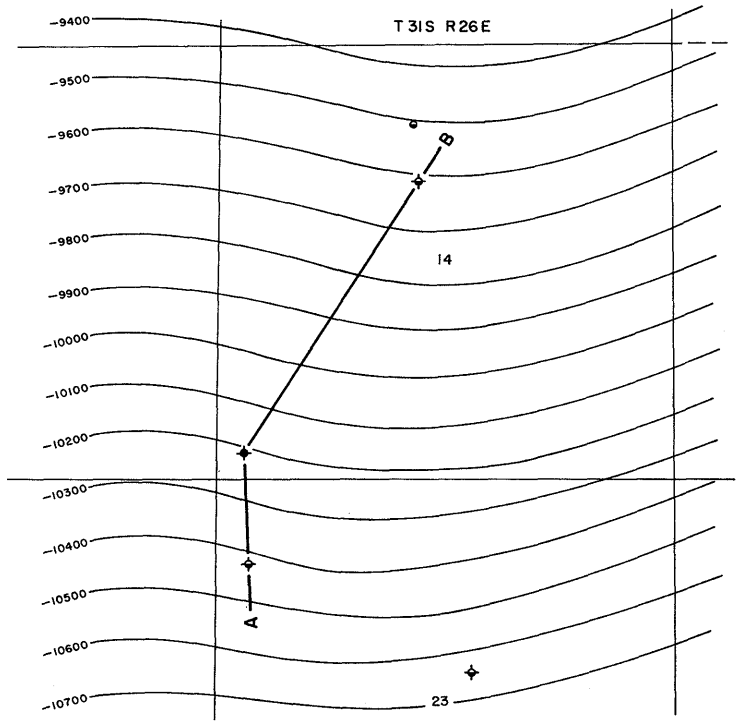
MAY 1980



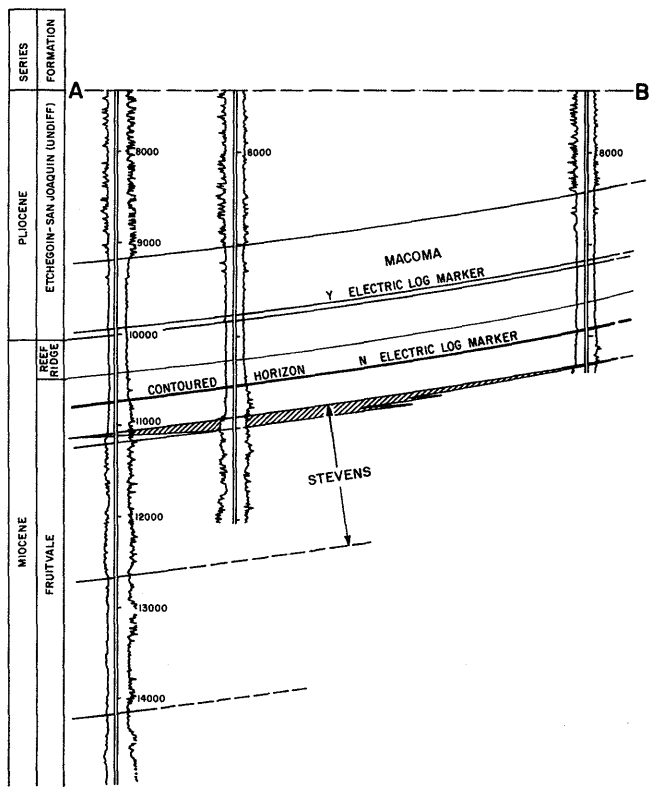
CONTOURS ON TOP OF WICKER CANYON FILL



SOUTH LAKESIDE OIL FIELD
(Abandoned)

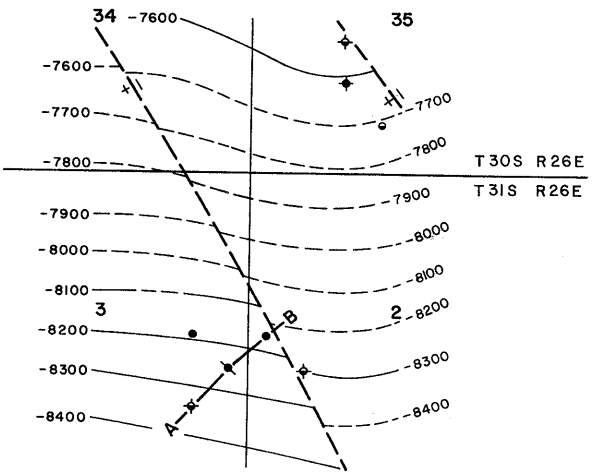


CONTOURS ON N ELECTRIC LOG MARKER



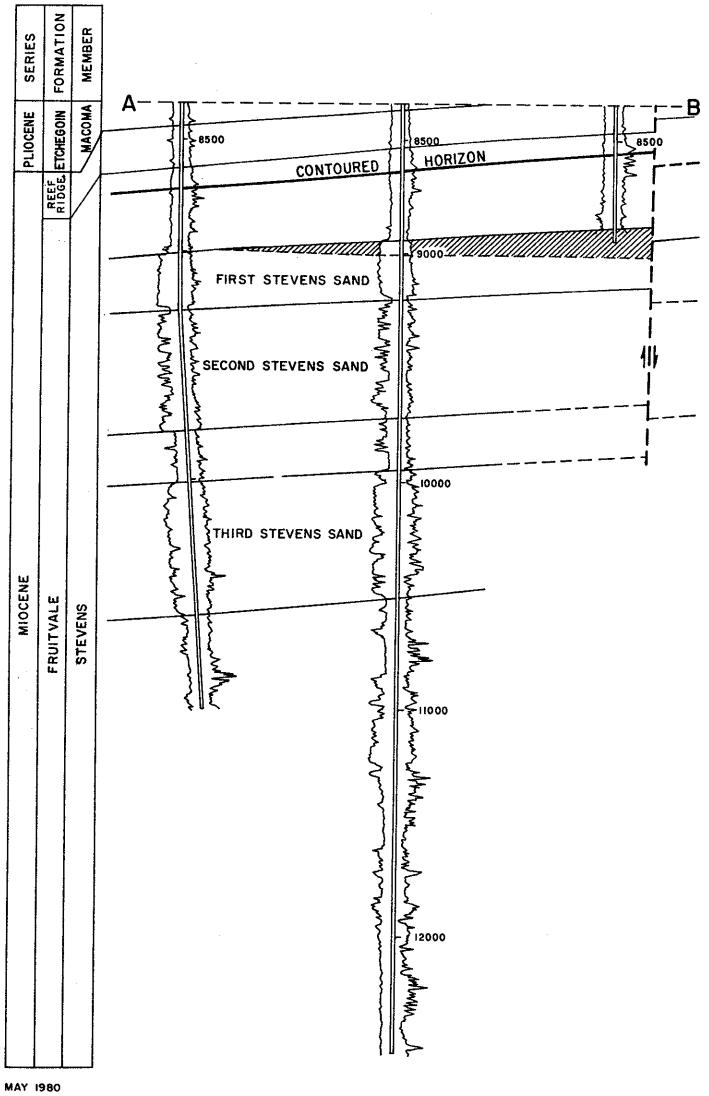
MAY 1980

LAKESIDE OIL FIELD



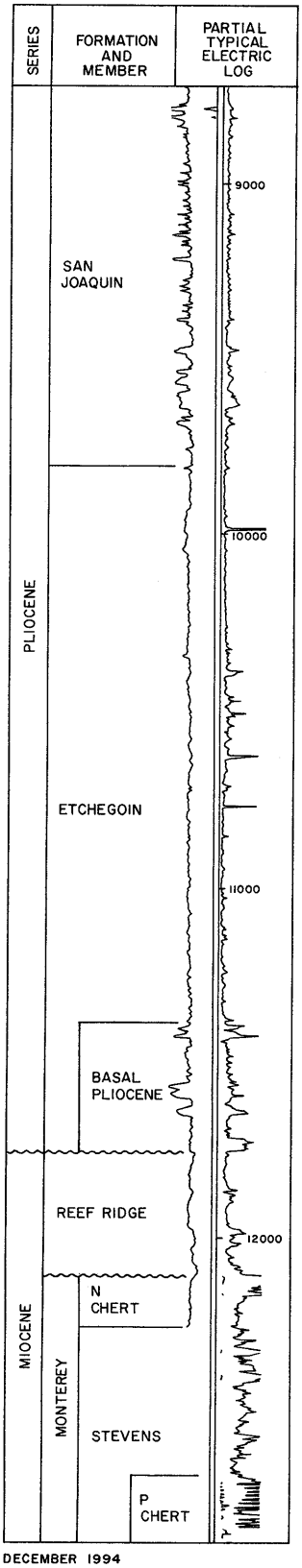
CONTOURS ON N ELECTRIC LOG MARKER

SCALE 1" = 2000'

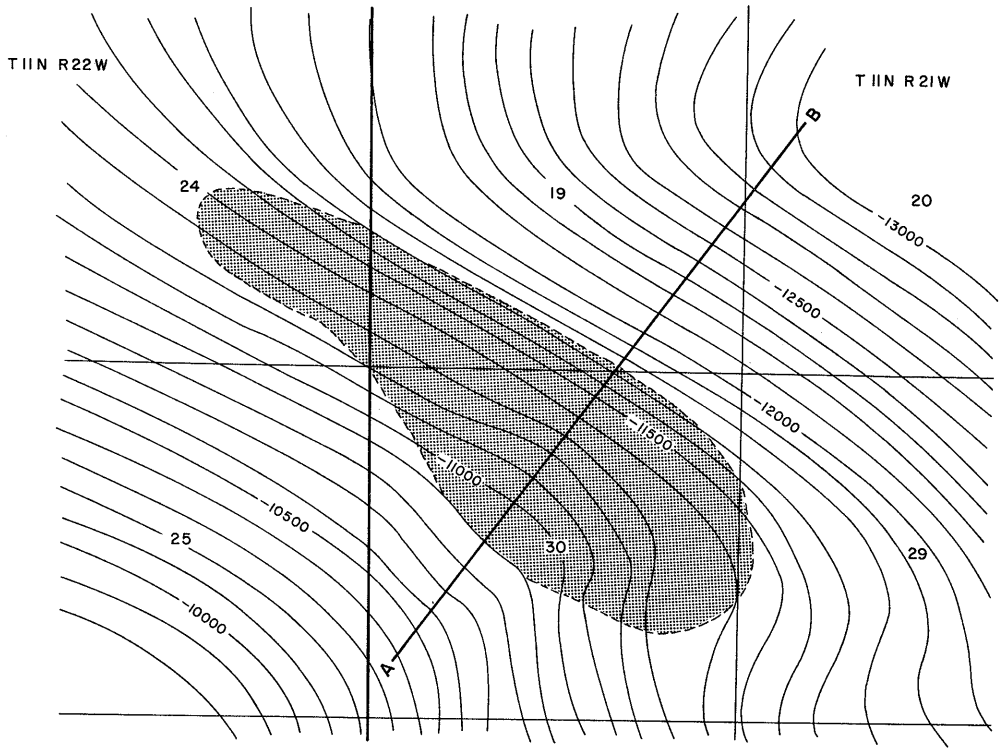


MAY 1980

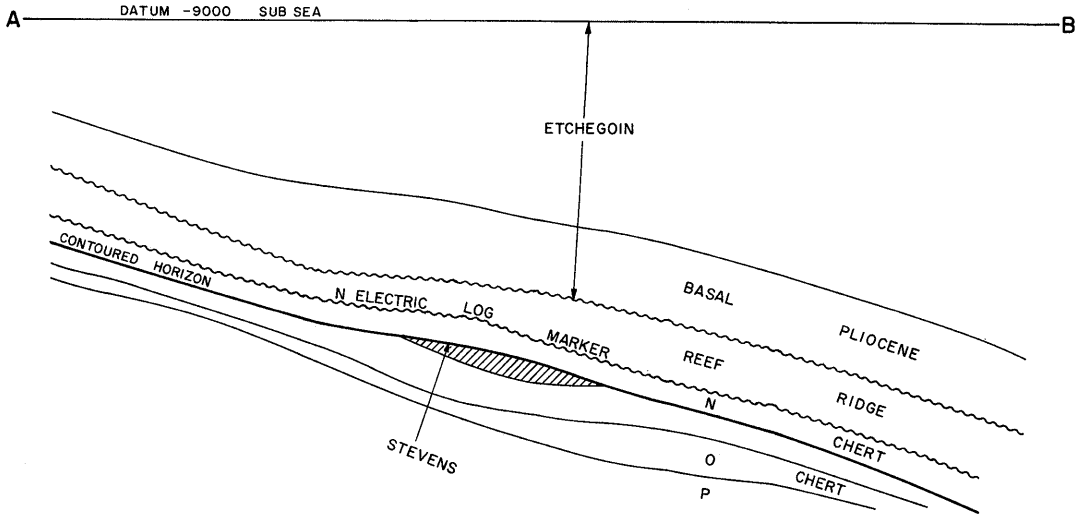
LANDSLIDE OIL FIELD



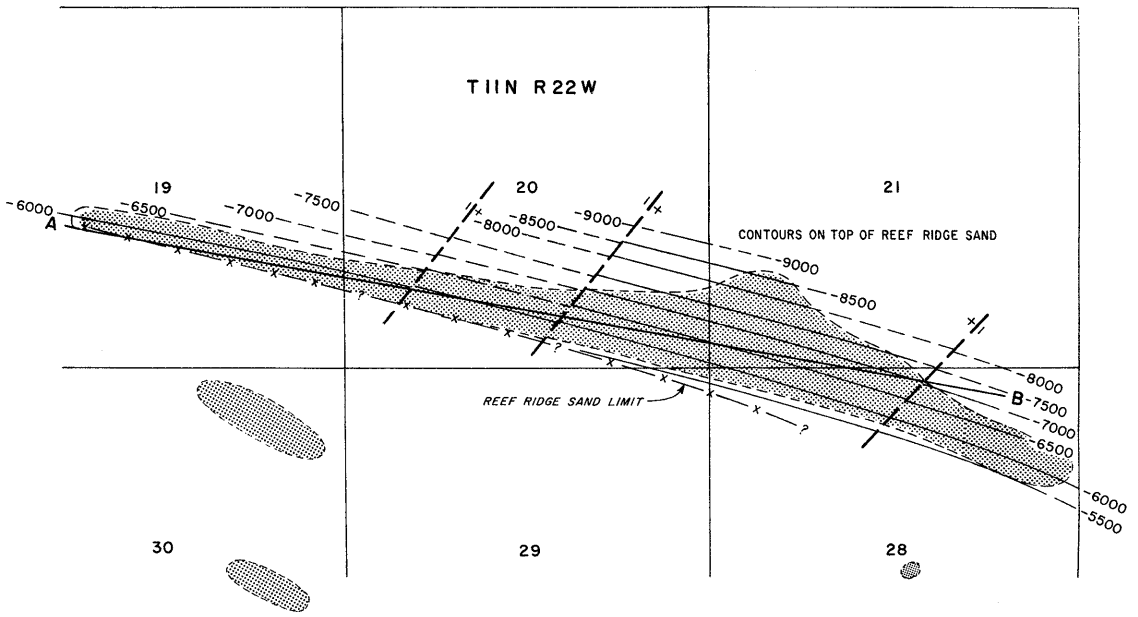
DECEMBER 1994

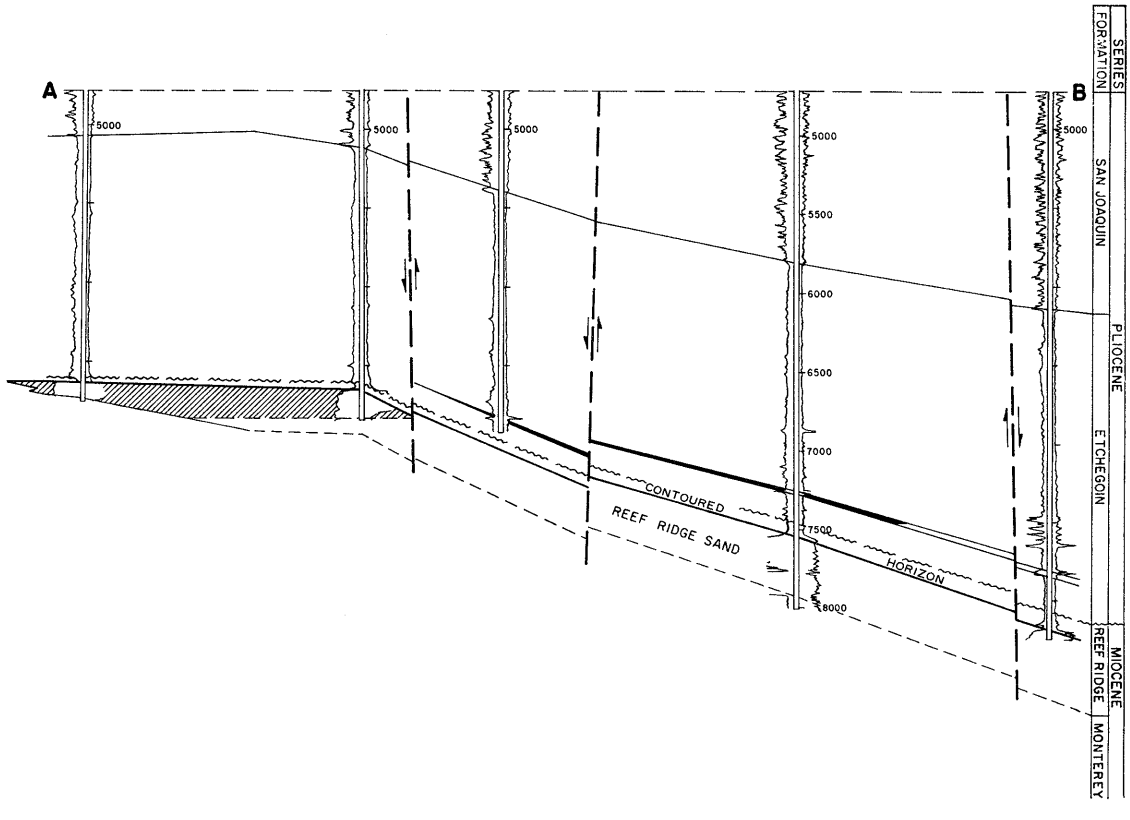


CONTOURS ON TOP OF STEVENS



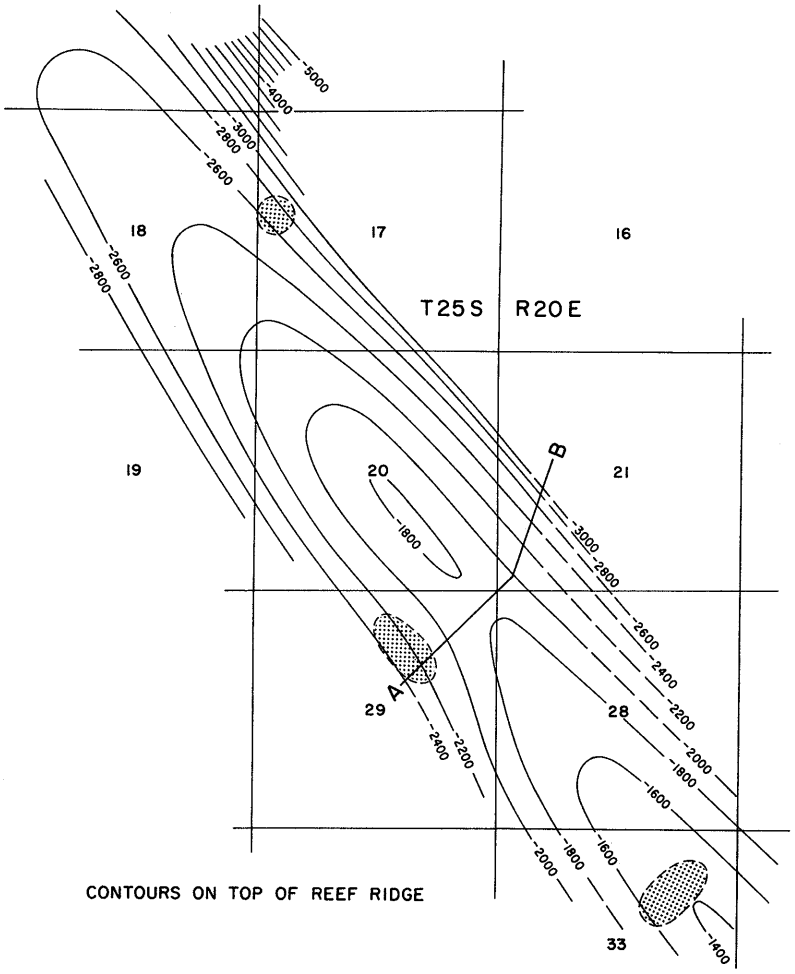
LOS LOBOS OIL FIELD

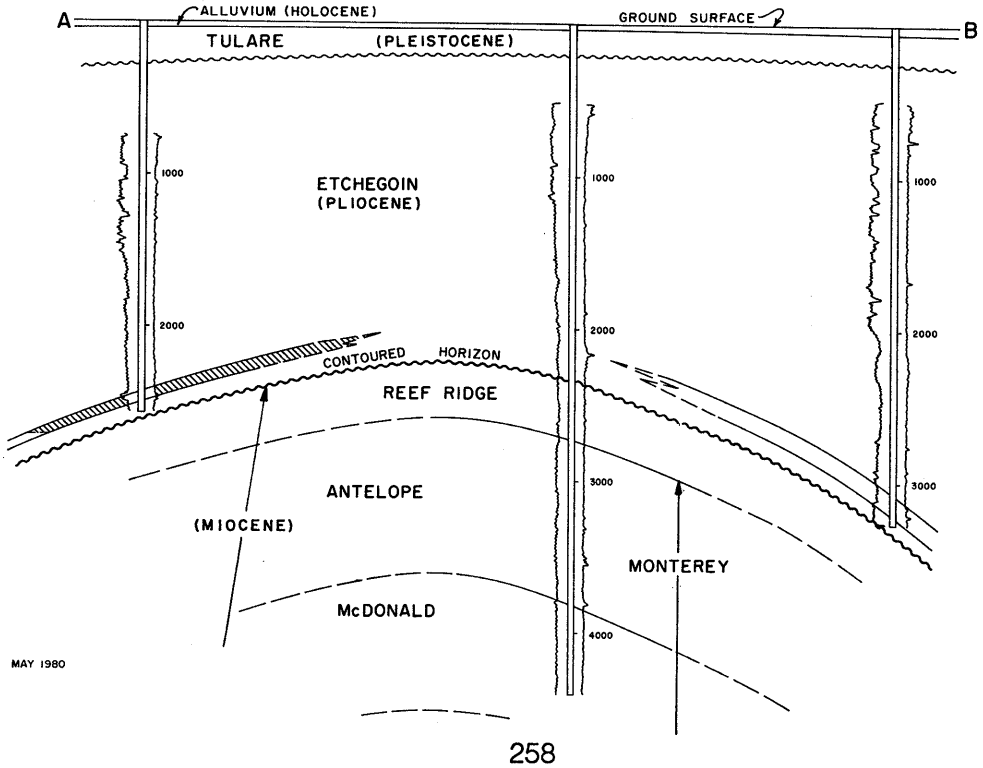




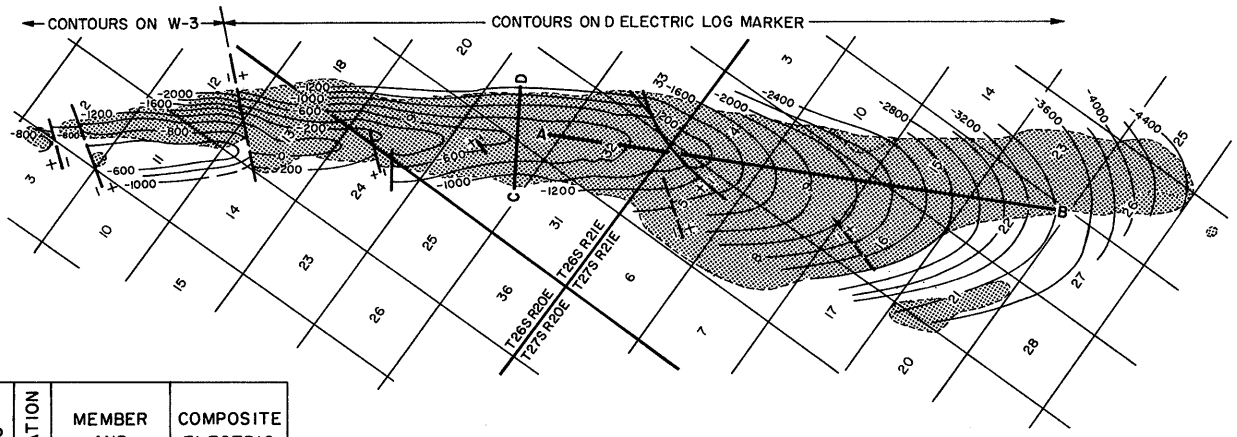
MAY 1980

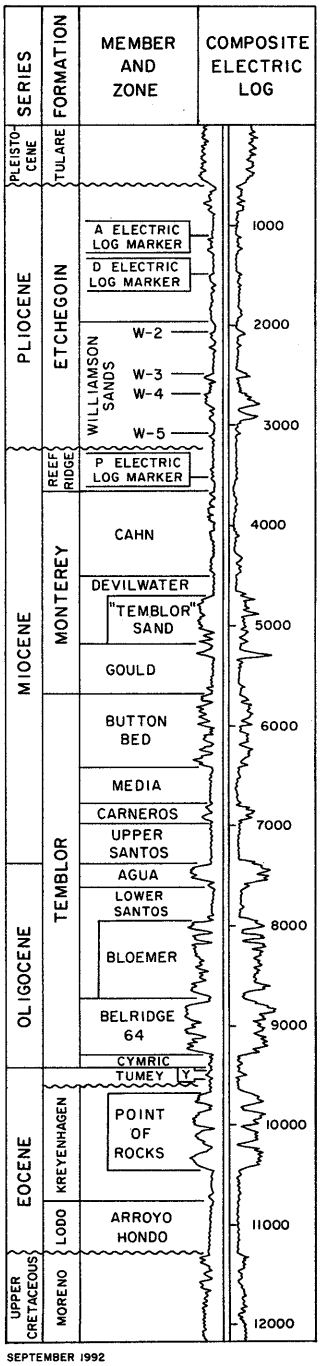
NORTHWEST LOST HILLS OIL FIELD

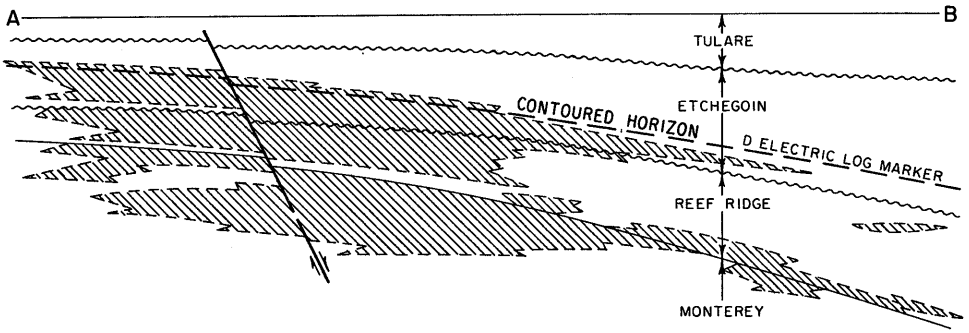


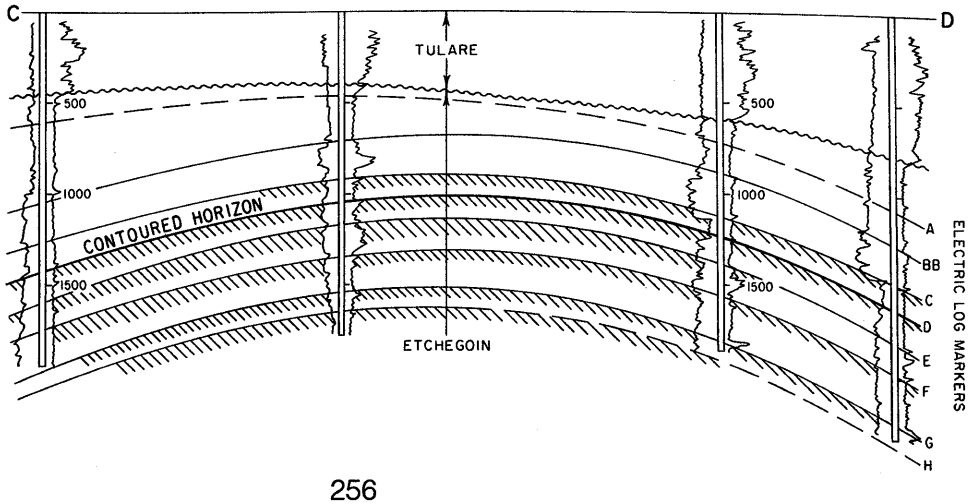


LOST HILLS OIL FIELD





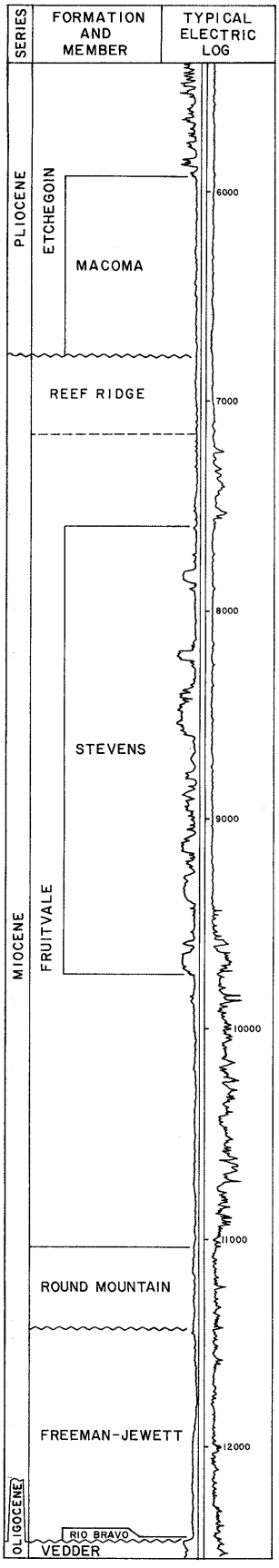


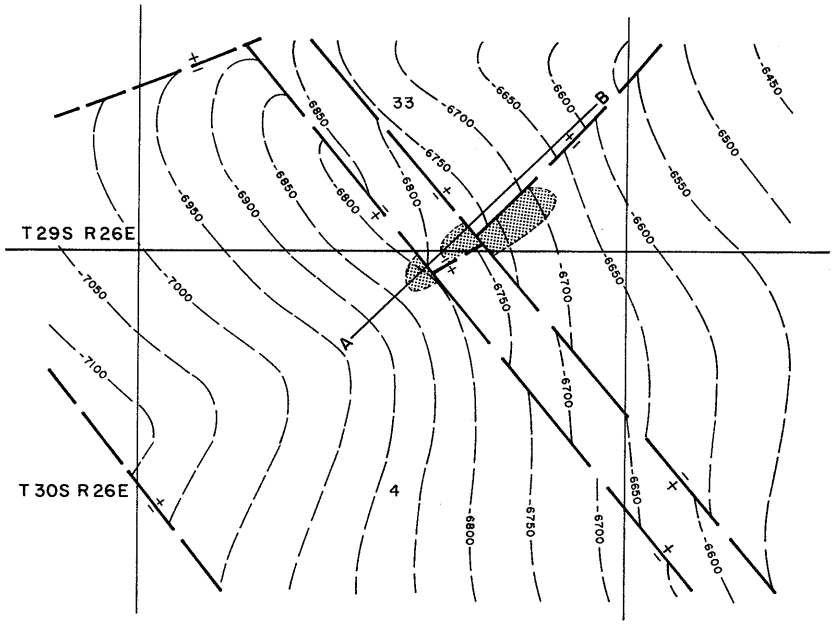


SEPTEMBER 1992

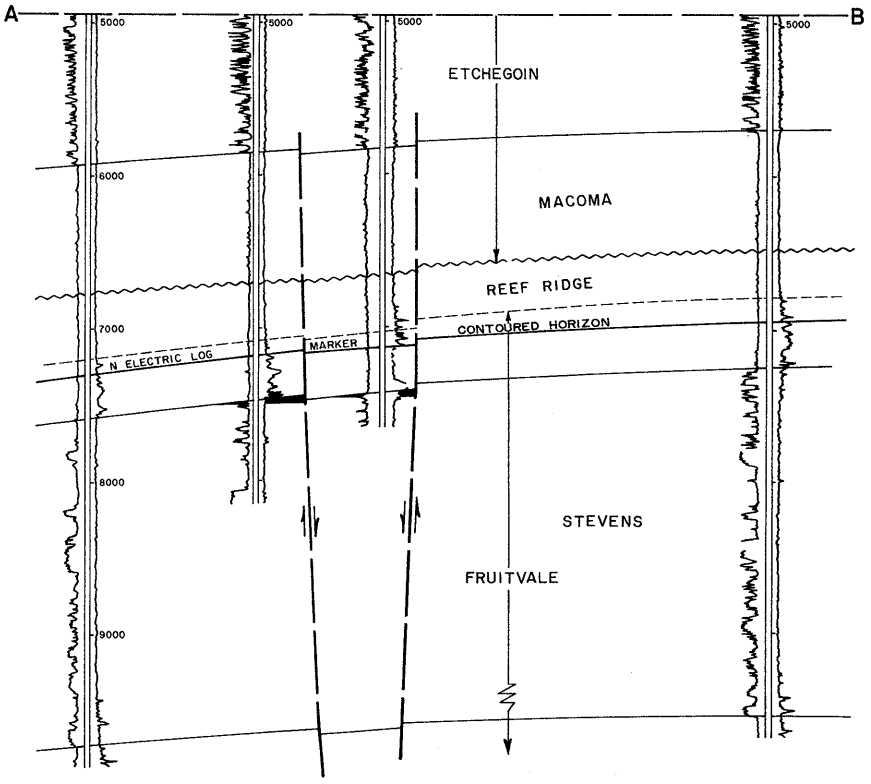
Mc CLUNG OIL FIELD

(Abandoned)



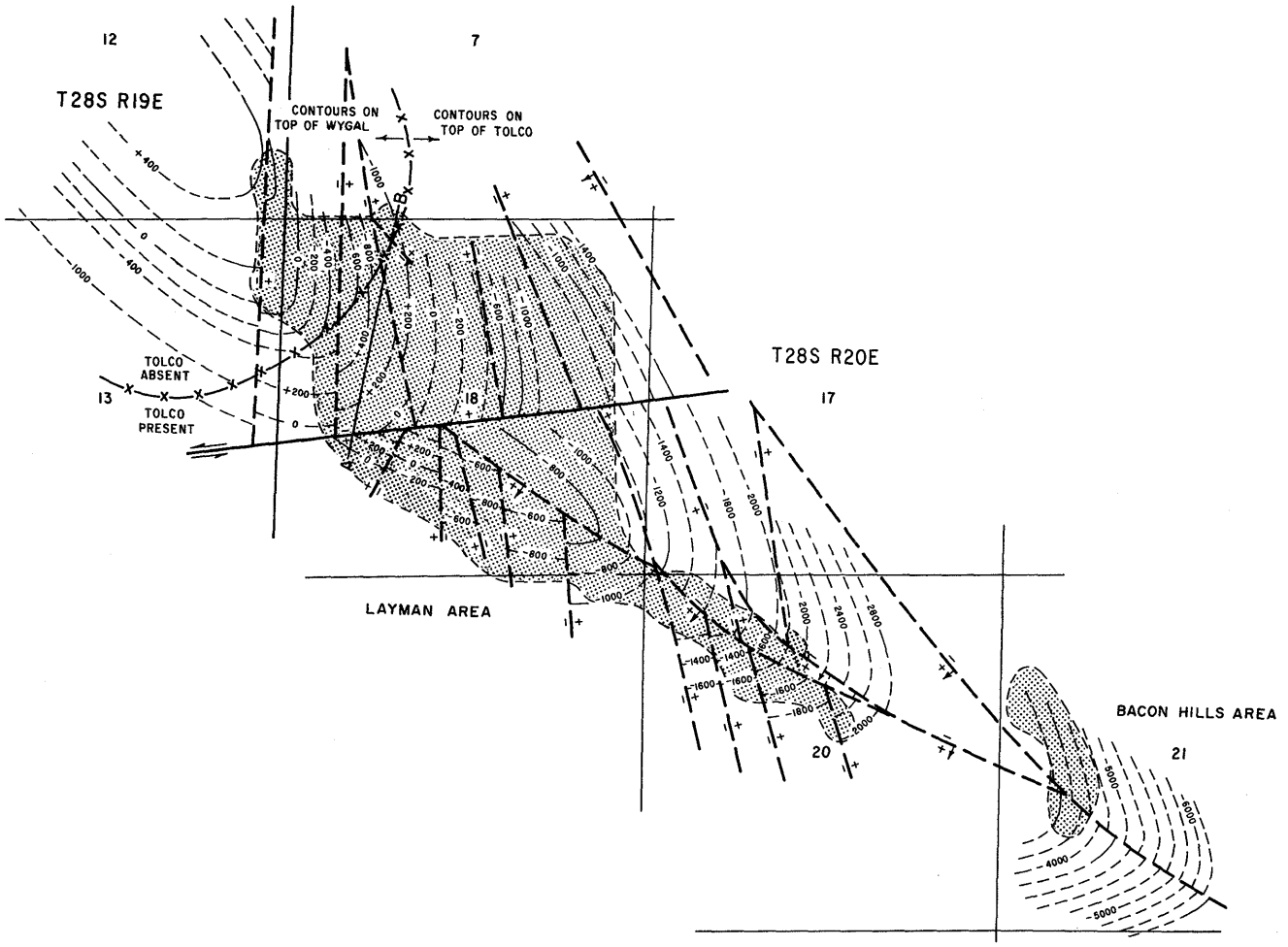


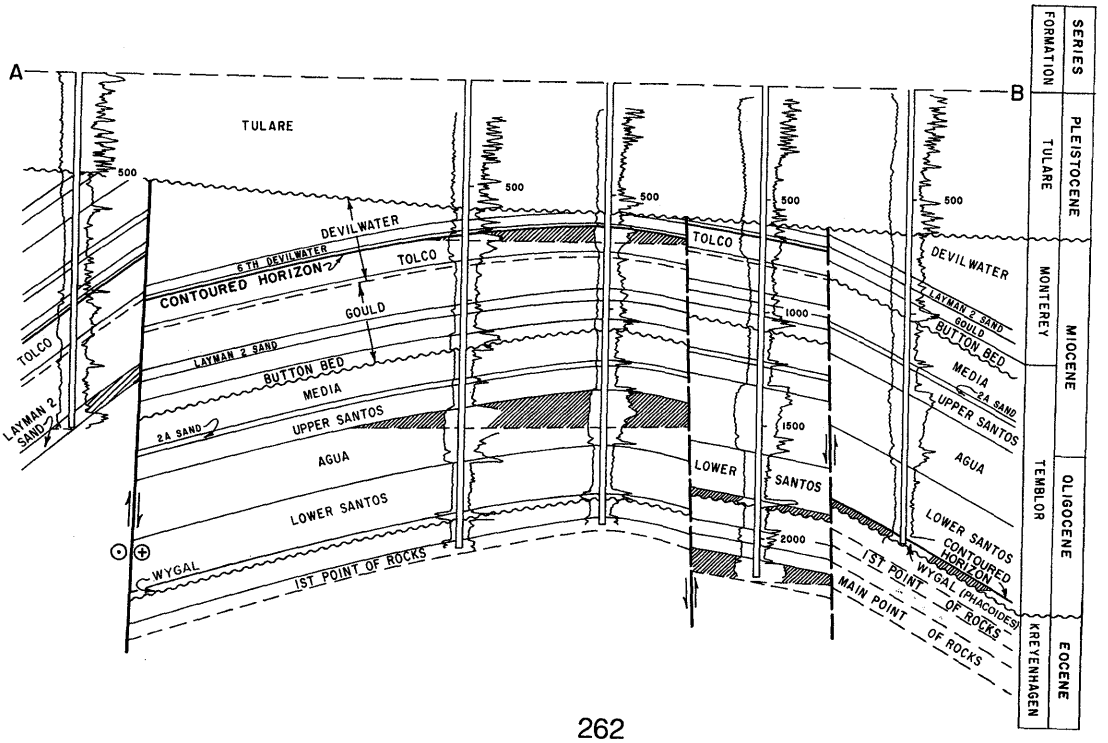
CONTOURS ON N ELECTRIC LOG MARKER



MAY 1980

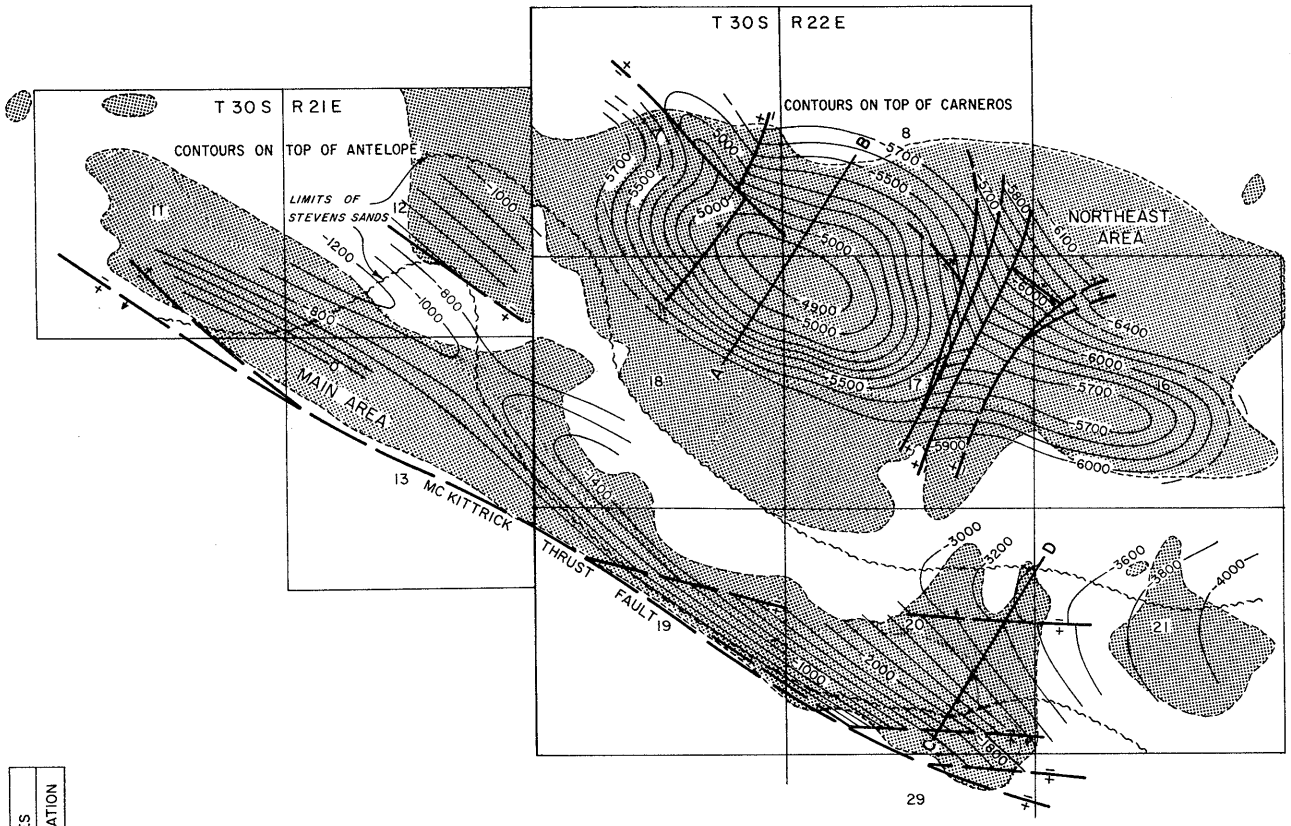
McDONALD ANTICLINE OIL FIELD

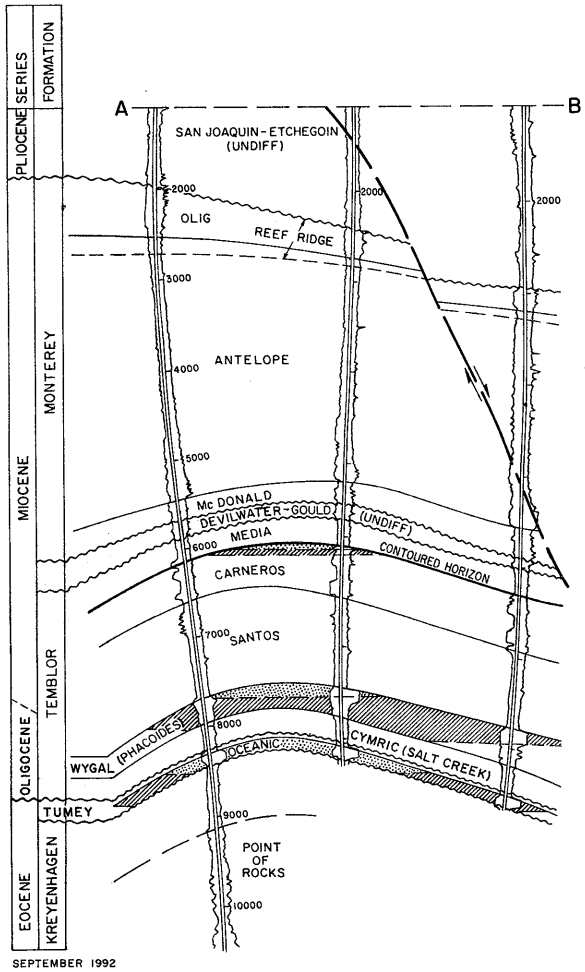


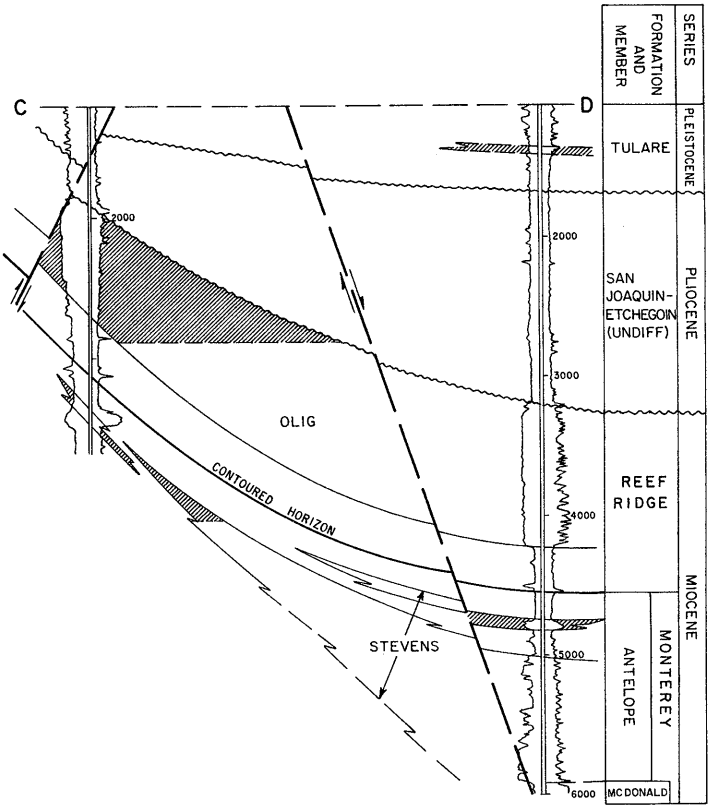


MAY 1980

McKITTRICK OIL FIELD





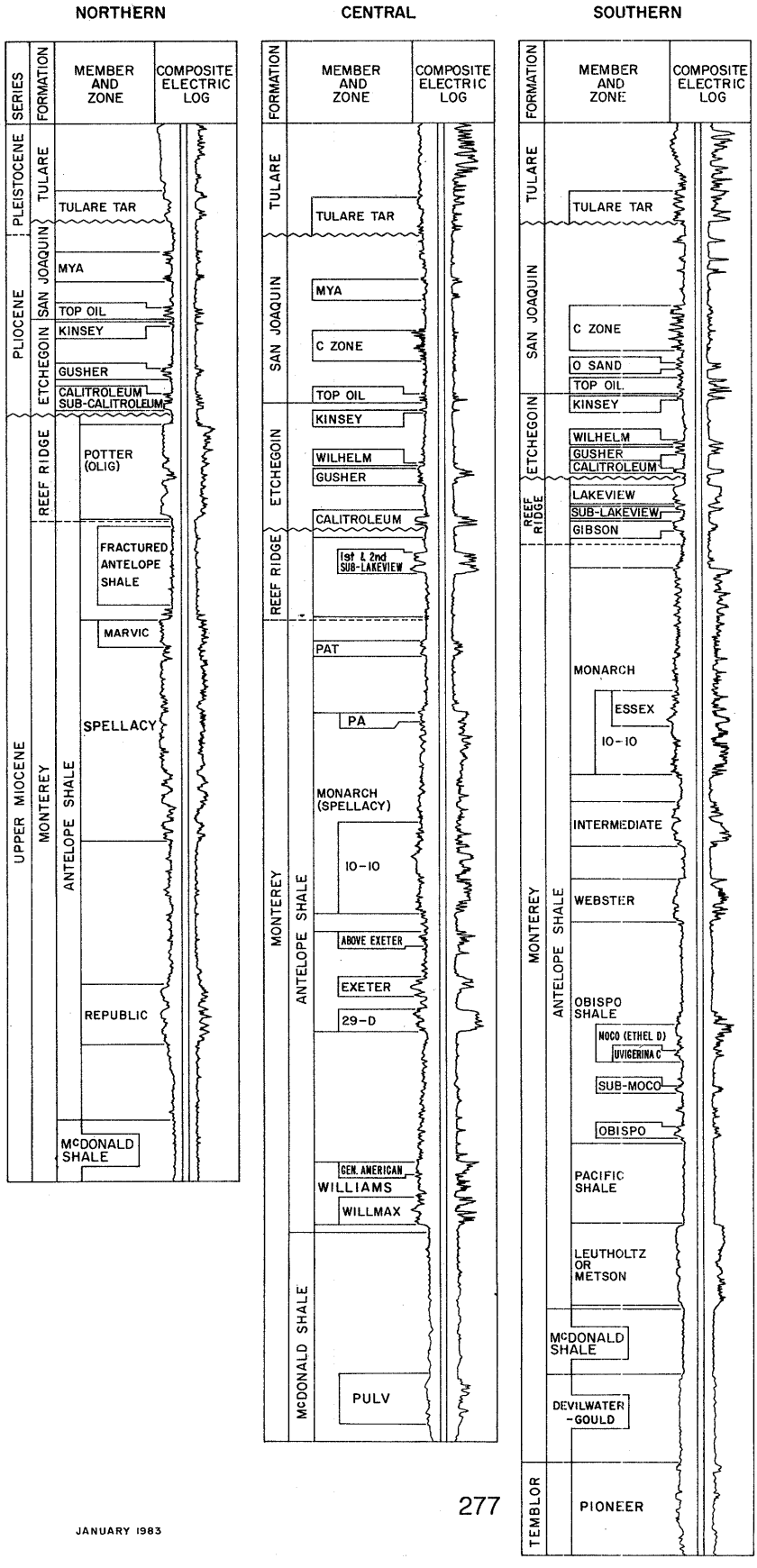


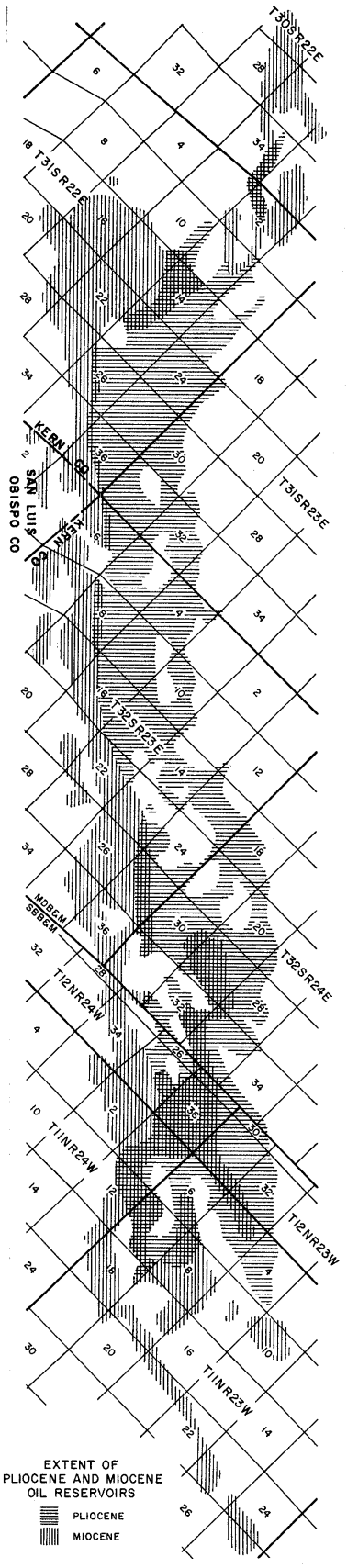
SEPTEMBER 1992

MIDWAY-SUNSET OIL FIELD

SEPTEMBER 1992

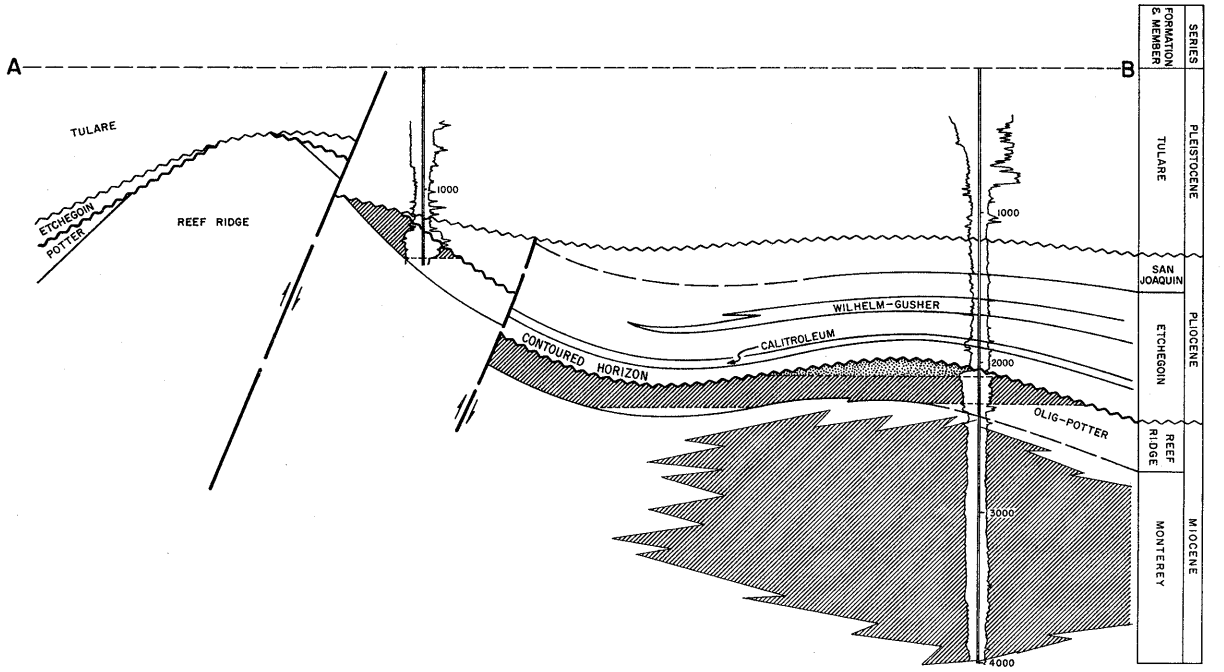
MIDWAY-SUNSET OIL FIELD

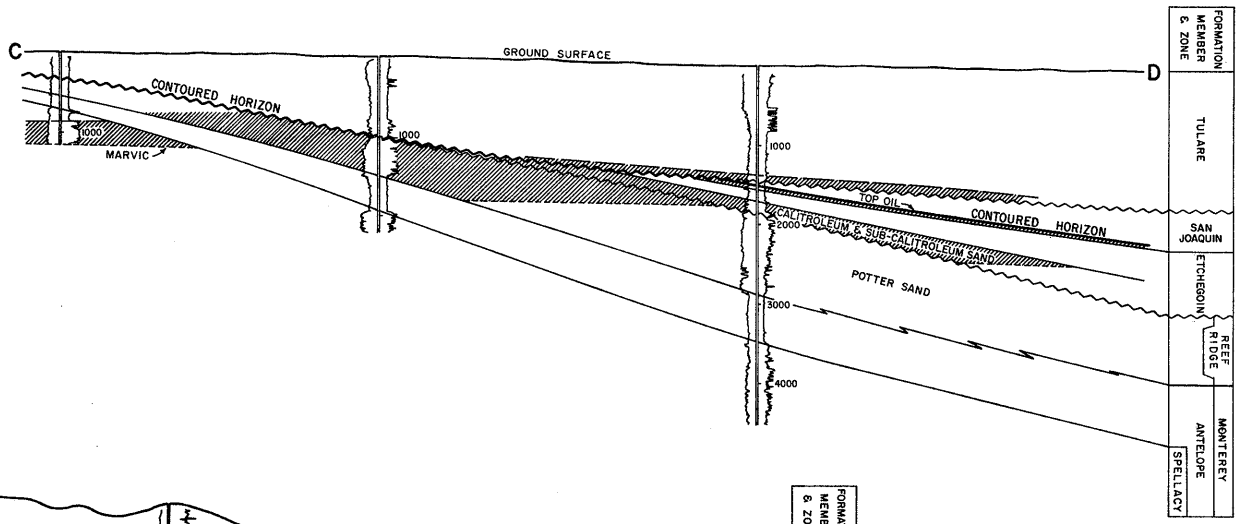


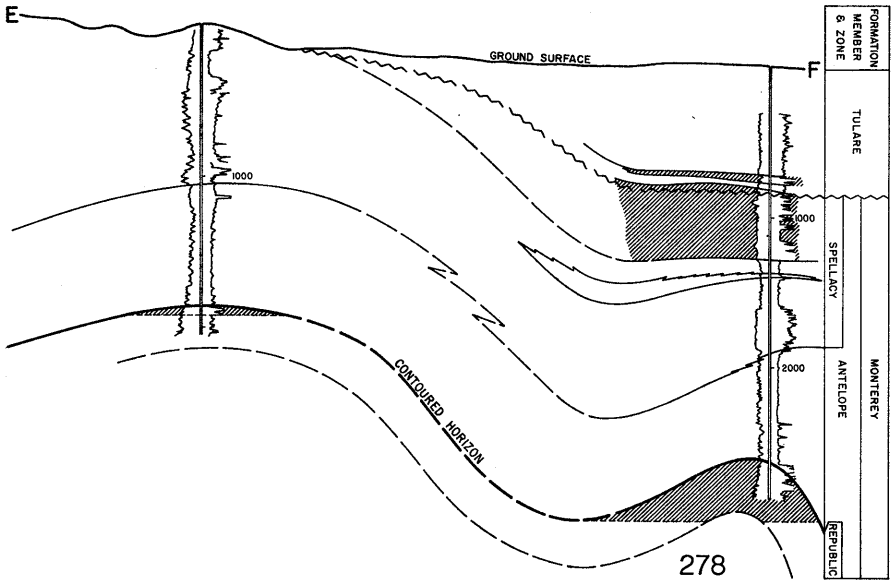


JANUARY 1983

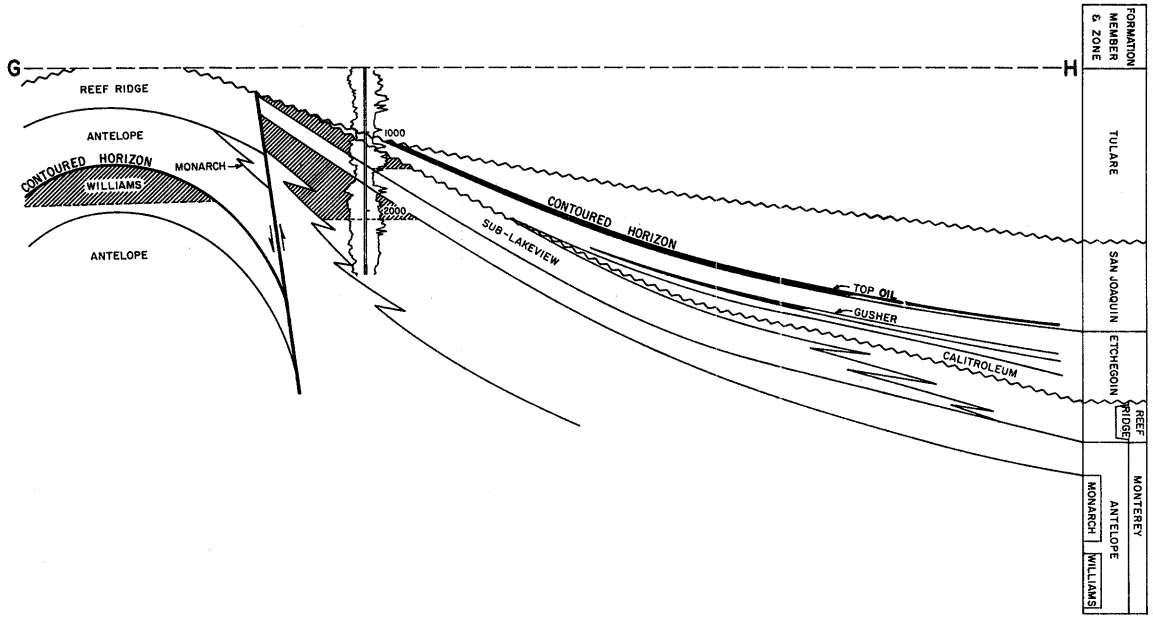
MIDWAY-SUNSET OIL FIELD

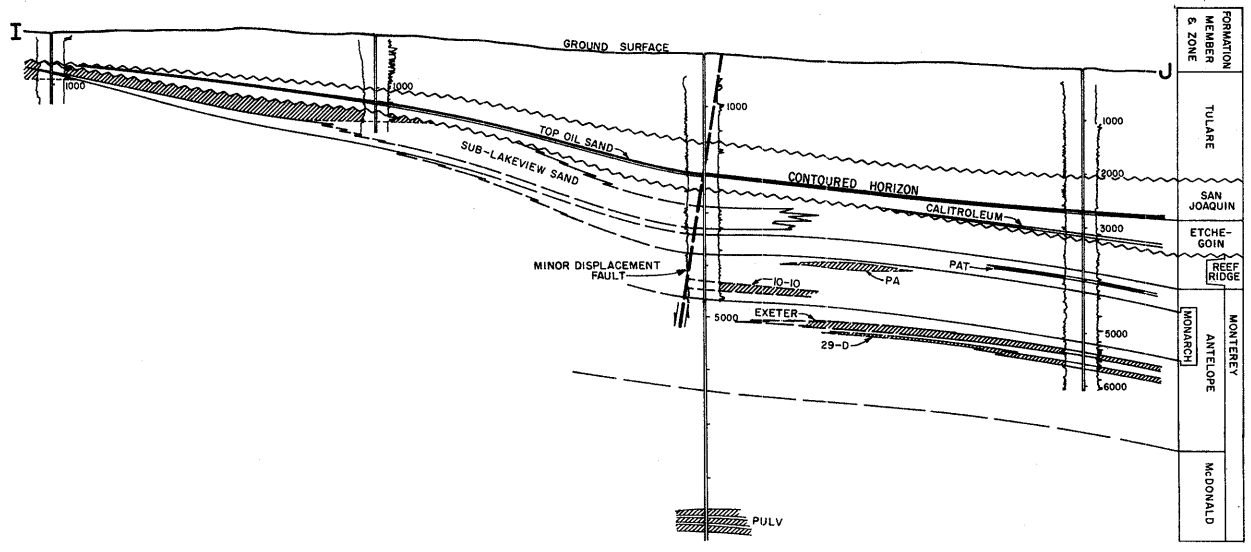






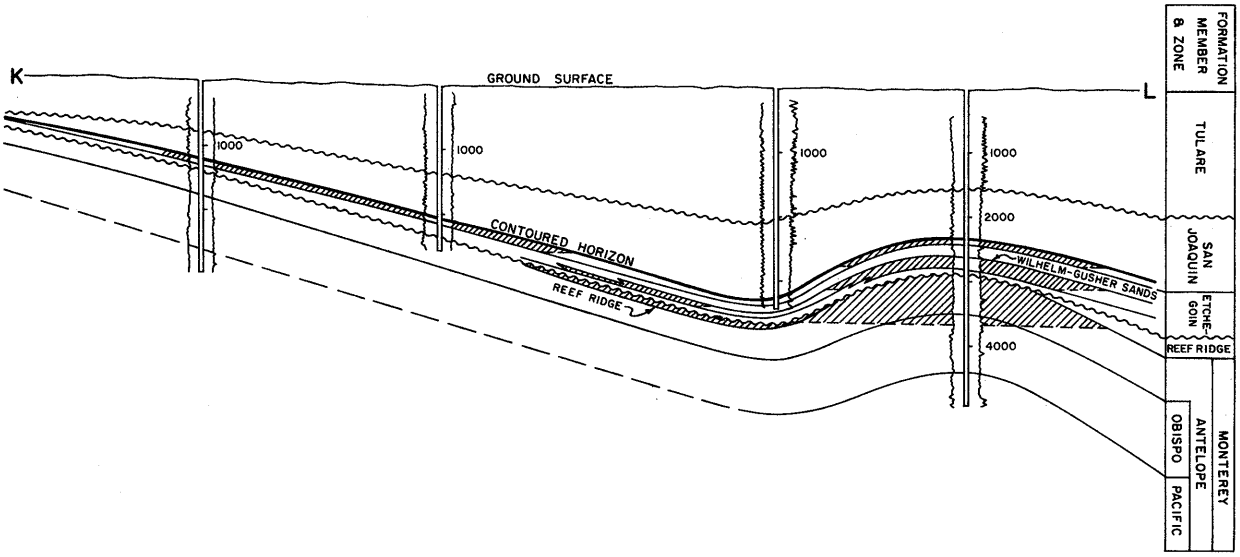
MIDWAY-SUNSET OIL FIELD

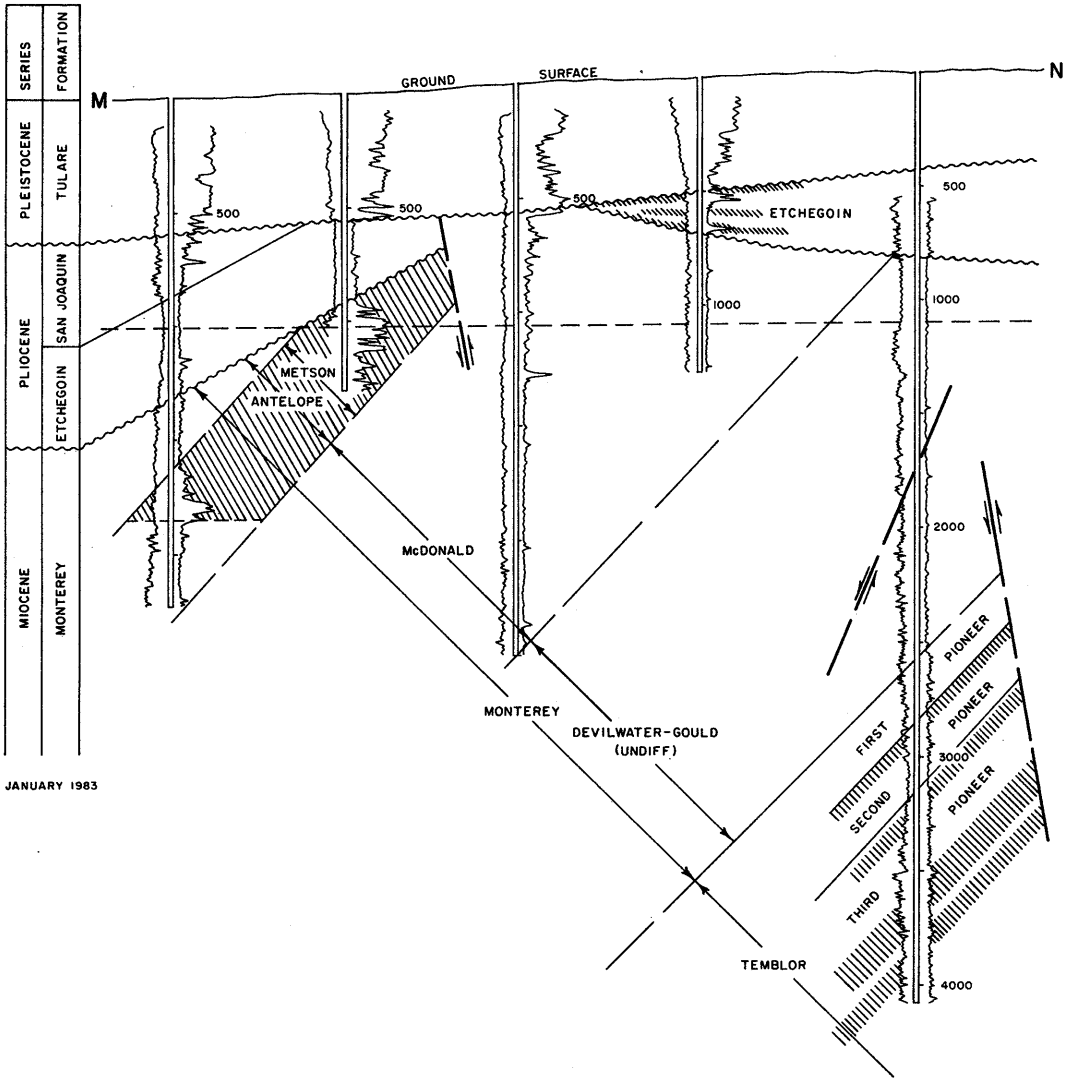




JANUARY 1983

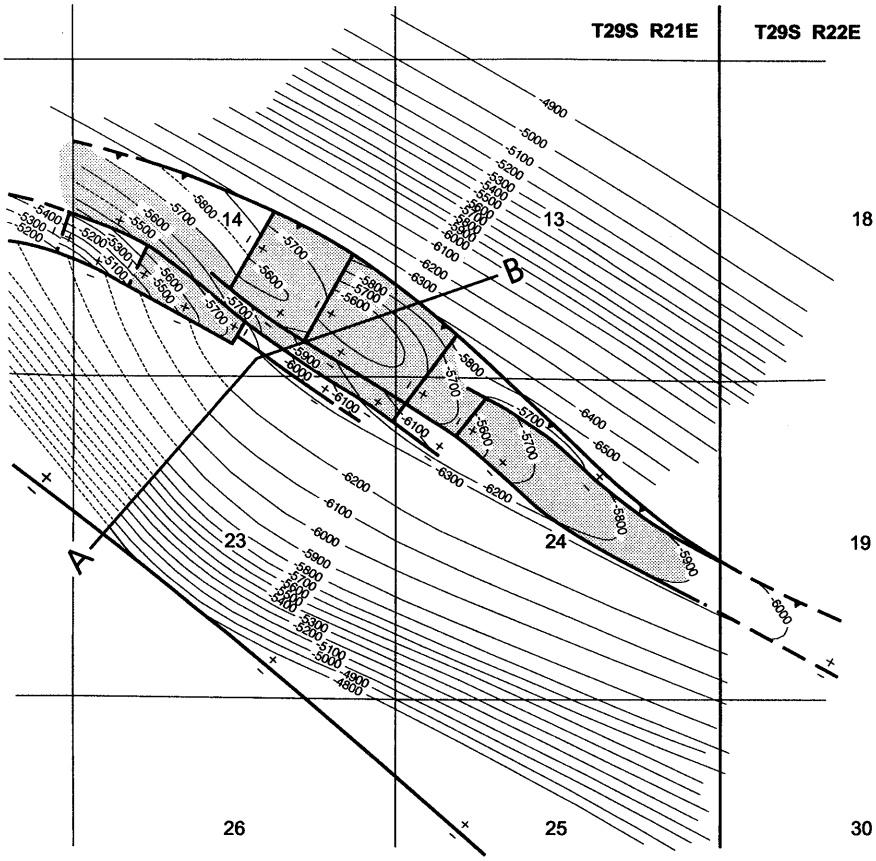
MIDWAY-SUNSET OIL FIELD



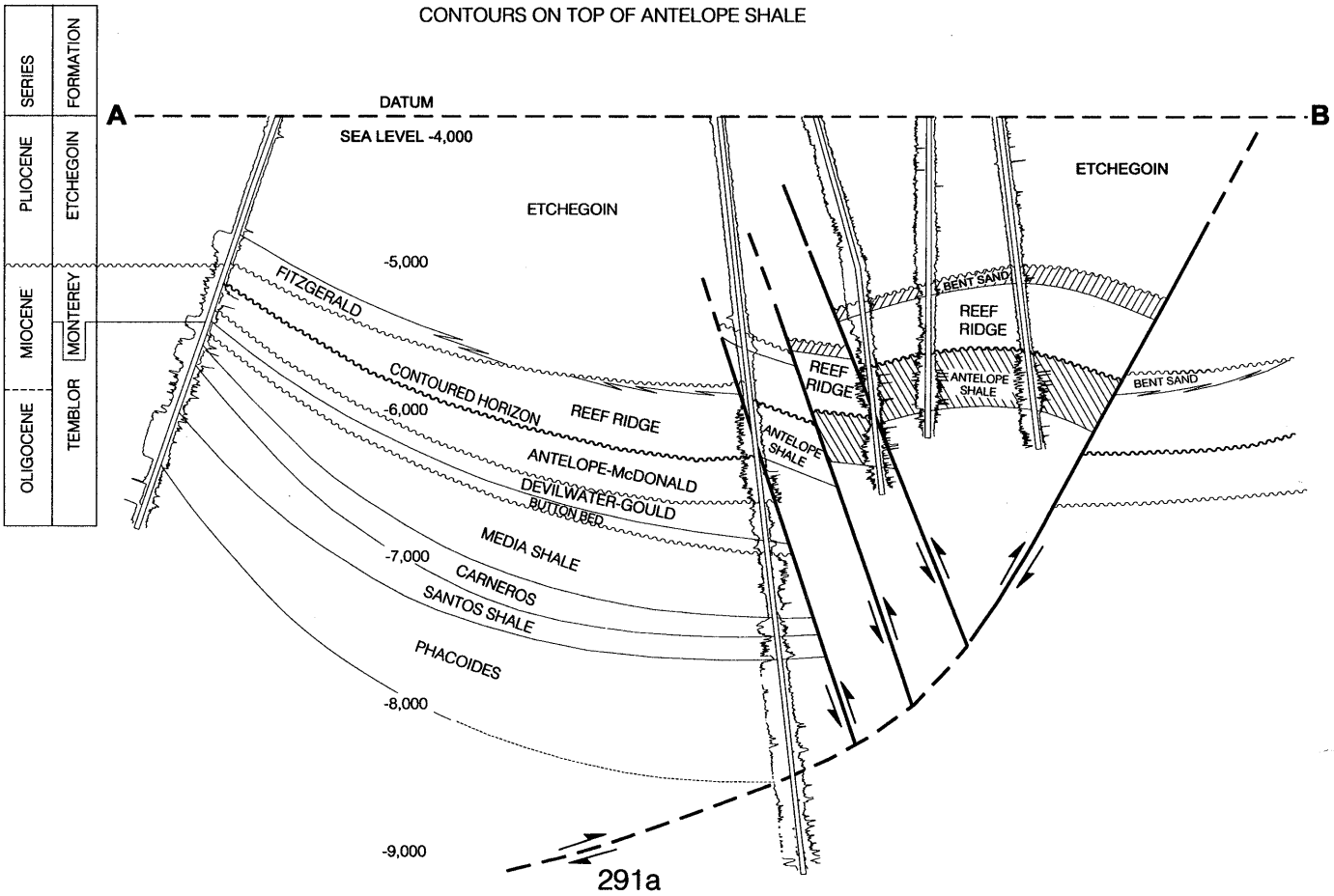


JANUARY 1983

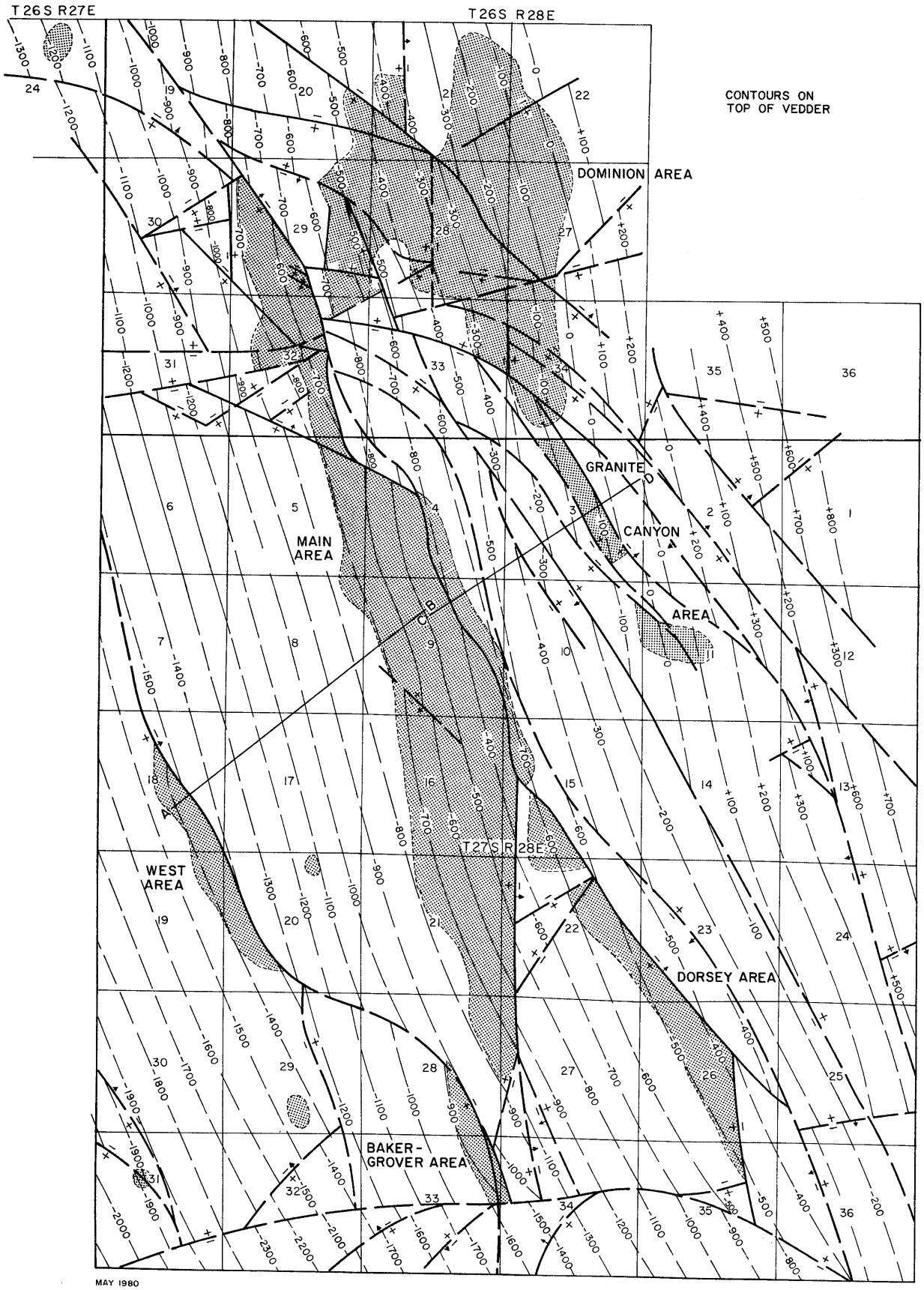
MONUMENT JUNCTION OIL FIELD



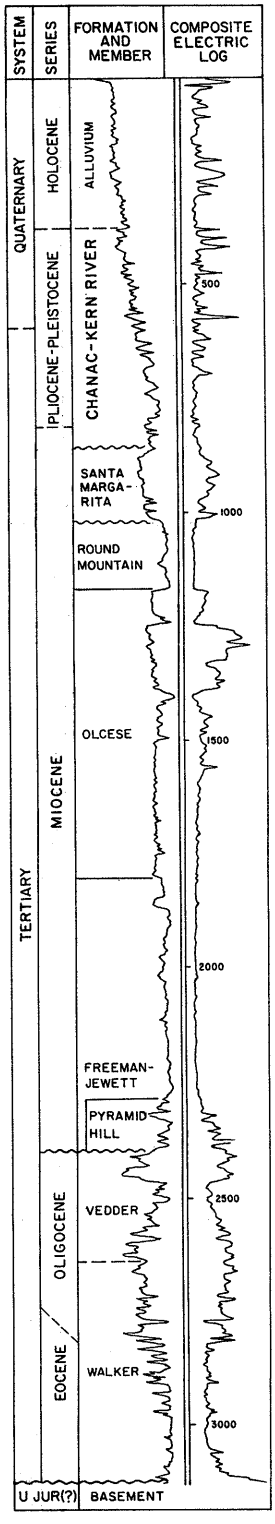
CONTOURS ON TOP OF ANTELOPE SHALE



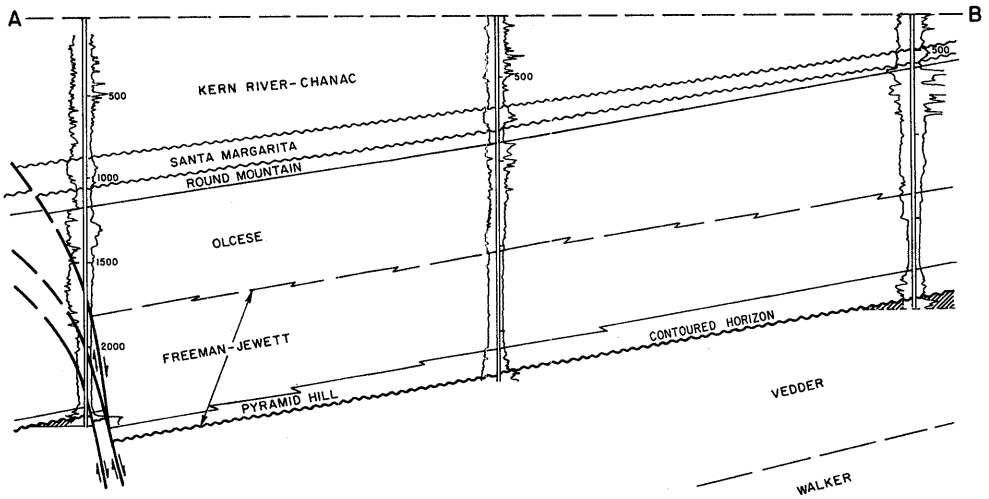
MOUNT POSO OIL FIELD

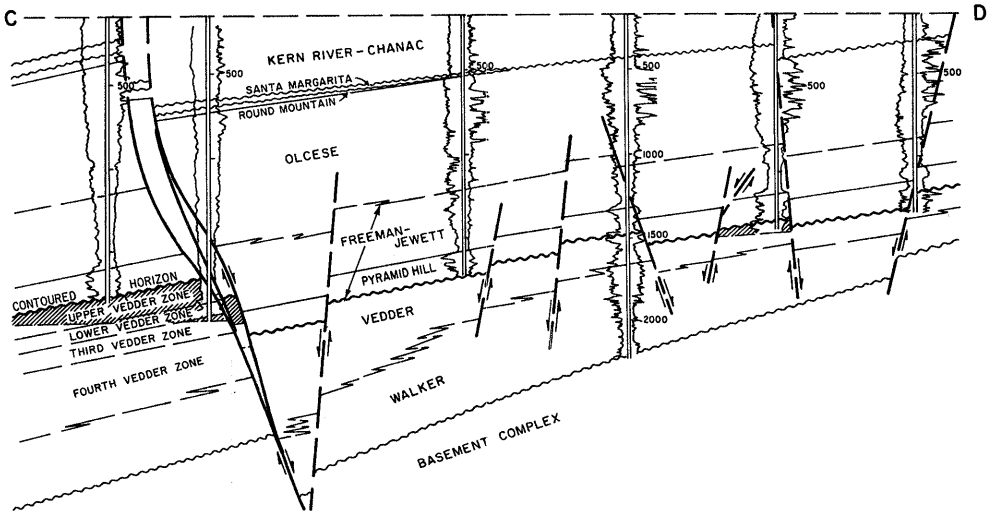


MOUNT POSO OIL FIELD

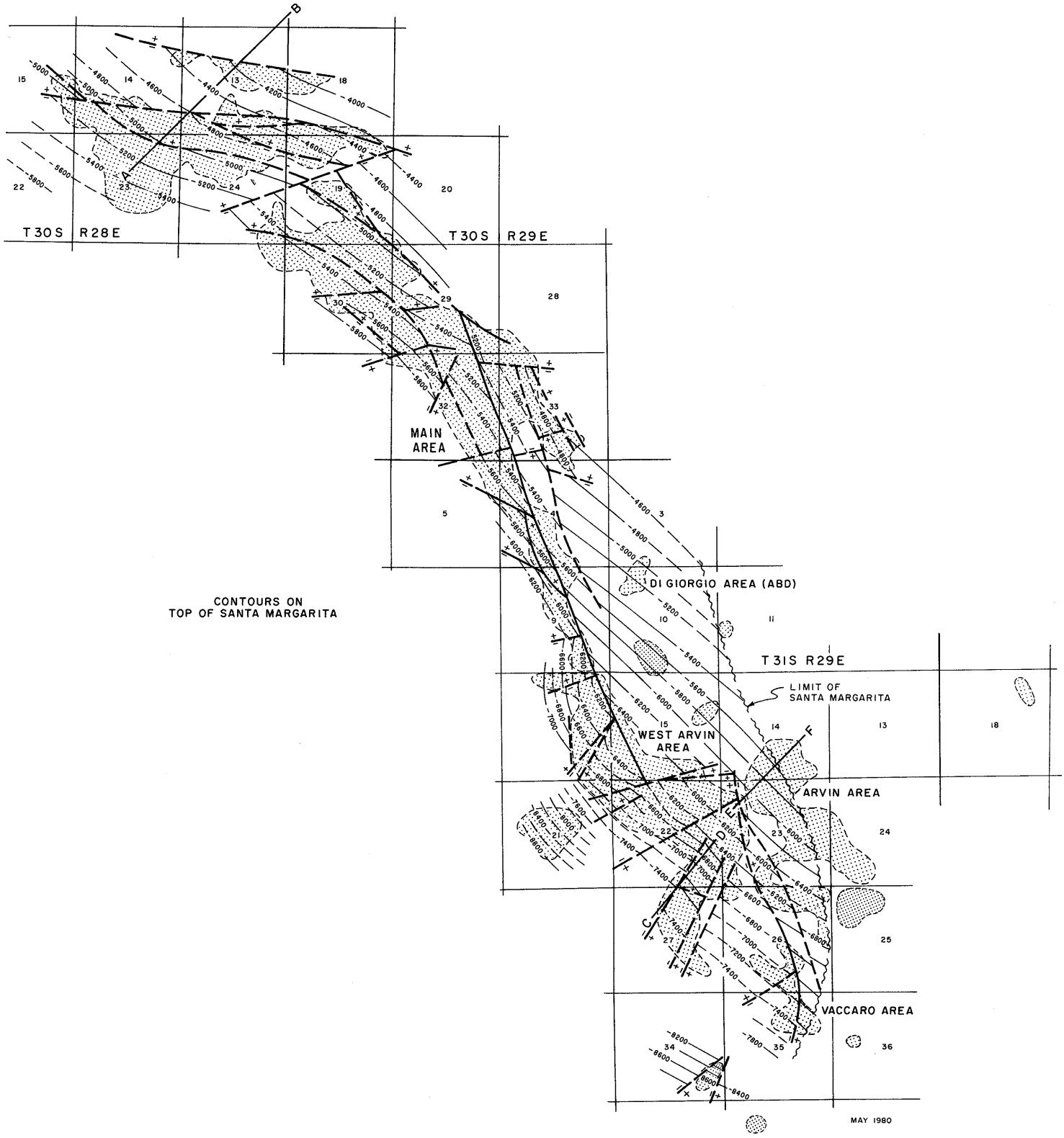


MAY 1980

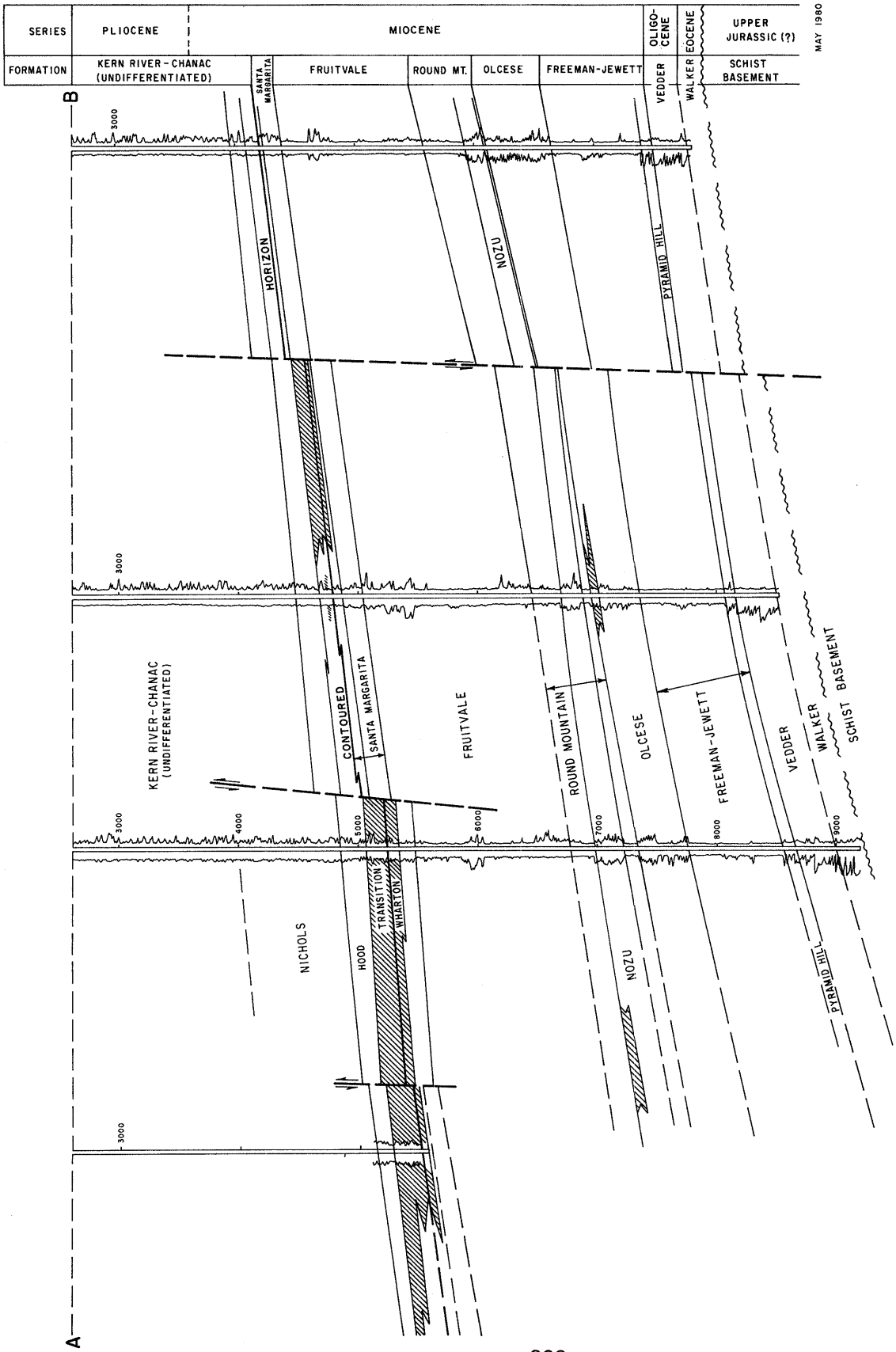




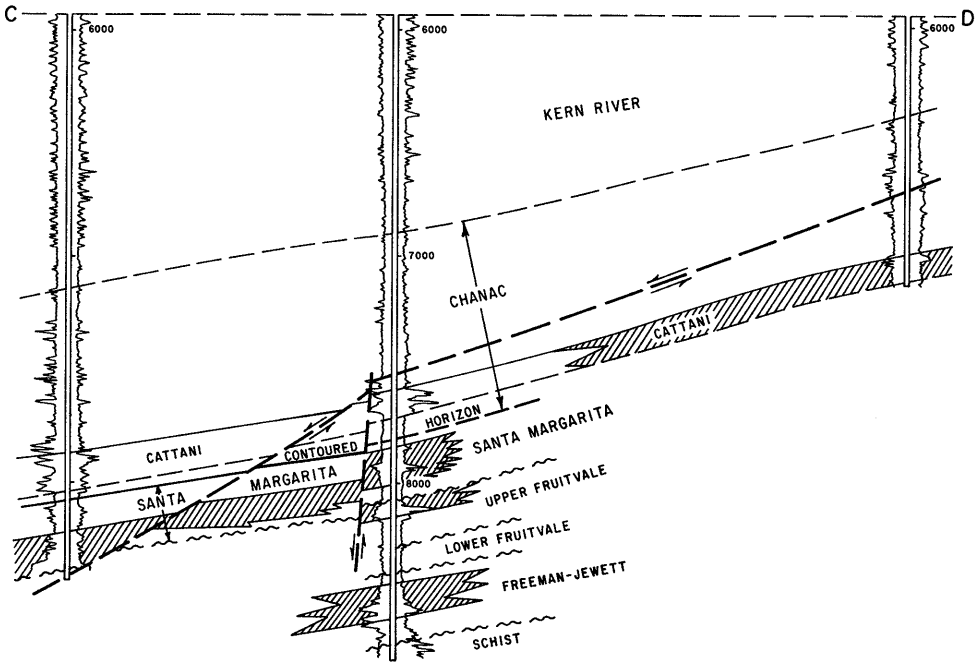
MOUNTAIN VIEW OIL FIELD

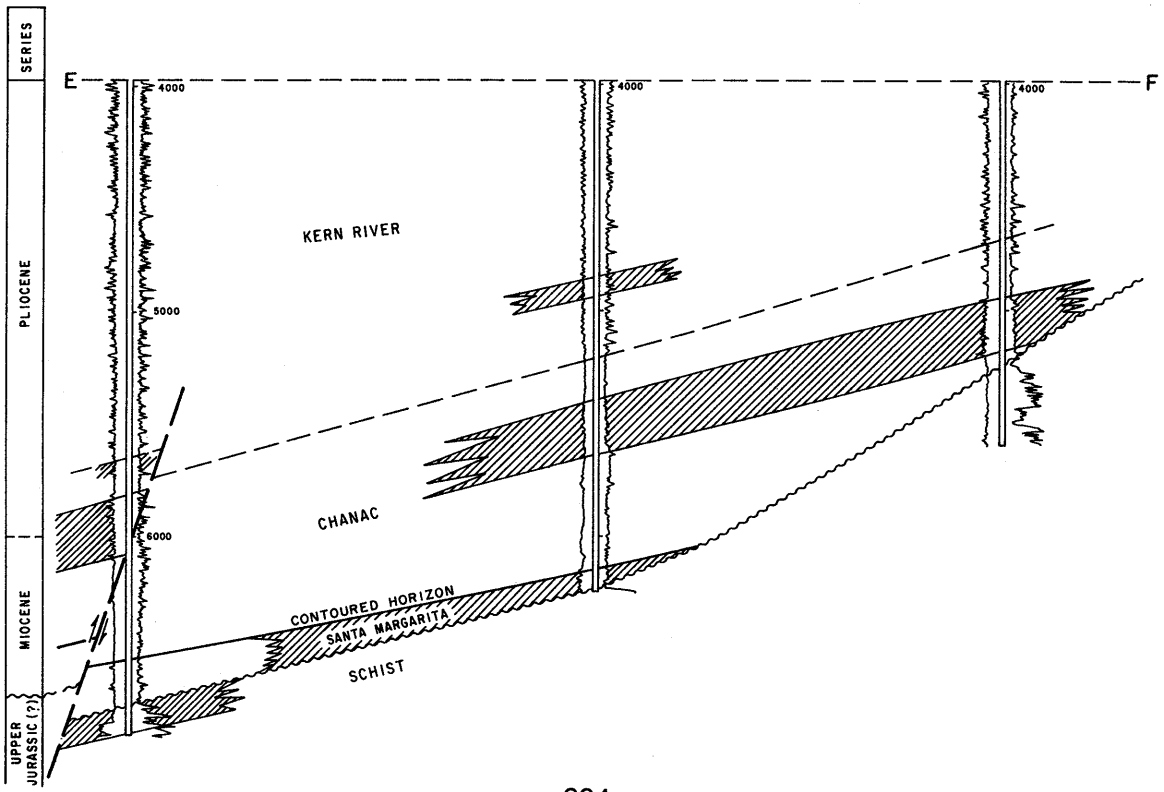


MOUNTAIN VIEW OIL FIELD



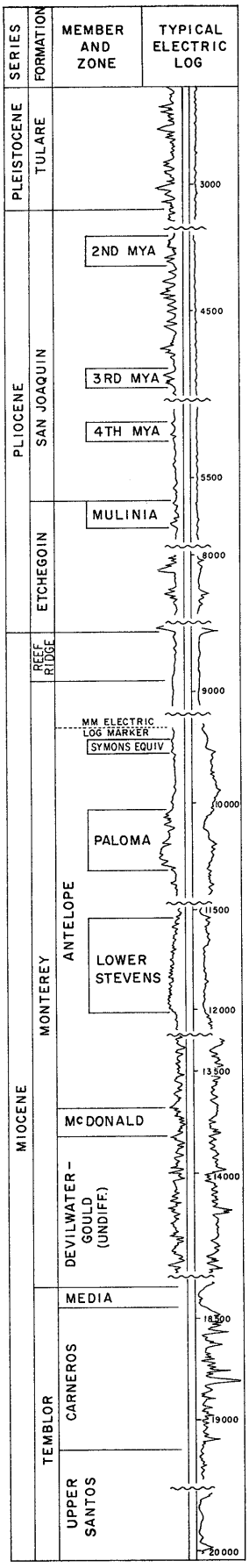
MOUNTAIN VIEW OIL FIELD



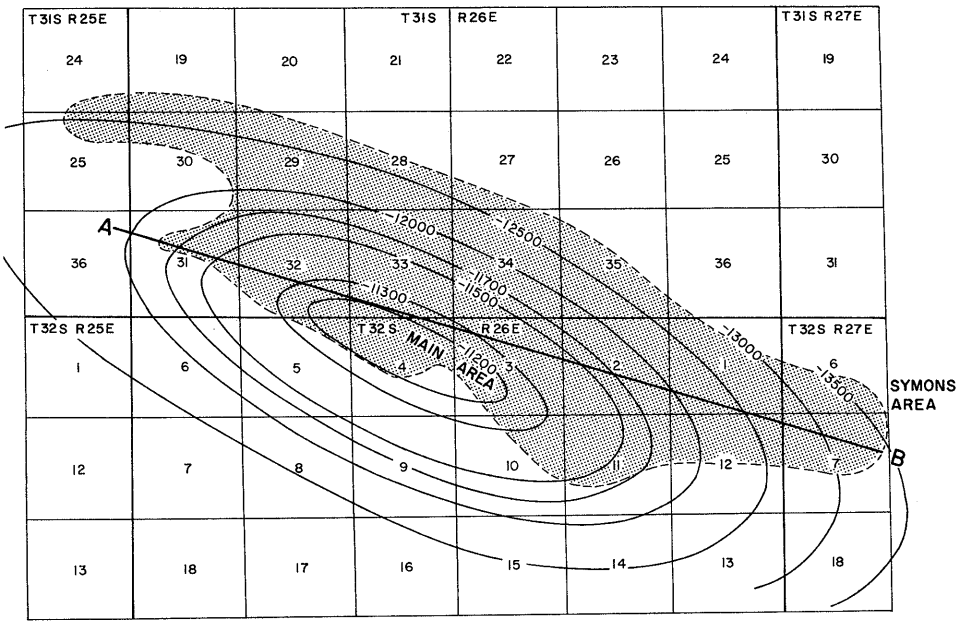


SEPTEMBER 1992

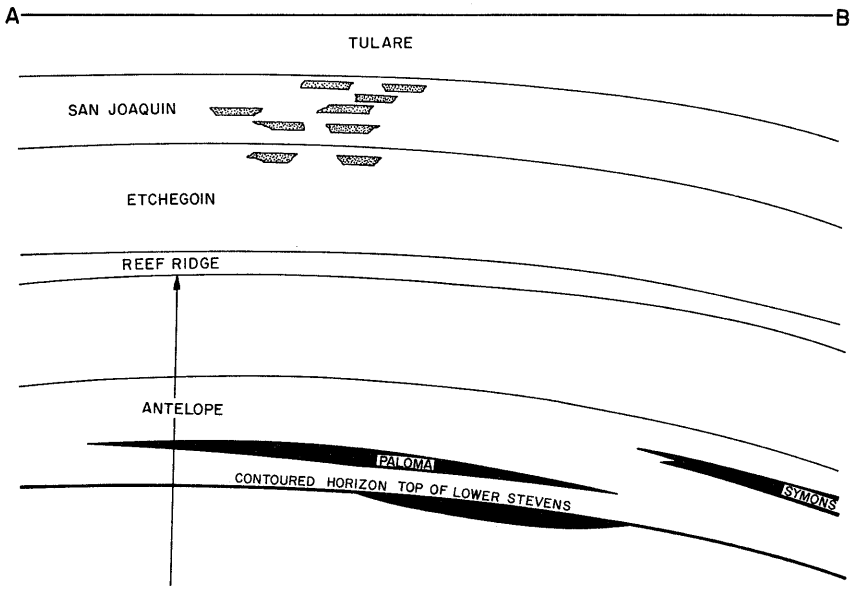
PALOMA OIL FIELD



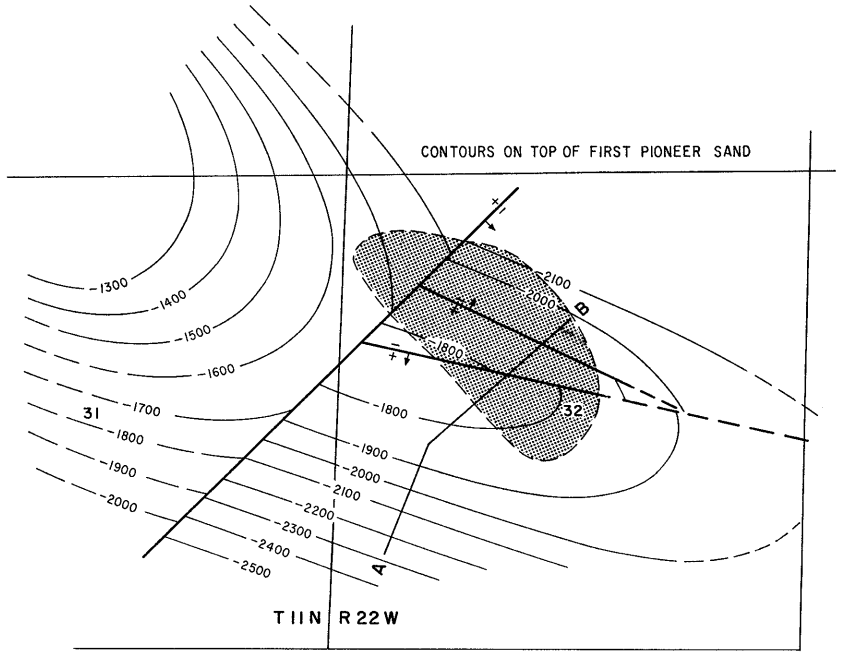
SEPTEMBER 1992

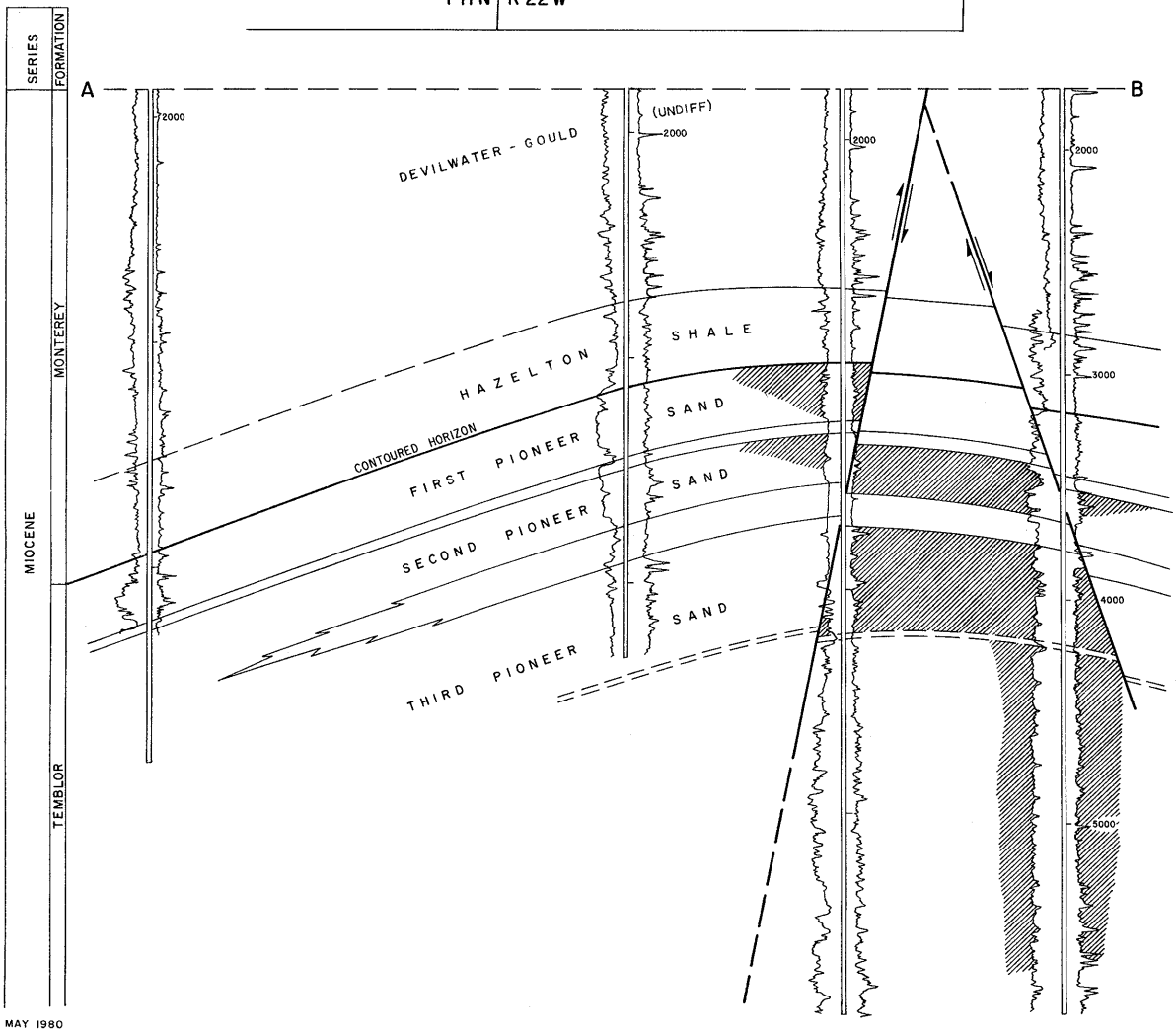


CONTOURS ON TOP OF LOWER STEVENS



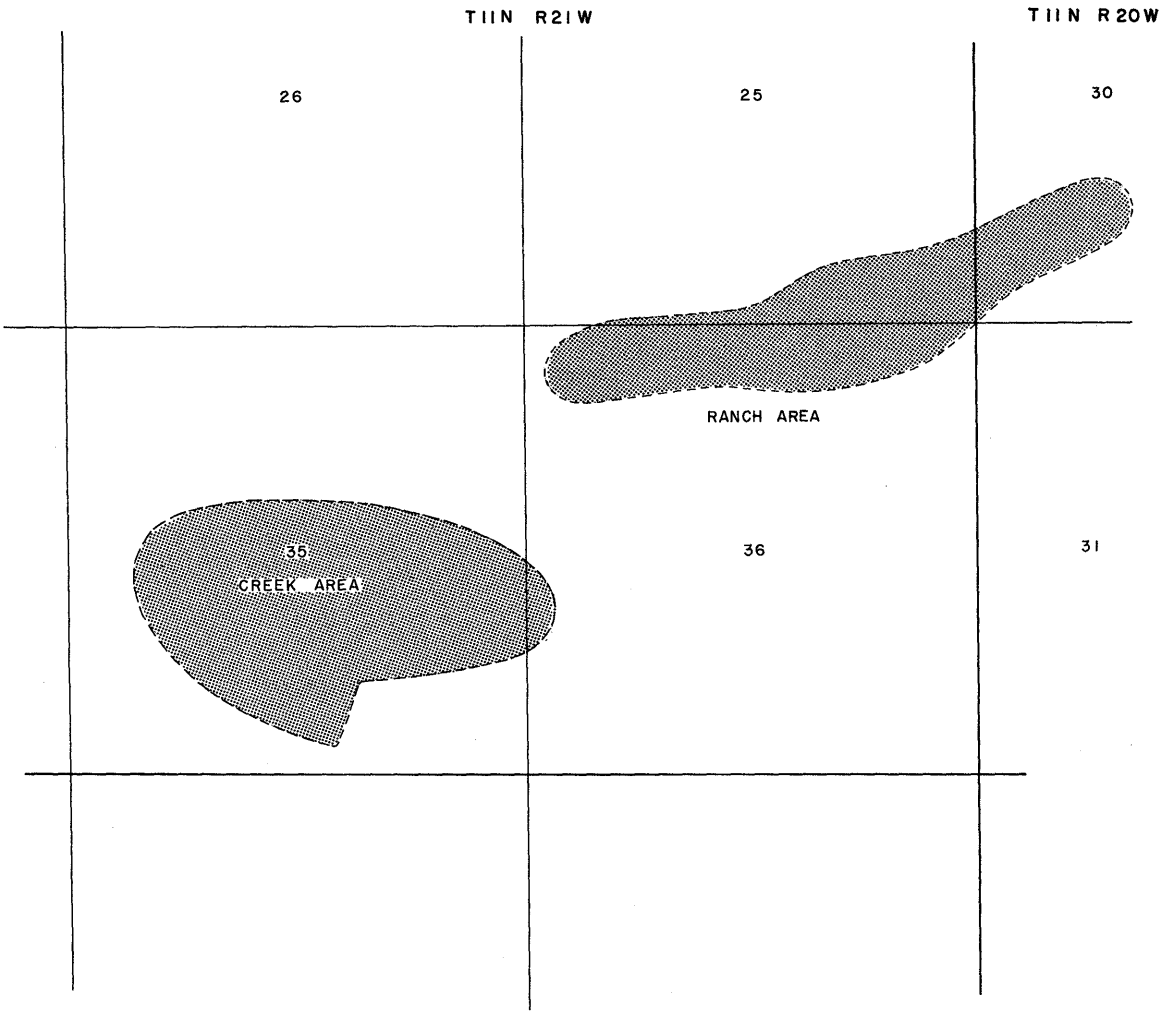
PIONEER OIL FIELD





MAY 1980

PLEITO OIL FIELD
Index Map

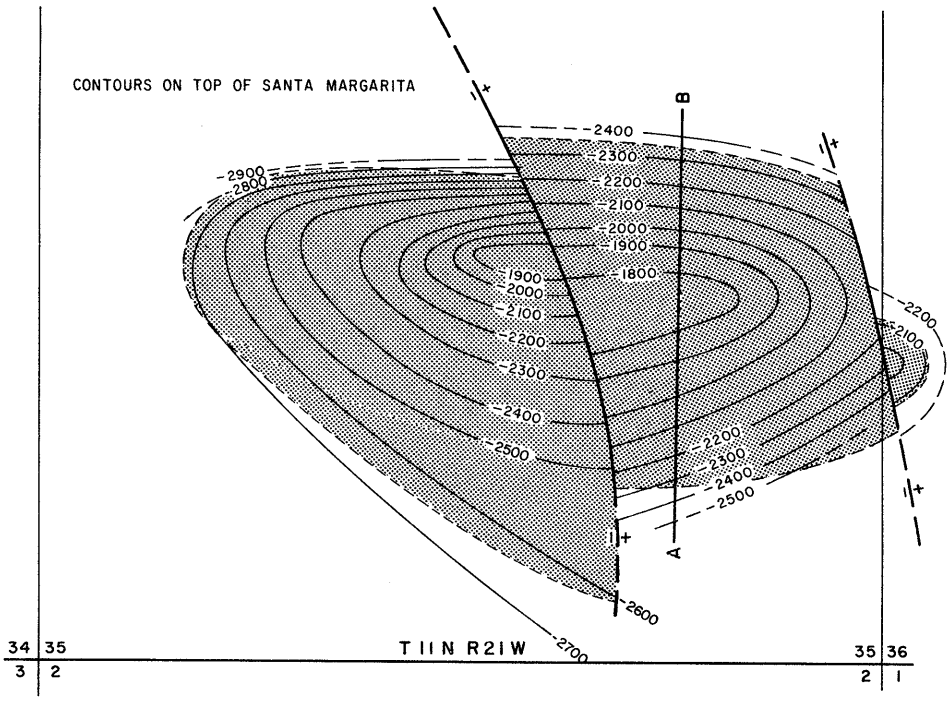


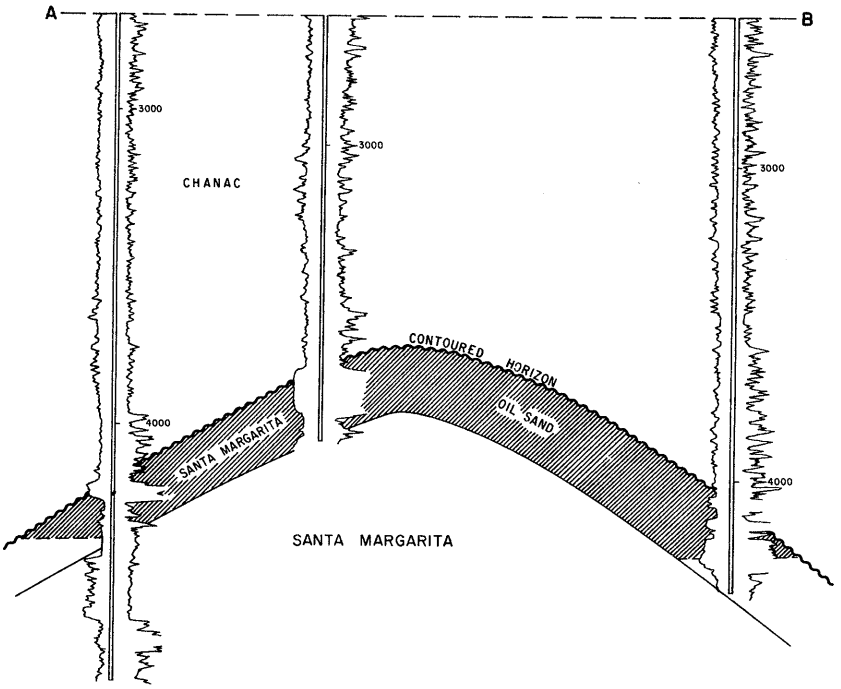
SEPTEMBER 1992

PLEITO OIL FIELD
Creek Area

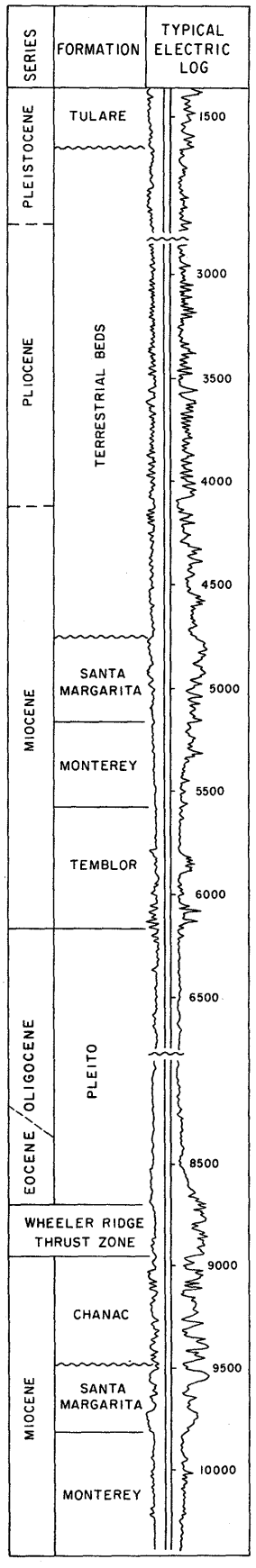
SERIES	FORMATION	THICKNESS (FEET)
PLEISTOCENE	TULARE	1900
PLIOCENE	CHANAC	2300
MIOCENE	SANTA MARGARITA	500
	MONTEREY	575

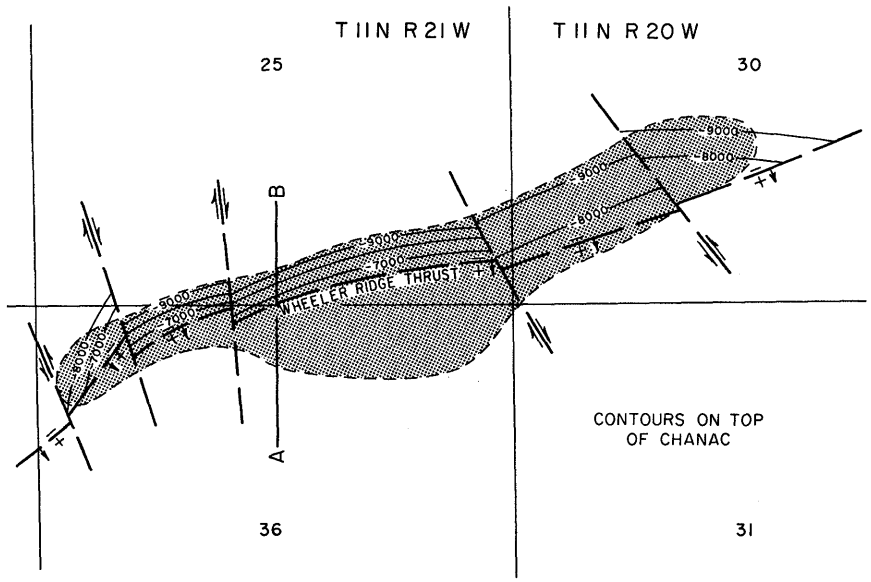
SEPTEMBER 1992

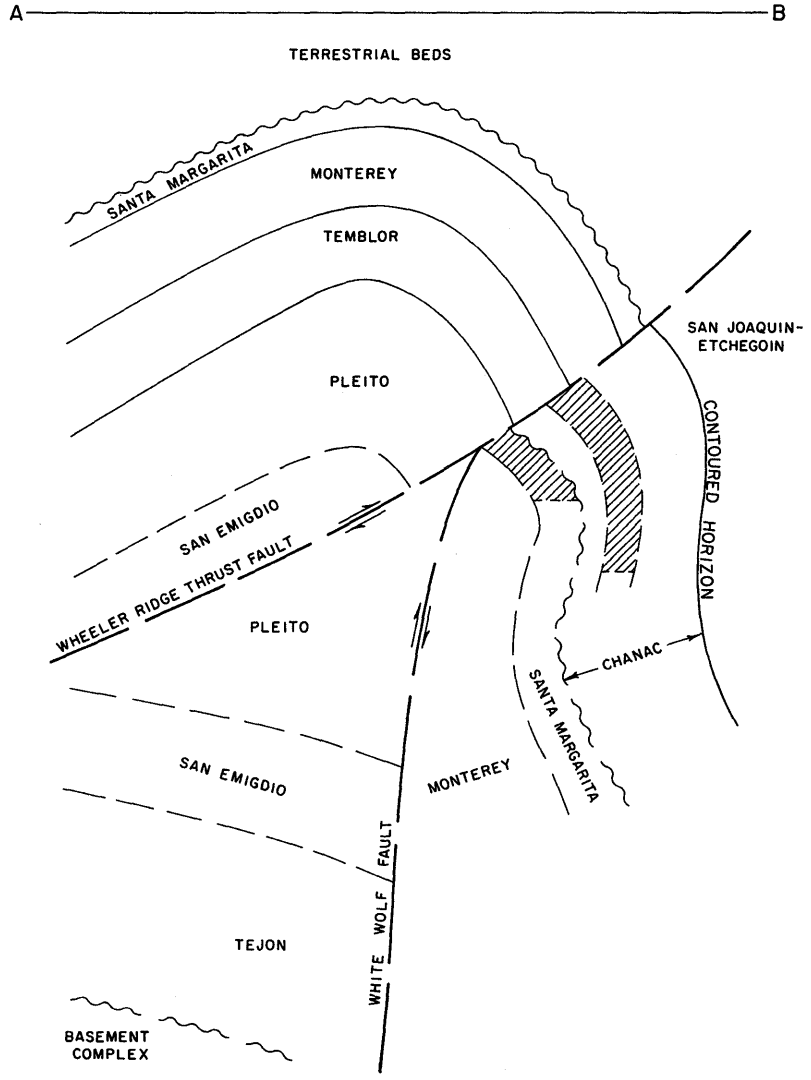




PLEITO OIL FIELD
Ranch Area

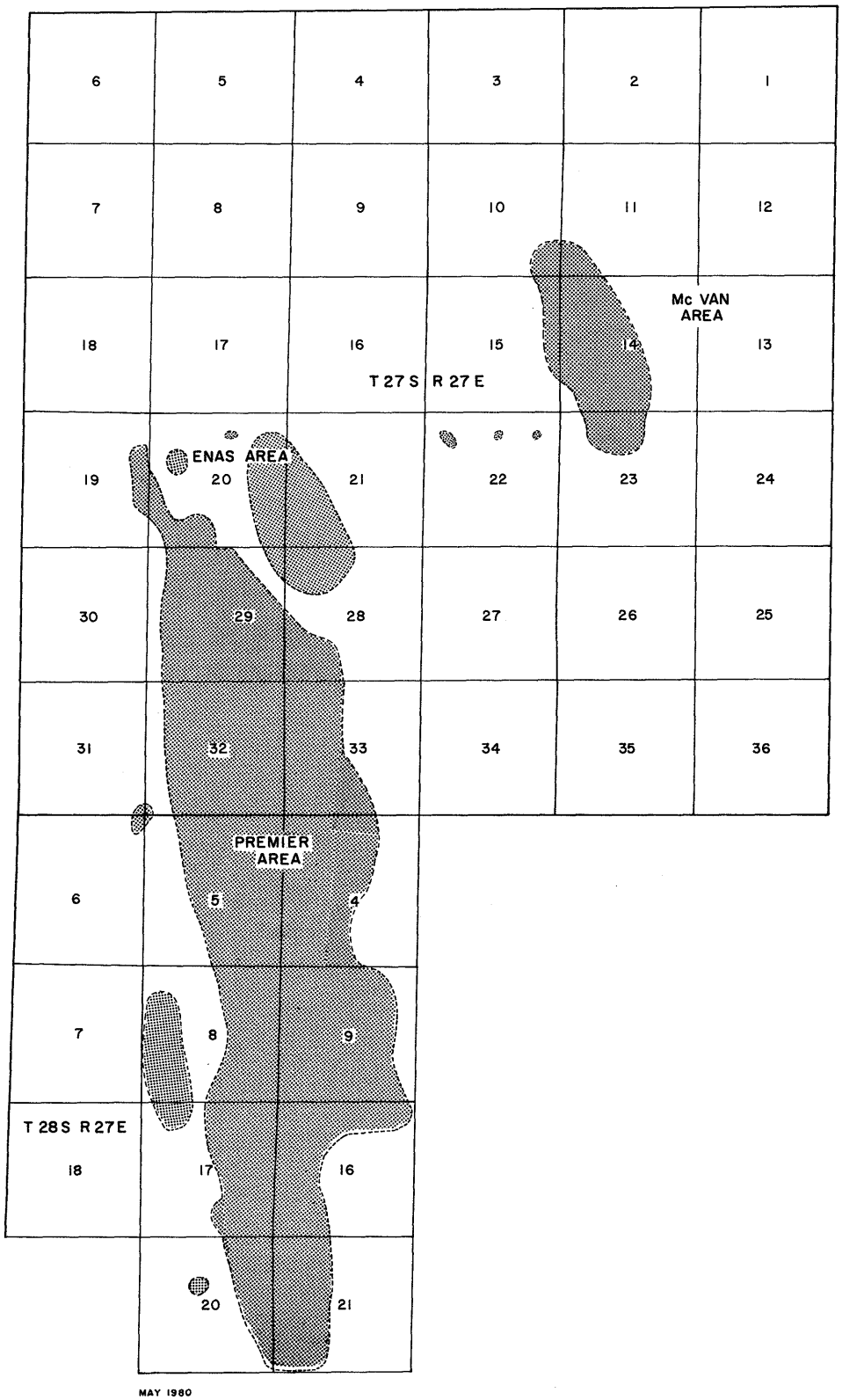






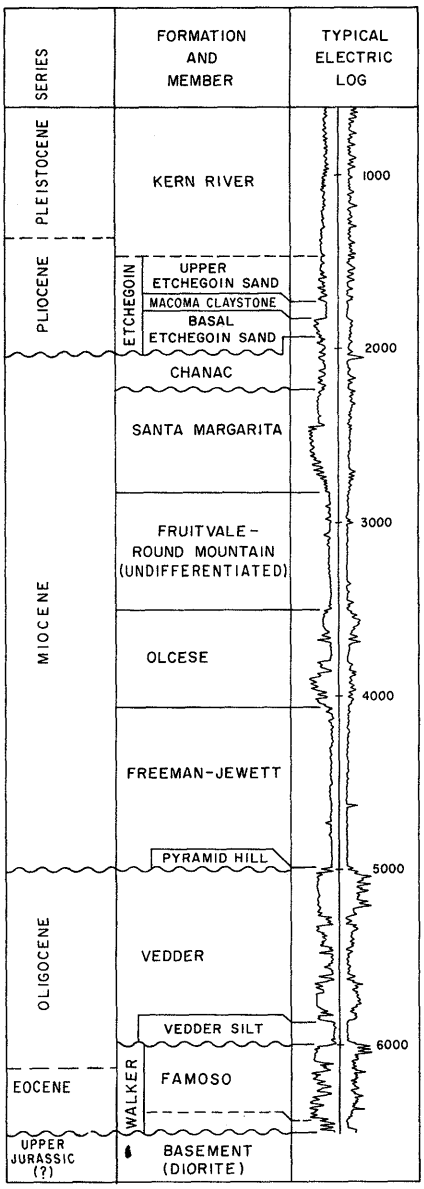
MAY 1980

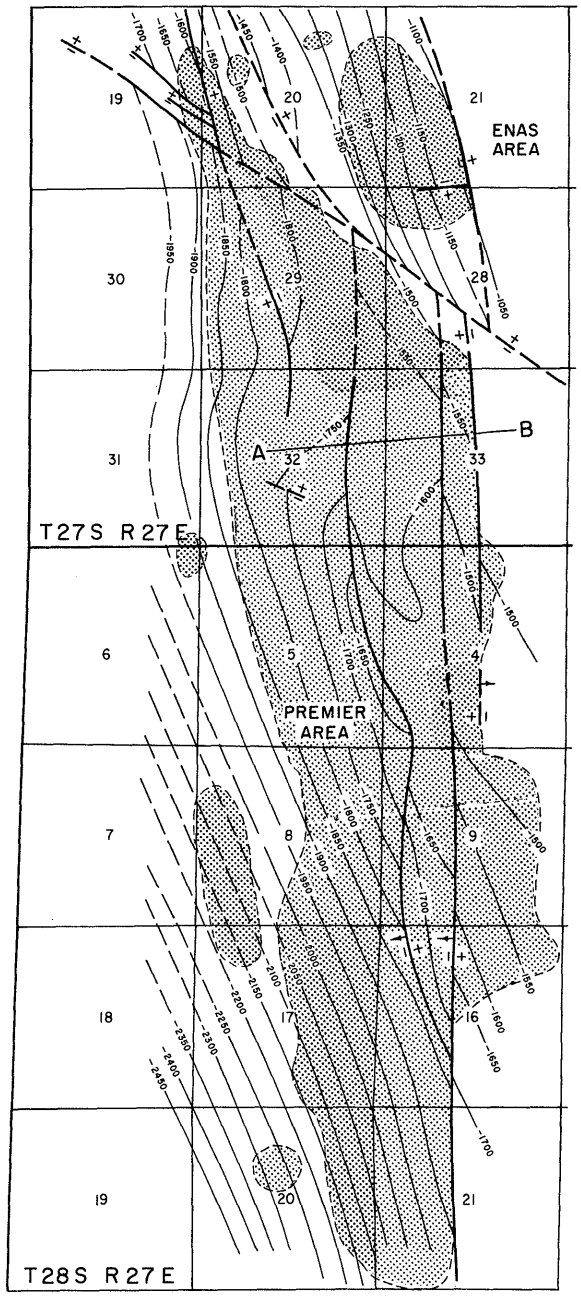
POSO CREEK OIL FIELD
Index Map



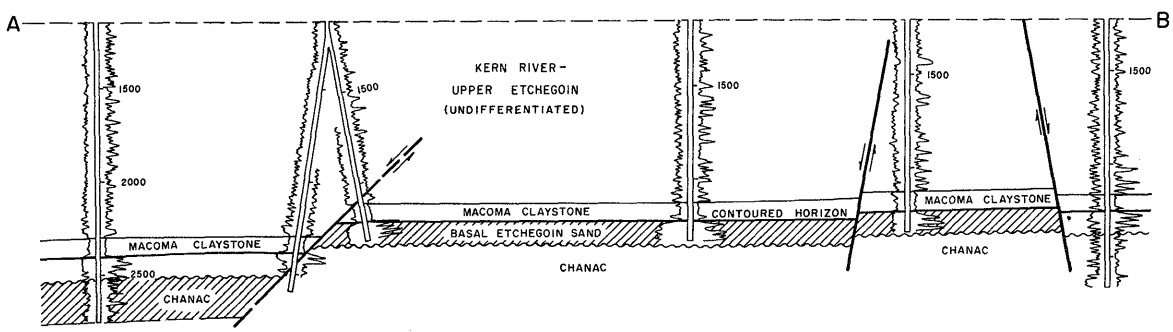
MAY 1980

POSO CREEK OIL FIELD
Enas & Premier Areas



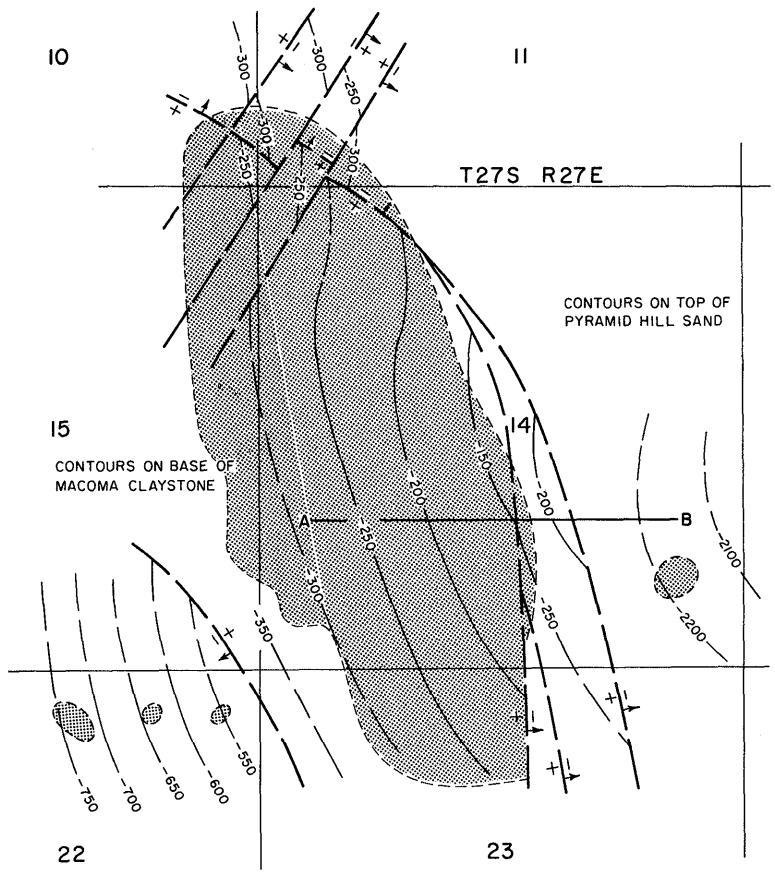


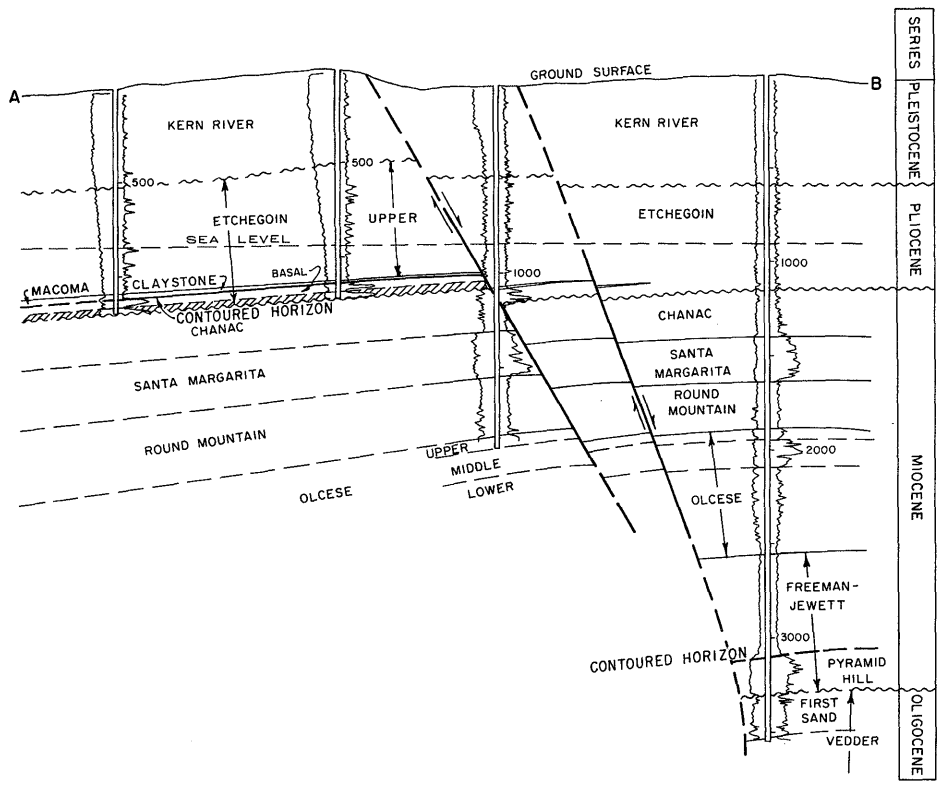
CONTOURS ON BASE OF MACOMA CLAYSTONE



MAY 1980

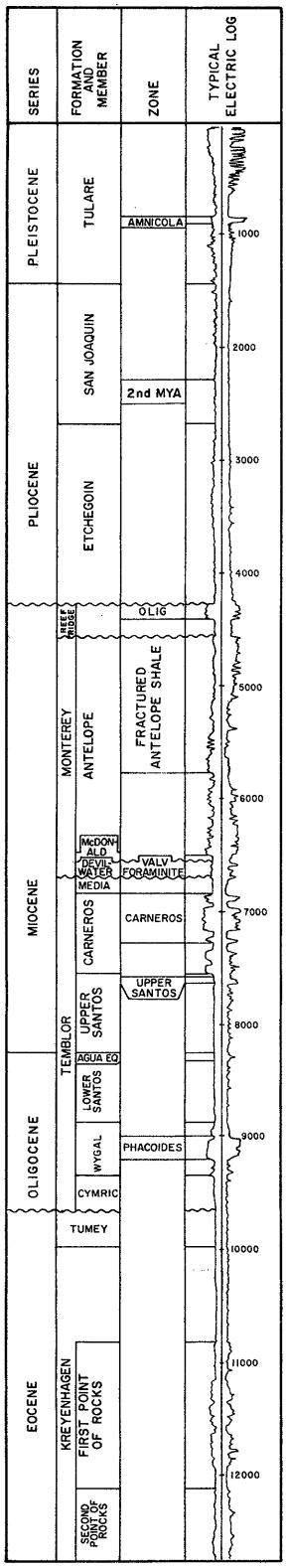
POSO CREEK OIL FIELD
McVan Area



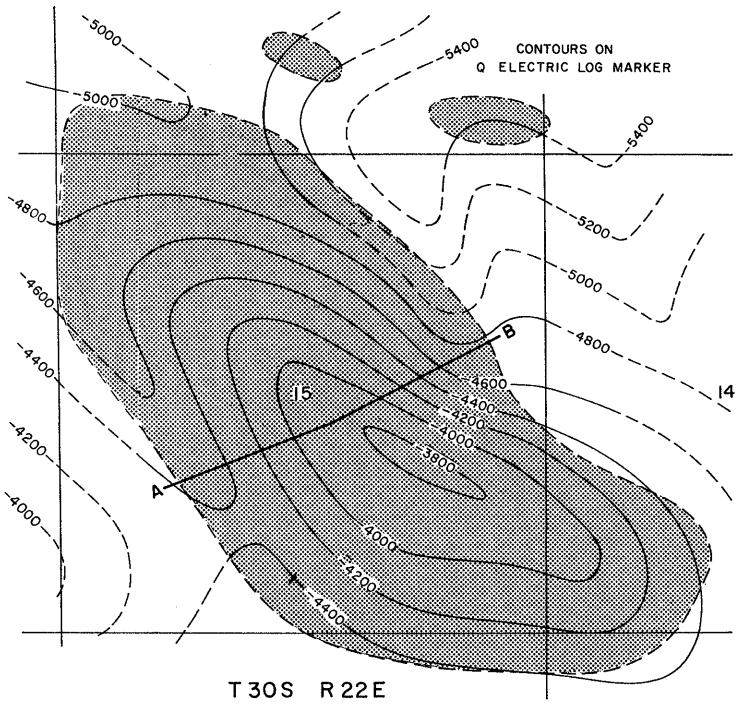


JUNE 1981

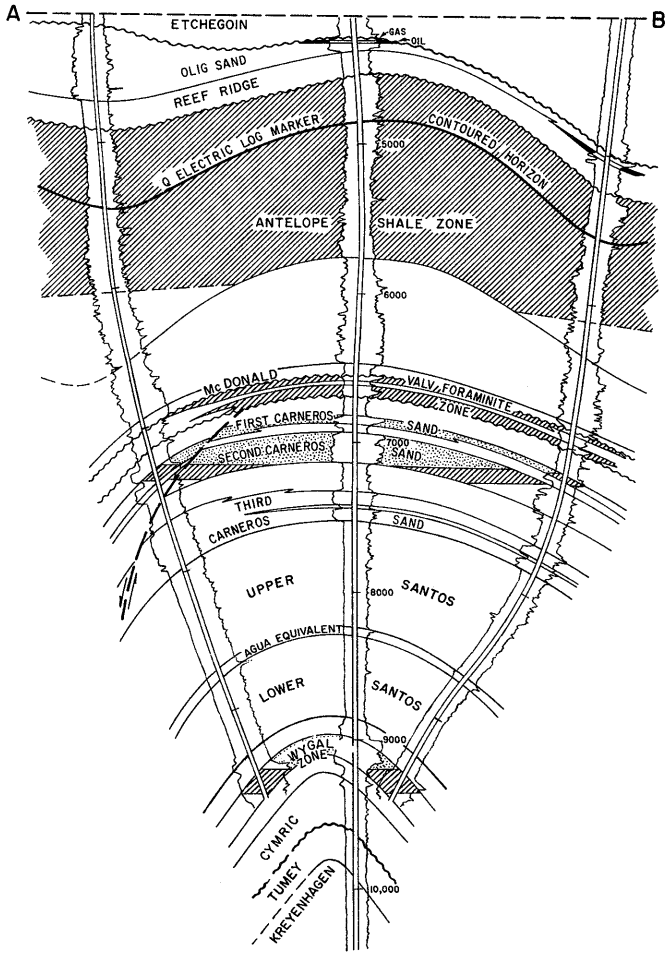
RAILROAD GAP OIL FIELD



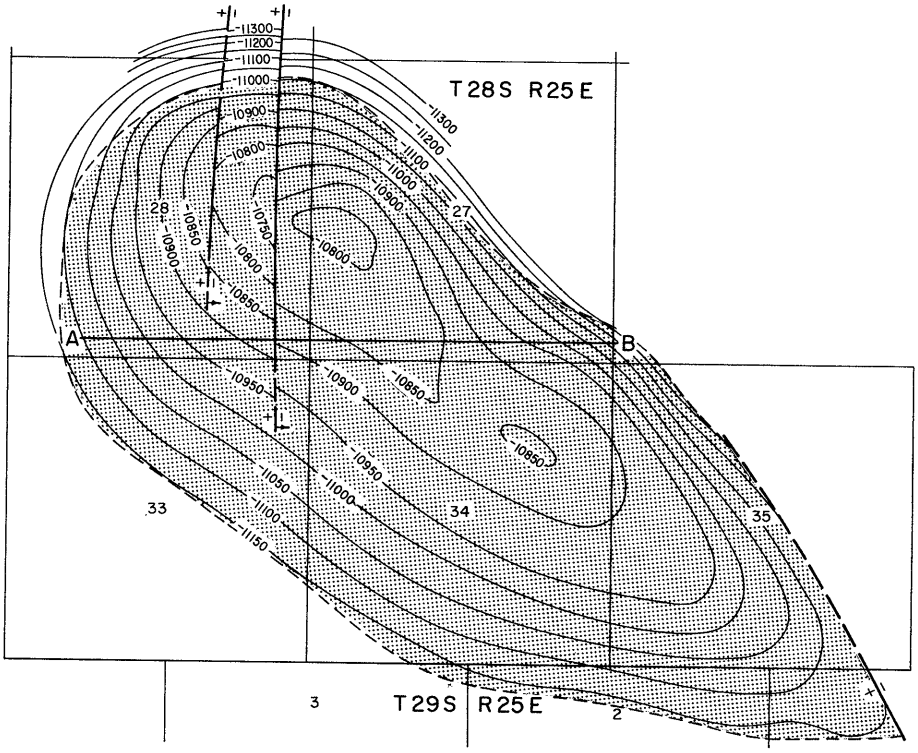
MAY 1980



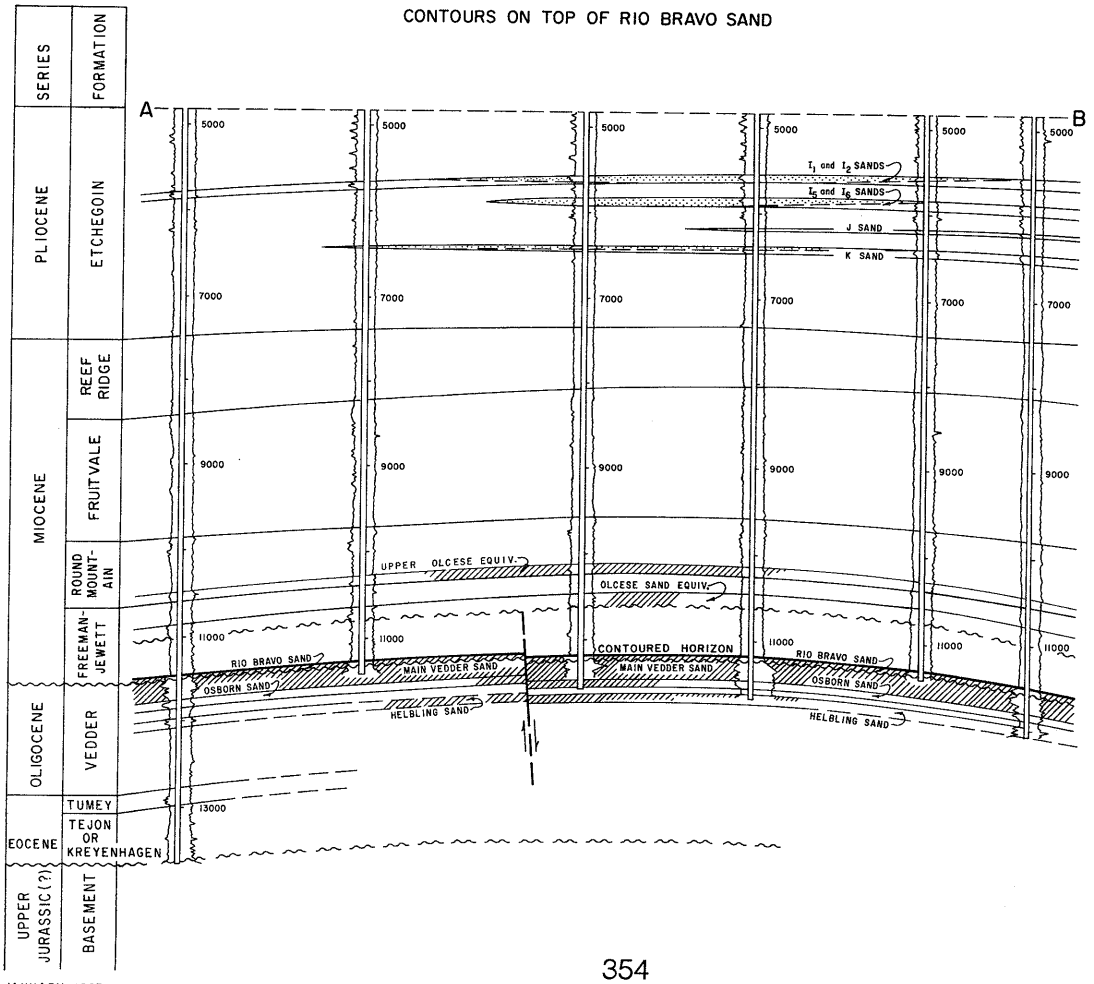
T 30S R 22E



RIO BRAVO OIL FIELD

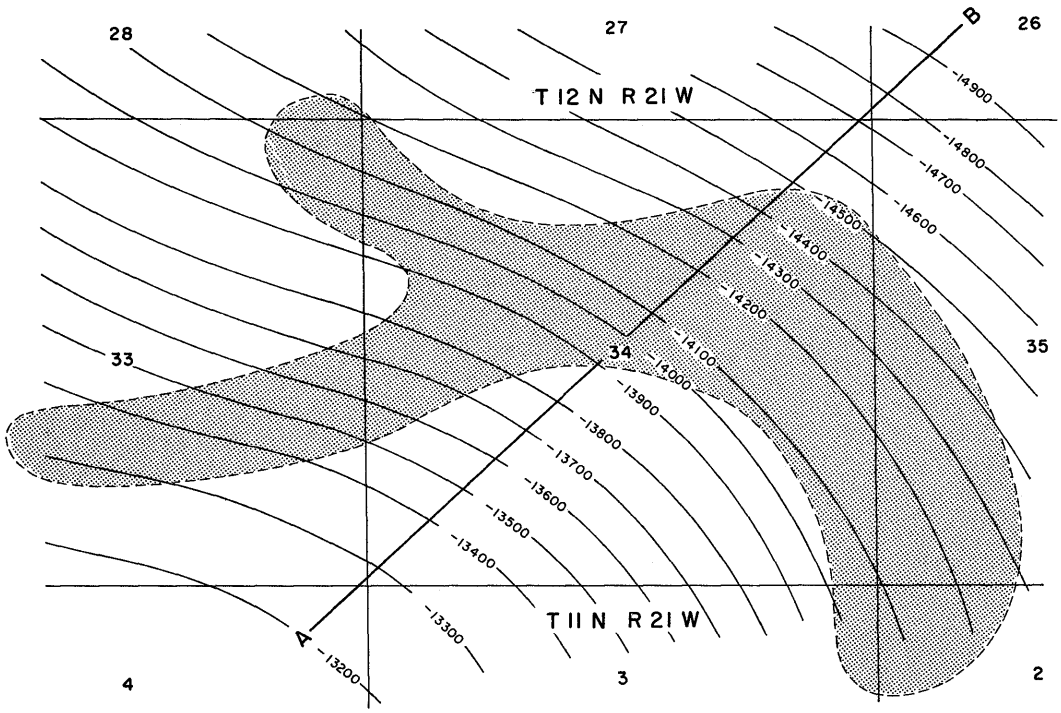


CONTOURS ON TOP OF RIO BRAVO SAND

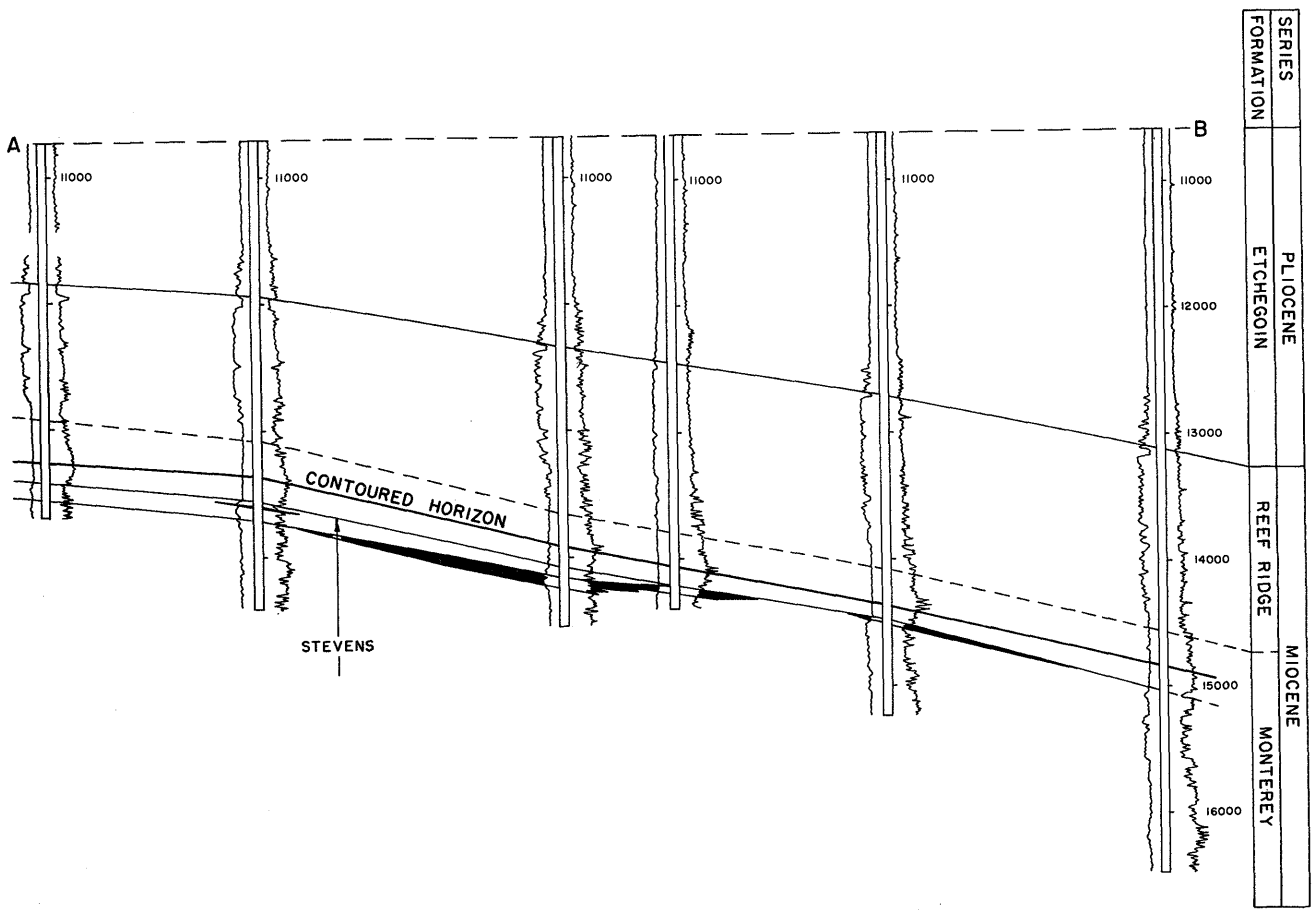


JANUARY 1983

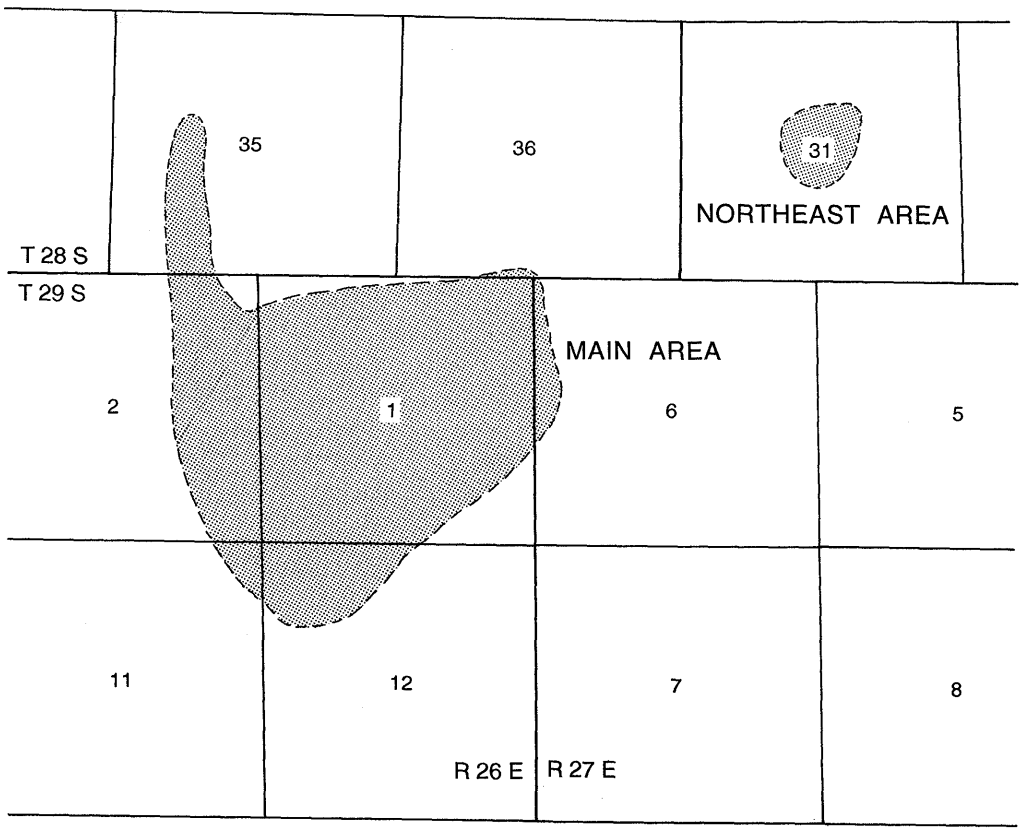
RIO VIEJO OIL FIELD



CONTOURS ON N ELECTRIC LOG MARKER

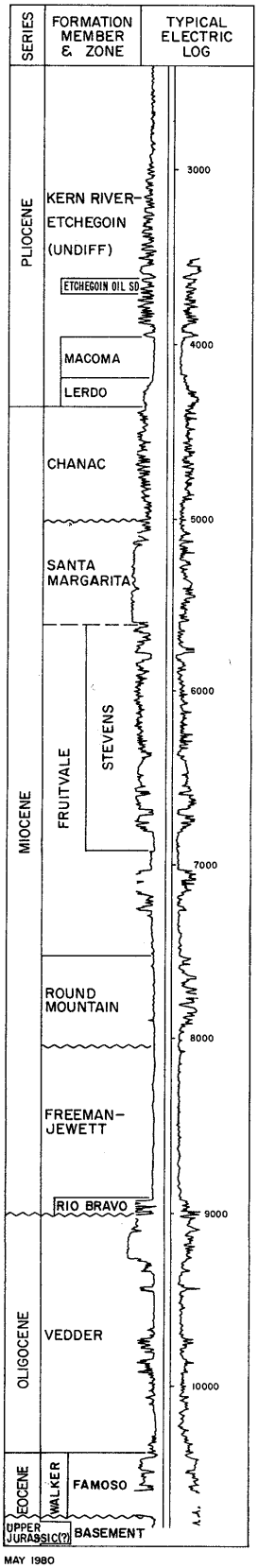


ROSEDALE RANCH OIL FIELD
Index Map

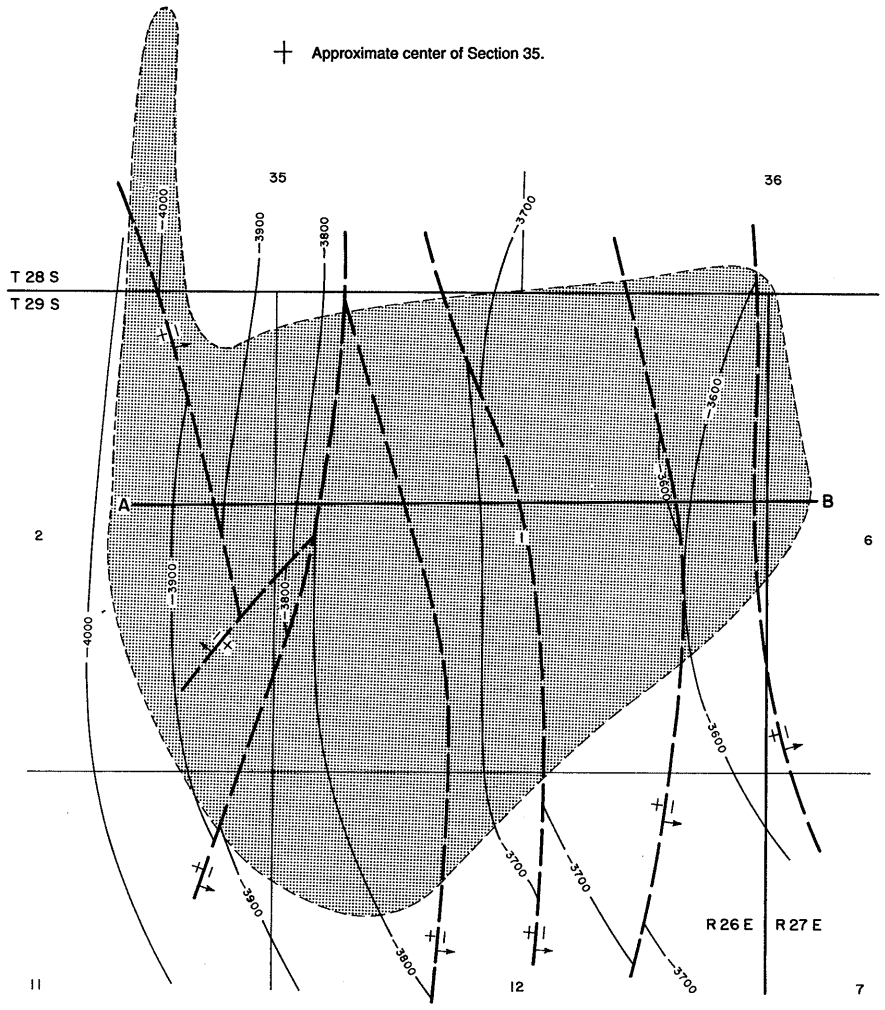


APRIL 1996

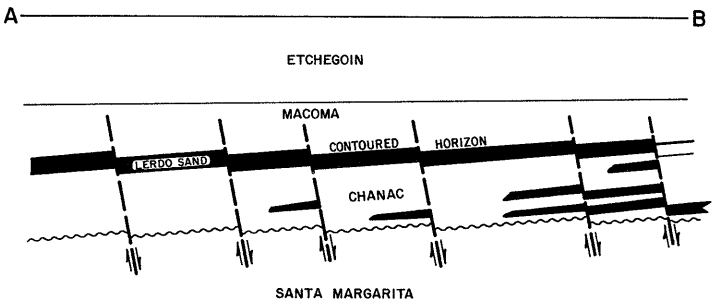
ROSEDALE RANCH OIL FIELD
Main Area



MAY 1980

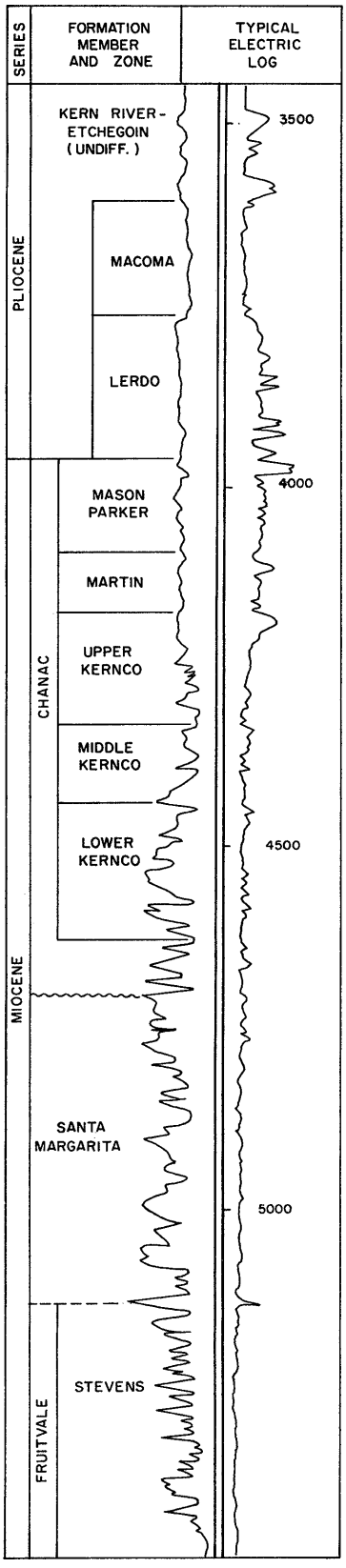


CONTOURS ON TOP OF LERDO SAND

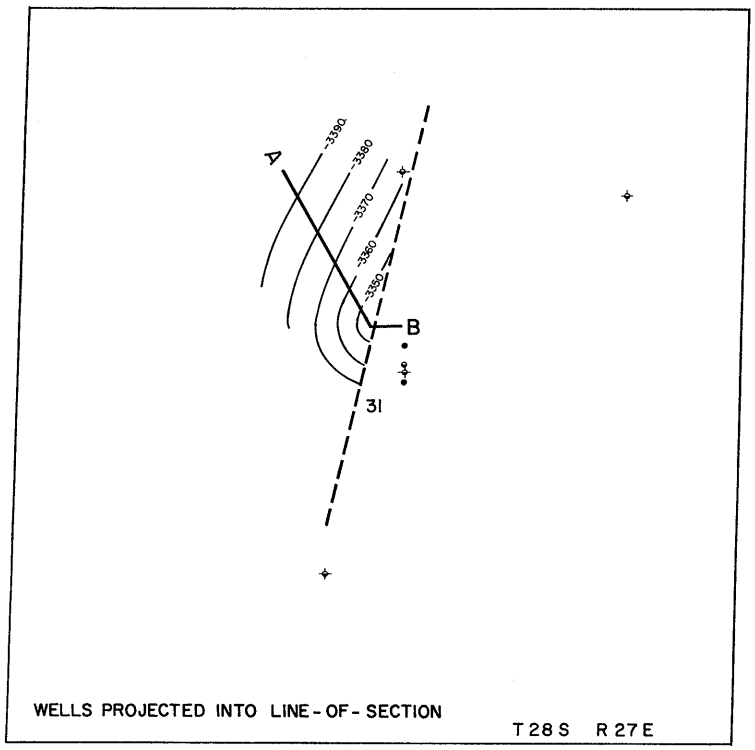


ROSEDALE RANCH OIL FIELD

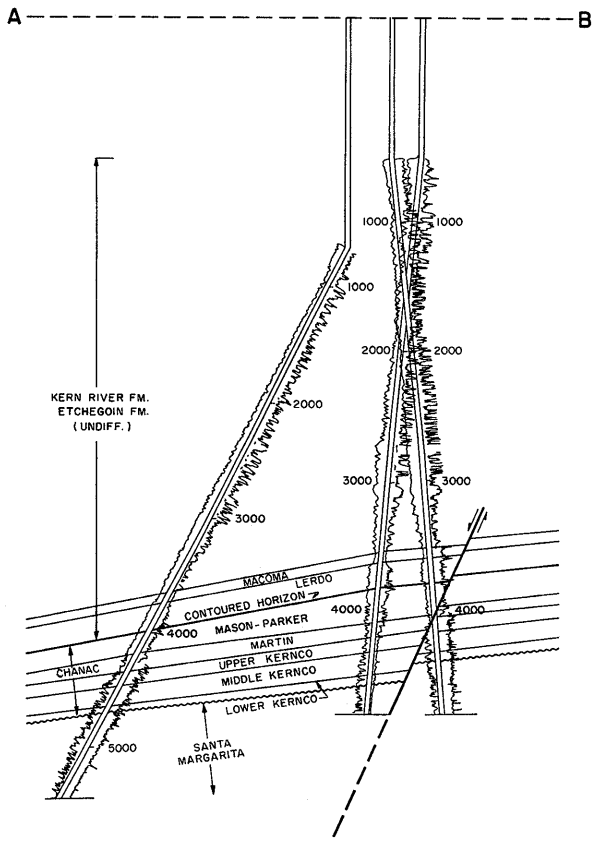
Northeast Area



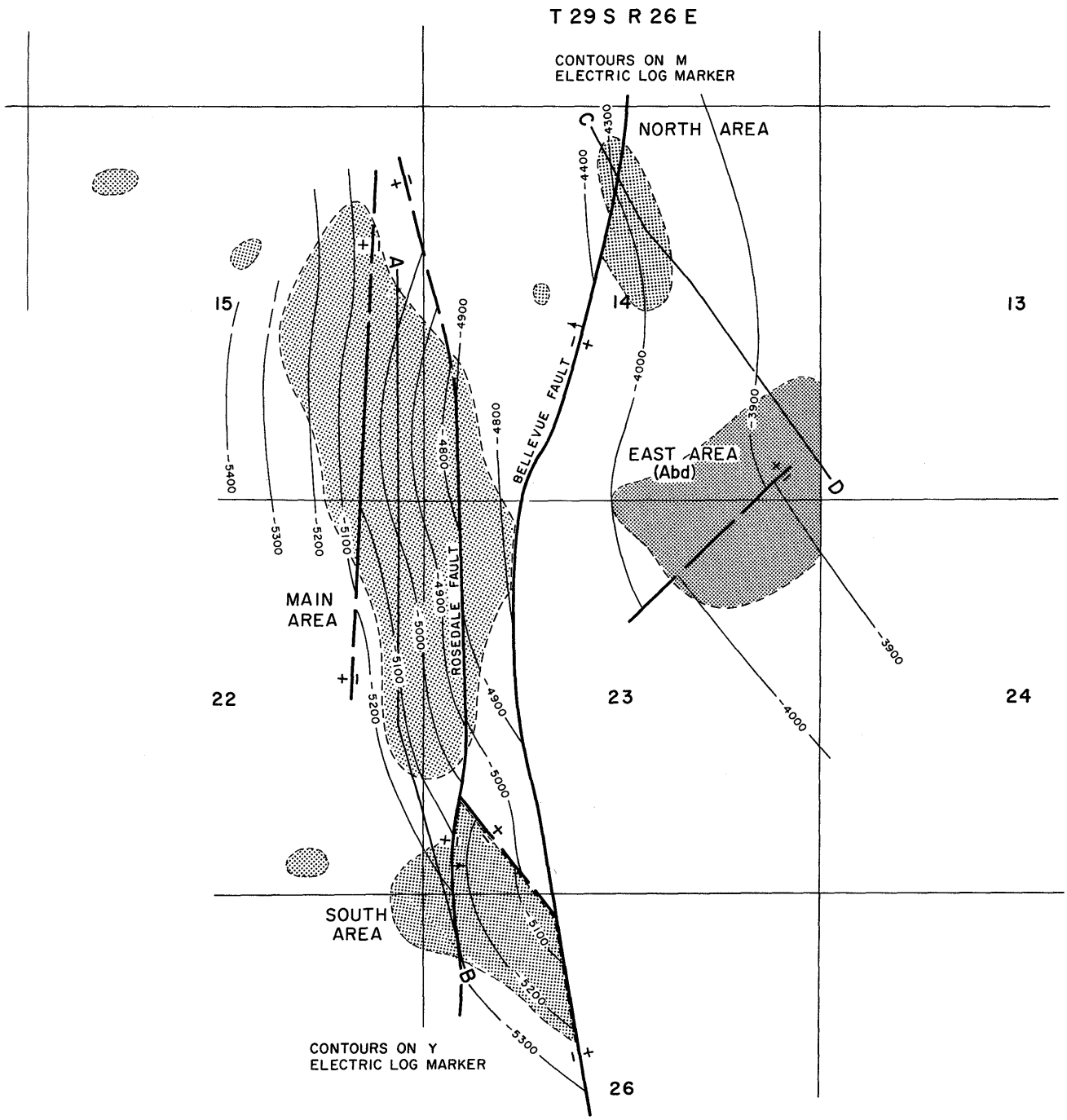
DECEMBER 1994



CONTOURS ON TOP OF MASON-PARKER

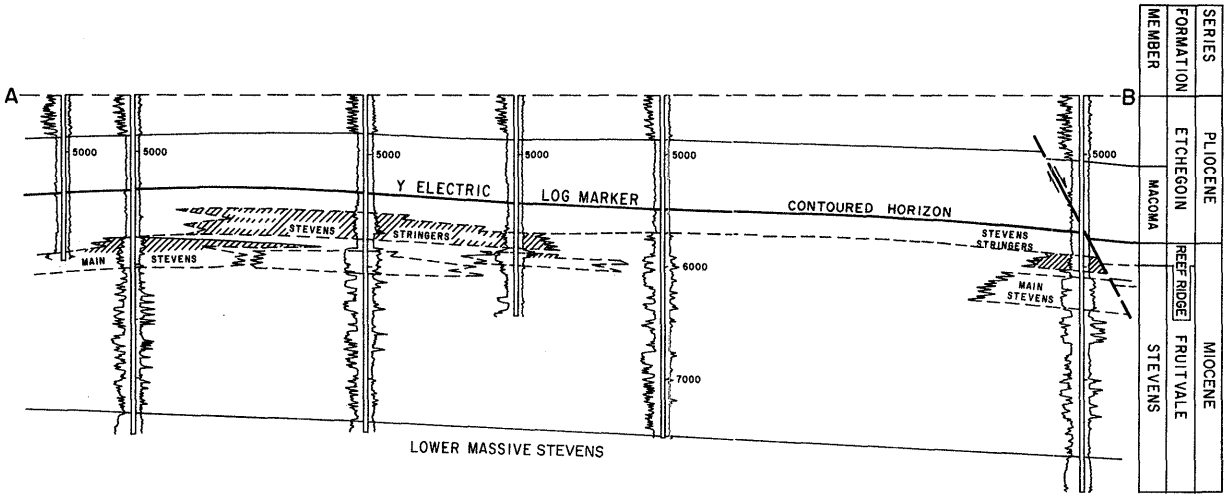


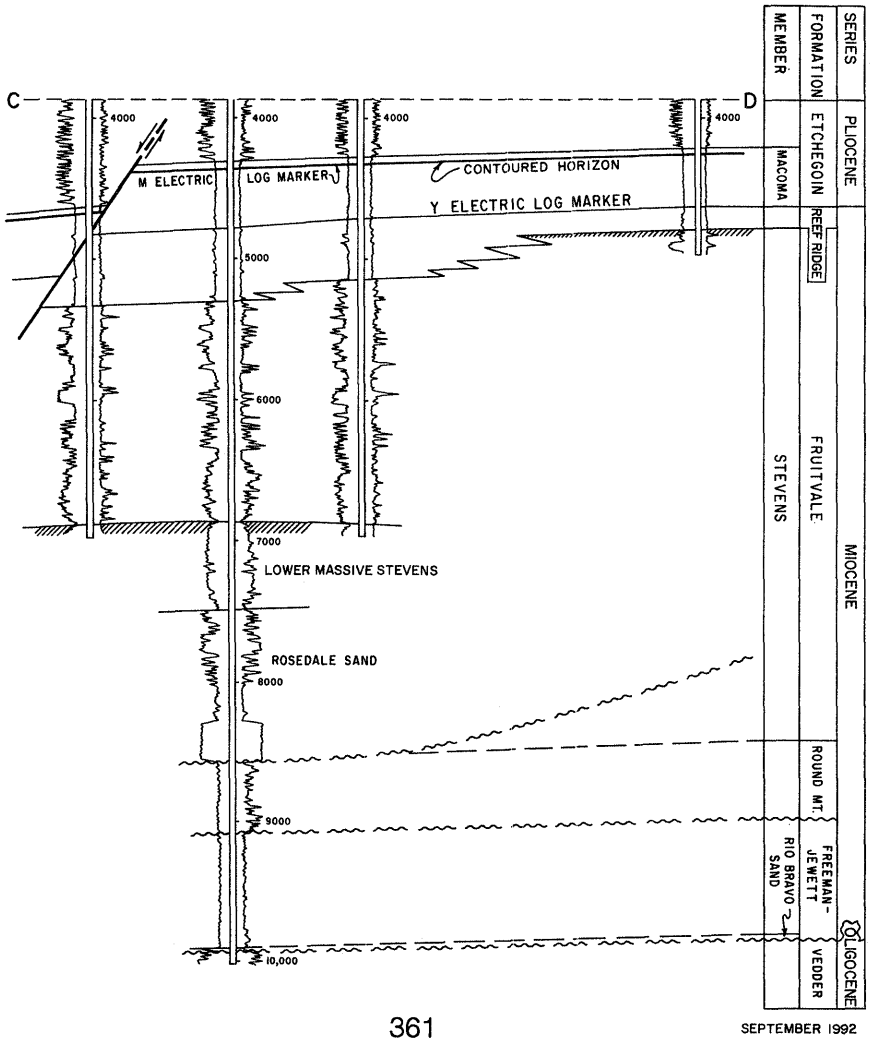
ROSEDALE OIL FIELD



SEPTEMBER 1992

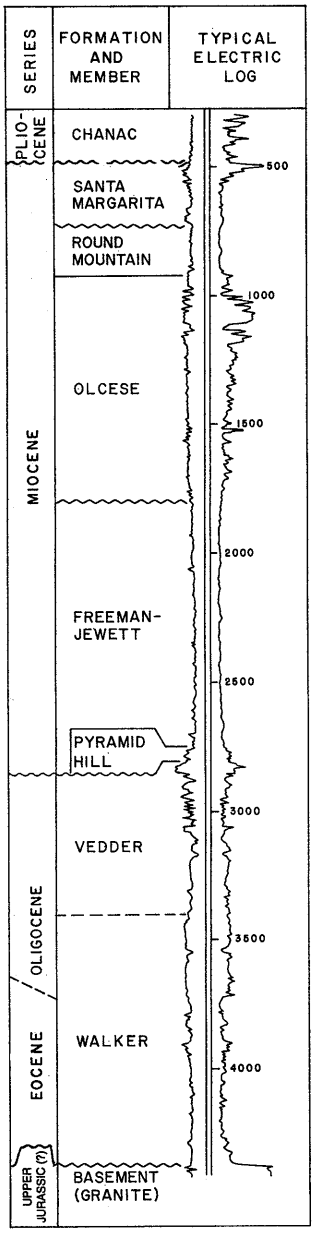
ROSEDALE OIL FIELD



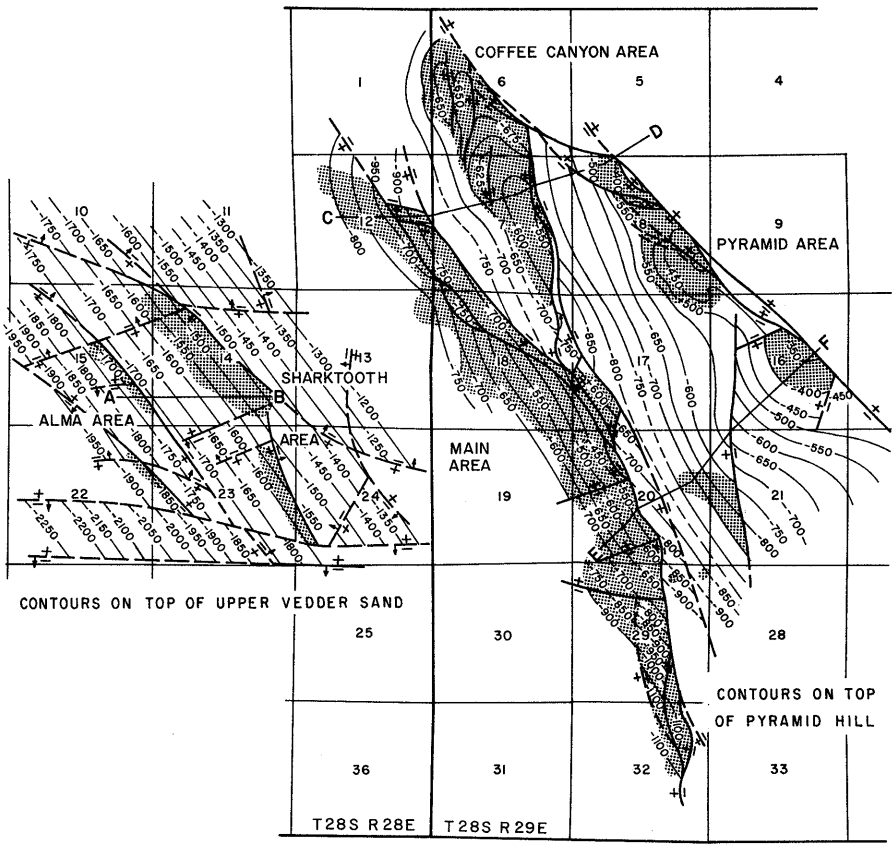


SEPTEMBER 1992

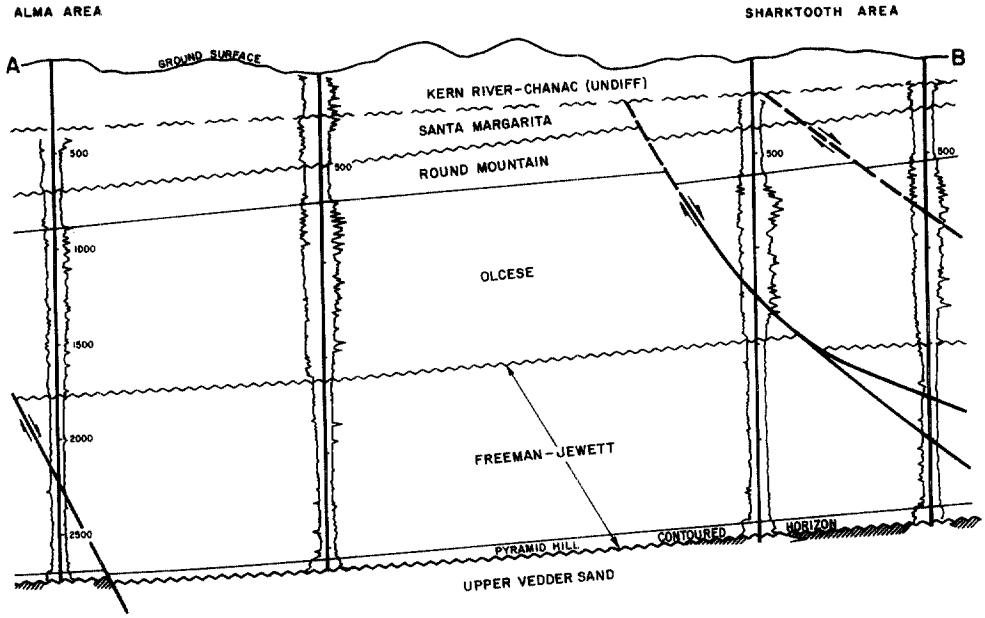
ROUND MOUNTAIN OIL FIELD

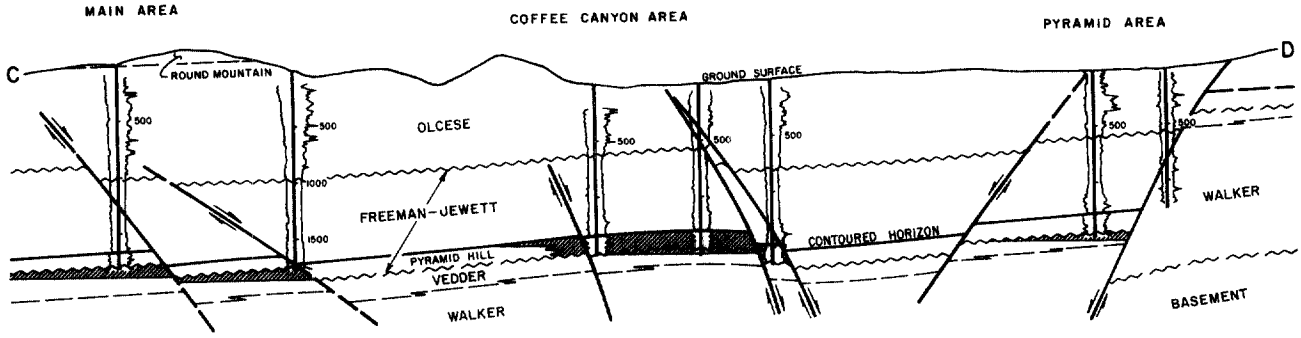


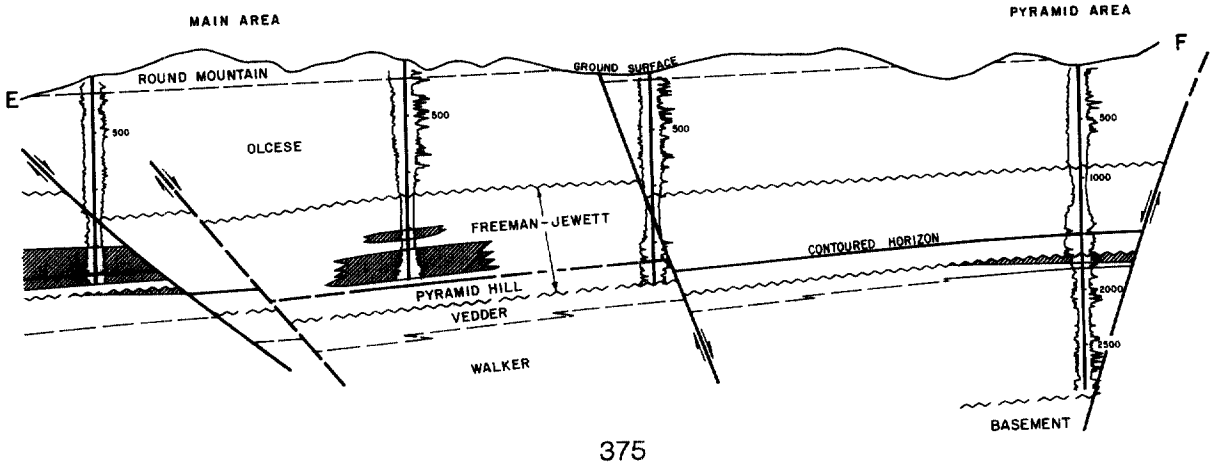
MAY 1980



ROUND MOUNTAIN OIL FIELD

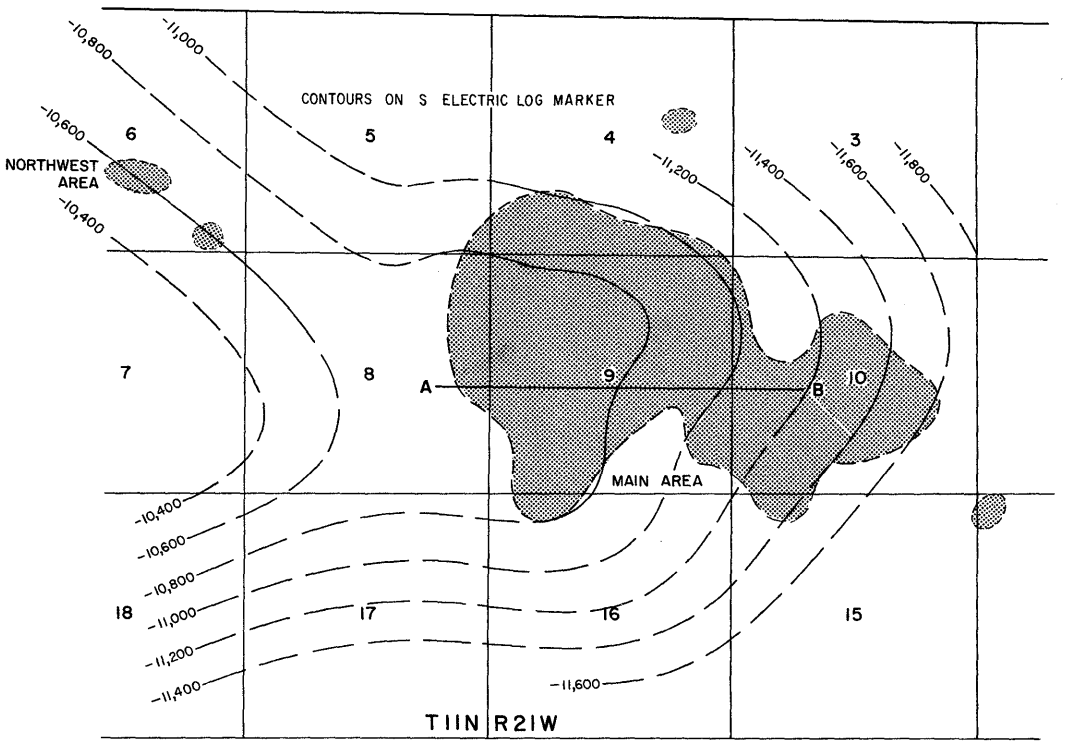


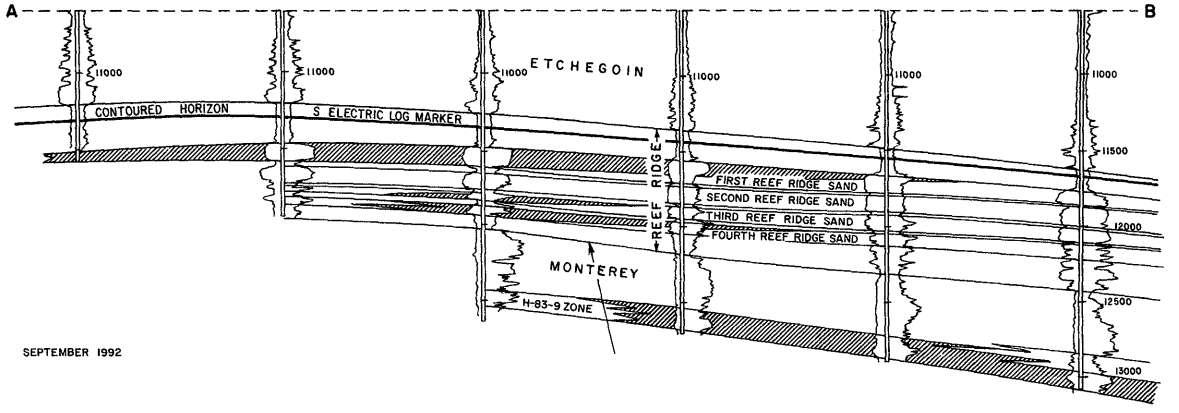




SAN EMIDIO NOSE OIL FIELD

SERIES	FORMATION MEMBER AND ZONE	THICKNESS (FEET)
HOLOCENE	ALLUVIUM	550
PLEISTOCENE	TULARE	4500
PLIOCENE	SAN JOAQUIN	4200
PLIOCENE	ETCHEGOIN	2000
MIOCENE	REEF RIDGE: 1st SAND, 3rd SAND, 4th SAND	1000
MIOCENE	H-83-9	650
MIOCENE	MONTEREY	

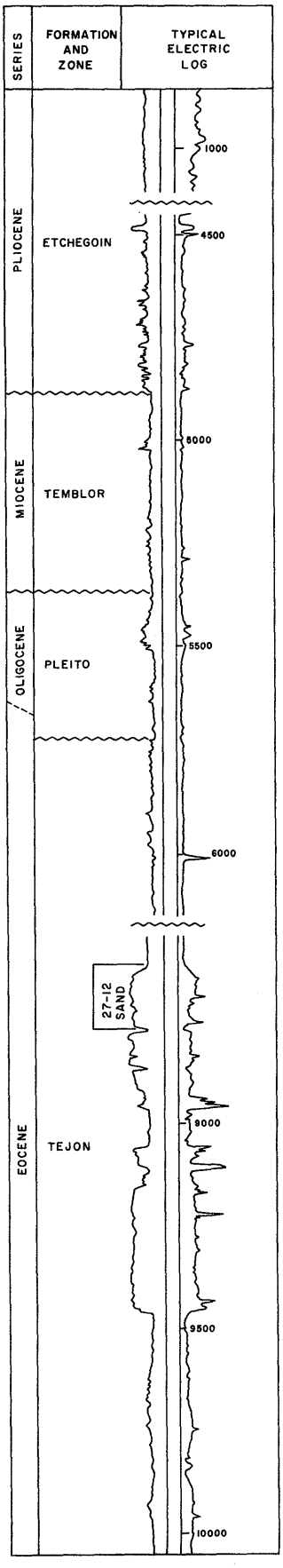


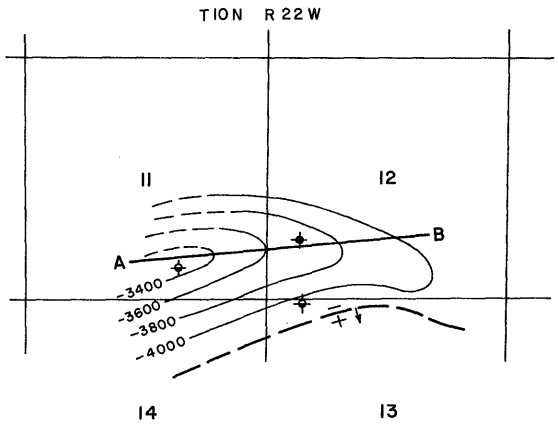


SEPTEMBER 1992

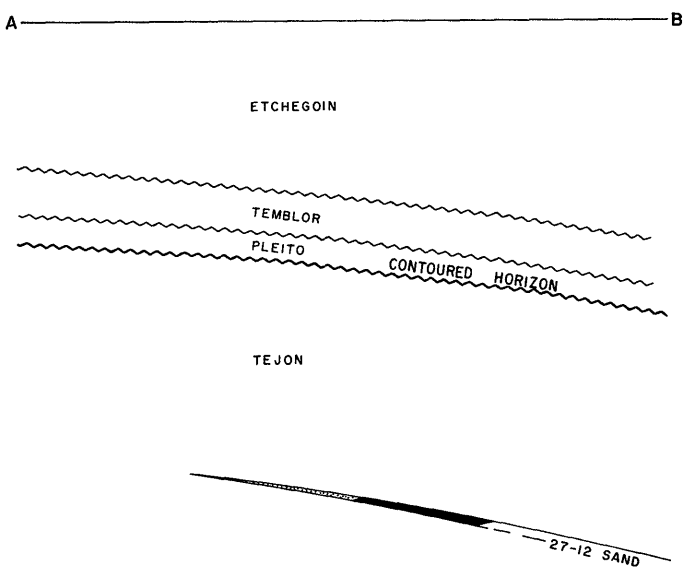
SAN EMIGDIO CREEK OIL FIELD

(Abandoned)





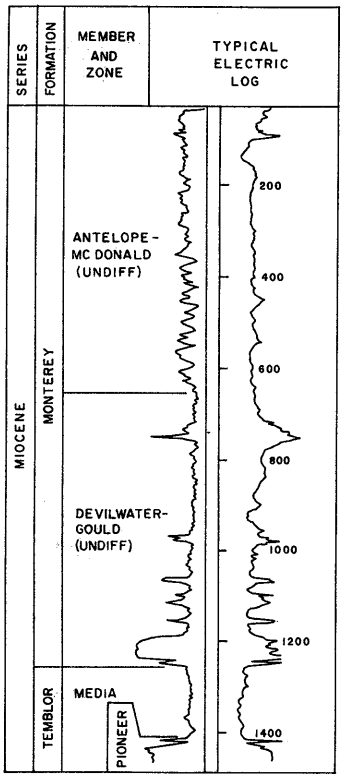
CONTOURS ON TOP OF TEJON

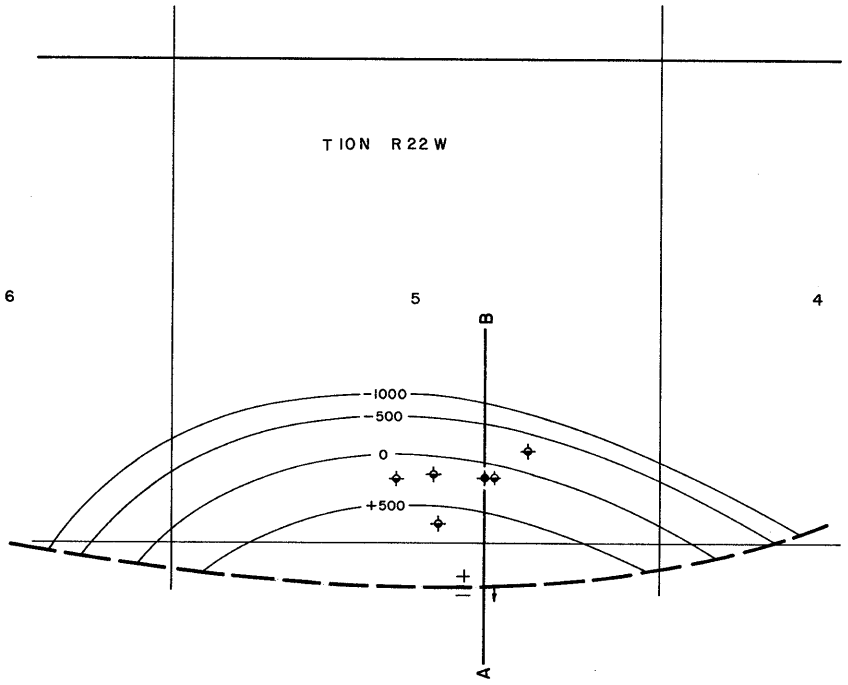


MAY 1980

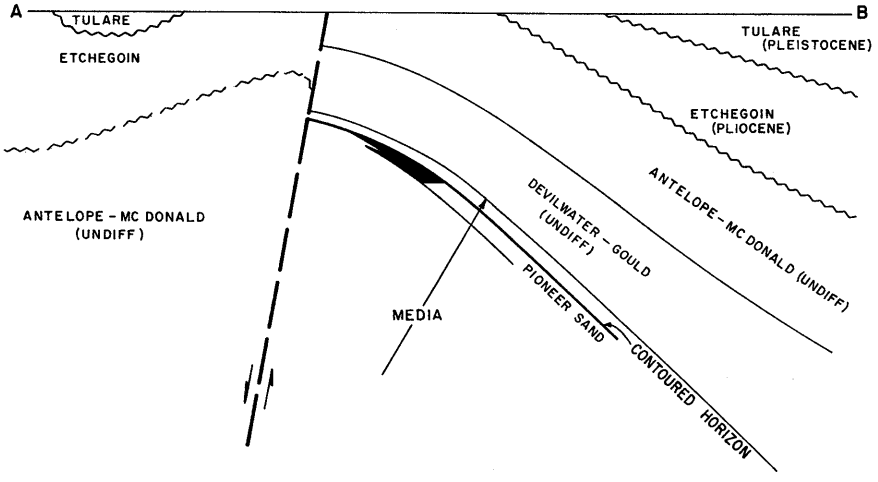
SAN EMIGDIO OIL FIELD

(Abandoned)



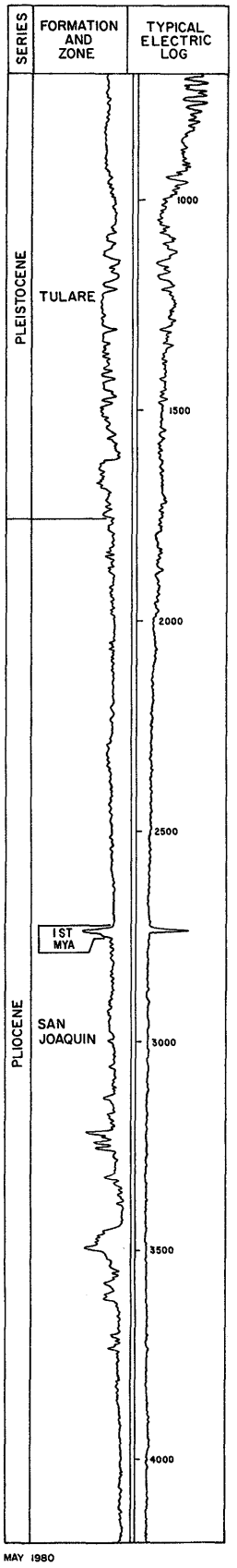


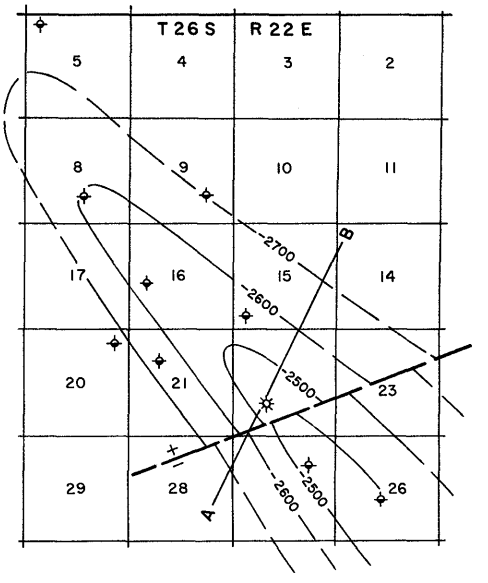
CONTOURS ON TOP OF PIONEER SAND



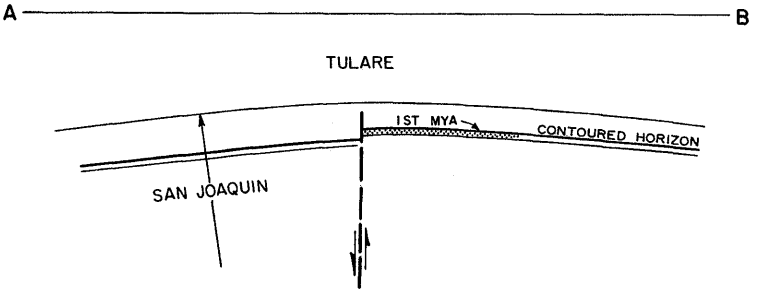
MAY 1980

NORTHWEST SEMITROPIC GAS FIELD
(Abandoned)

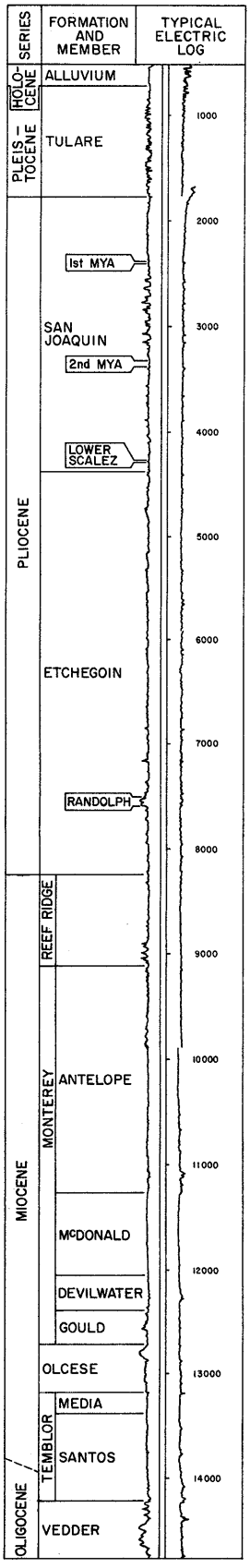


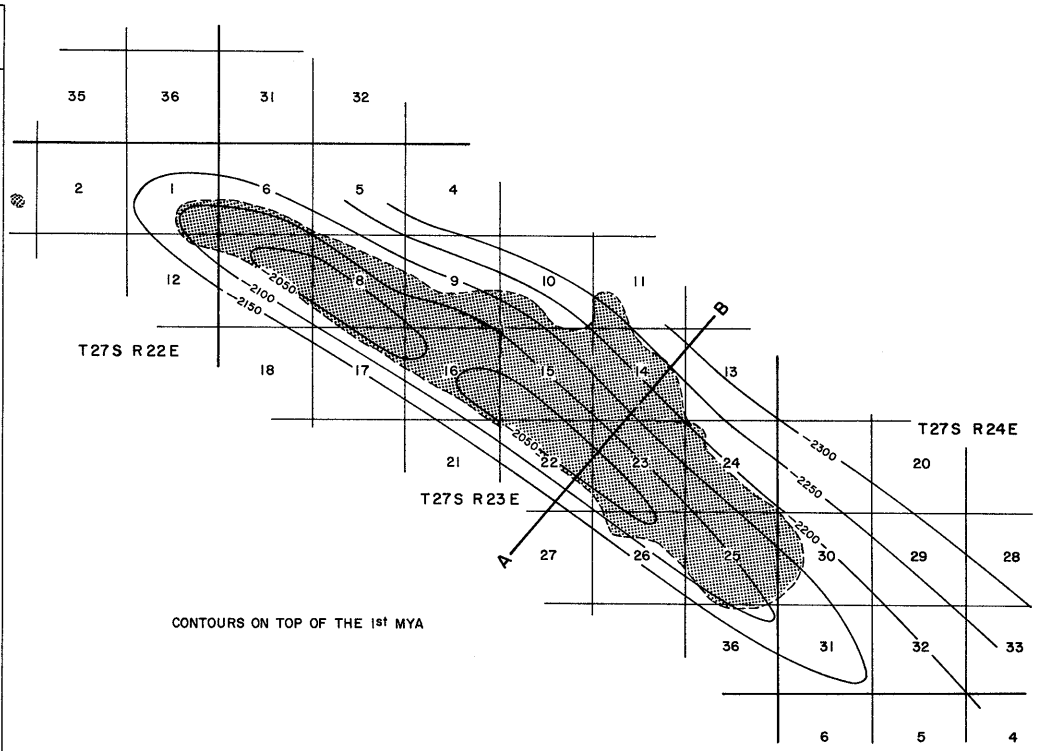


CONTOURS ON TOP OF 1ST MYA SAND

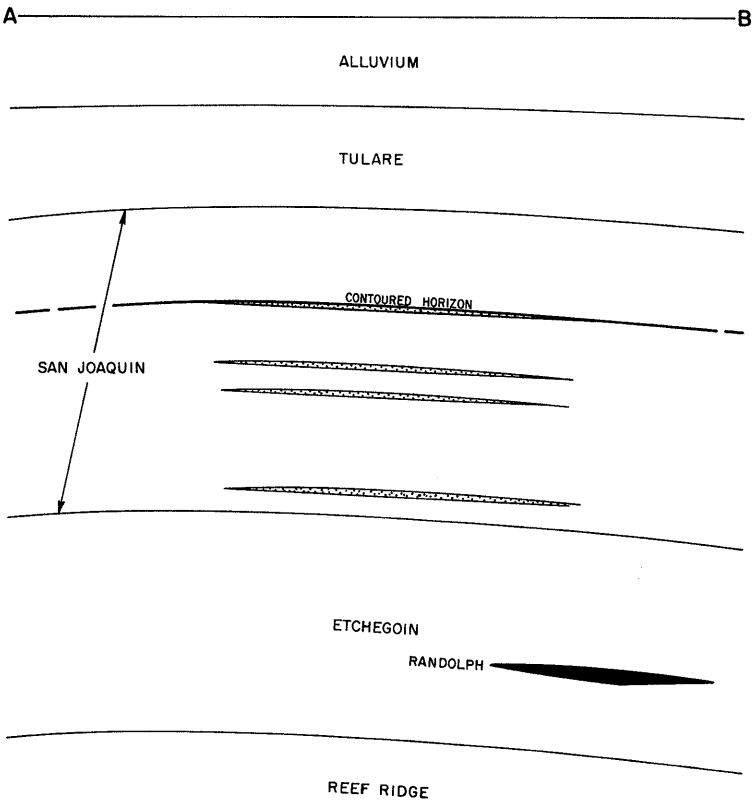


SEMITROPIC OIL FIELD



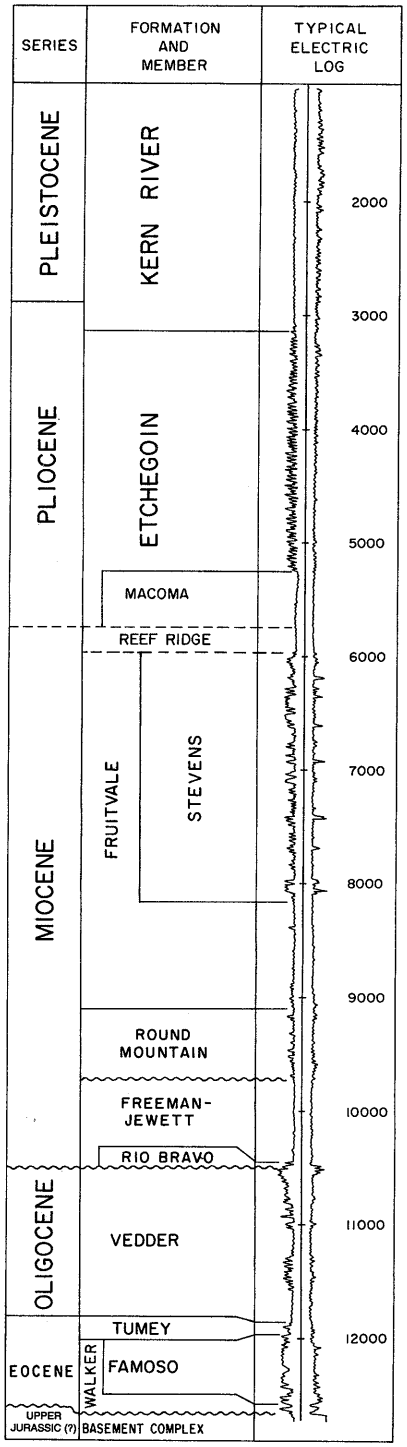


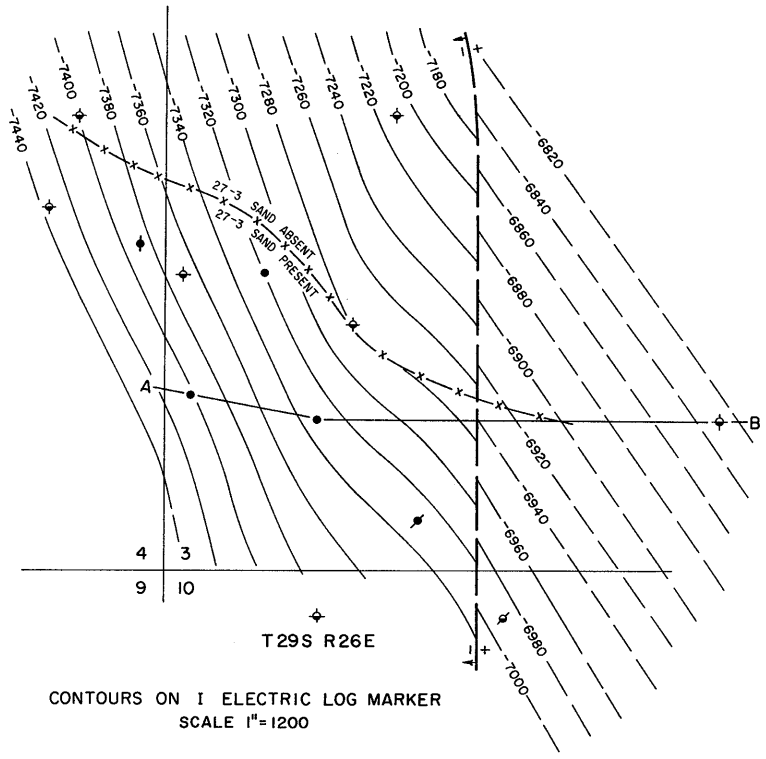
CONTOURS ON TOP OF THE 1st MYA



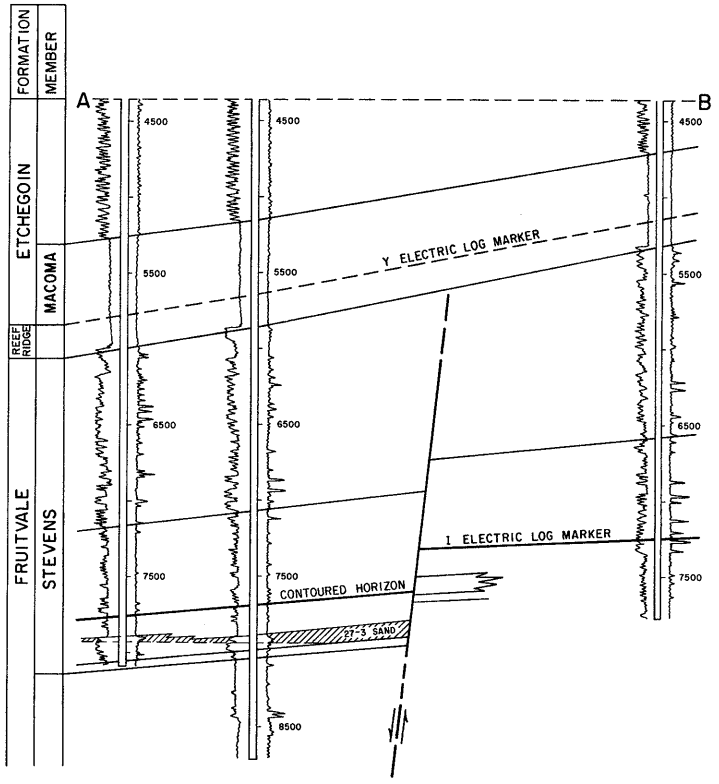
JANUARY 1983

SEVENTH STANDARD OIL FIELD



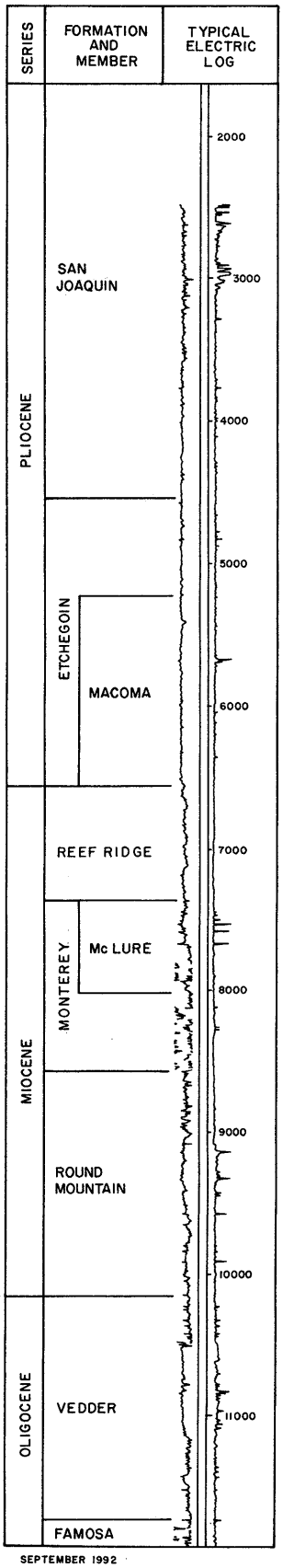


CONTOURS ON I ELECTRIC LOG MARKER
SCALE 1"=1200

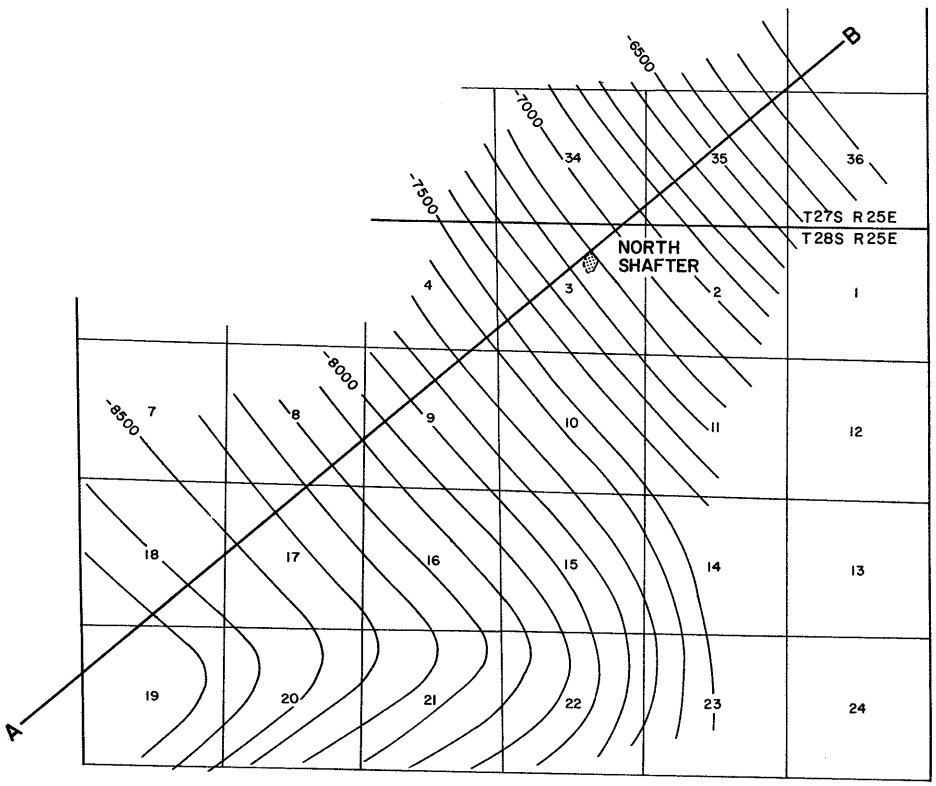


MAY 1980

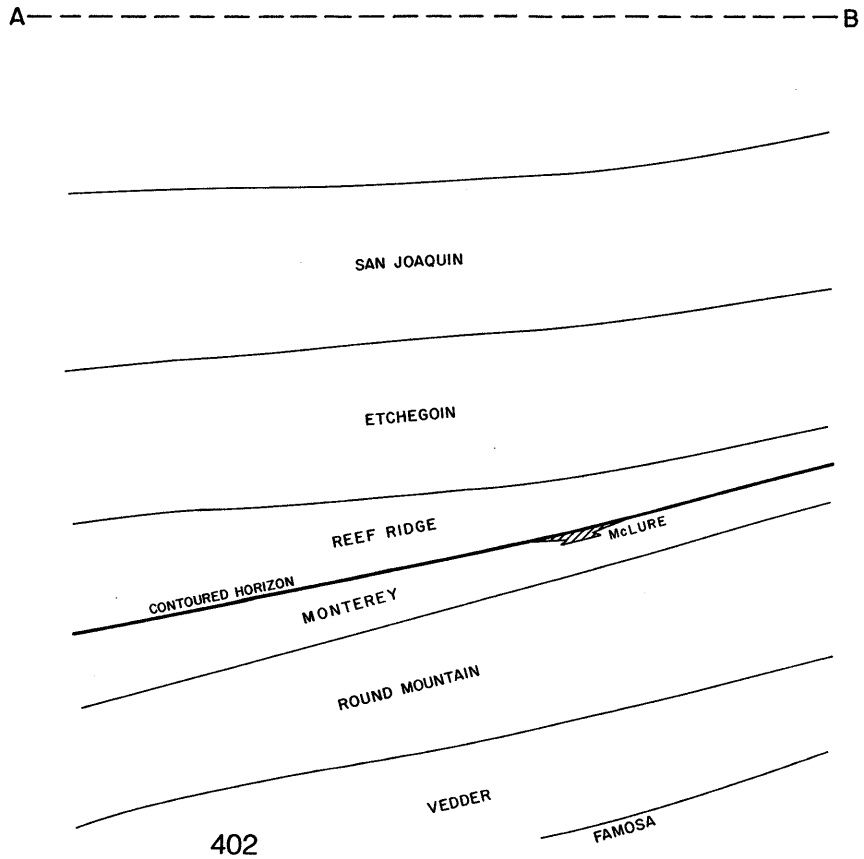
NORTH SHAFTER OIL FIELD



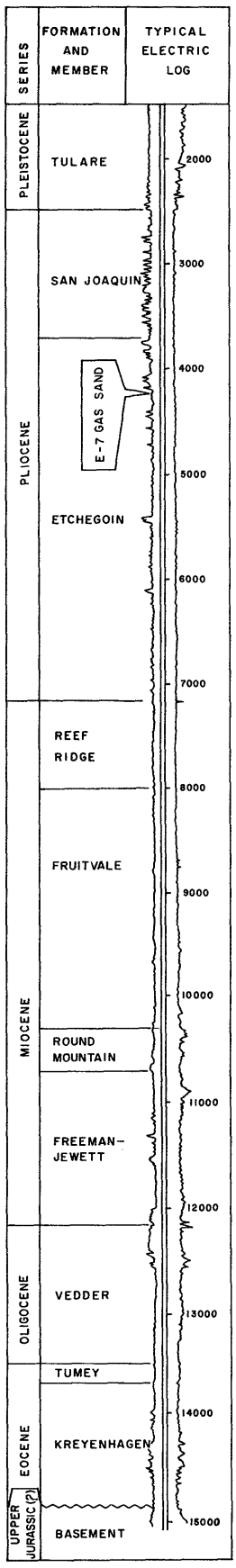
SEPTEMBER 1992



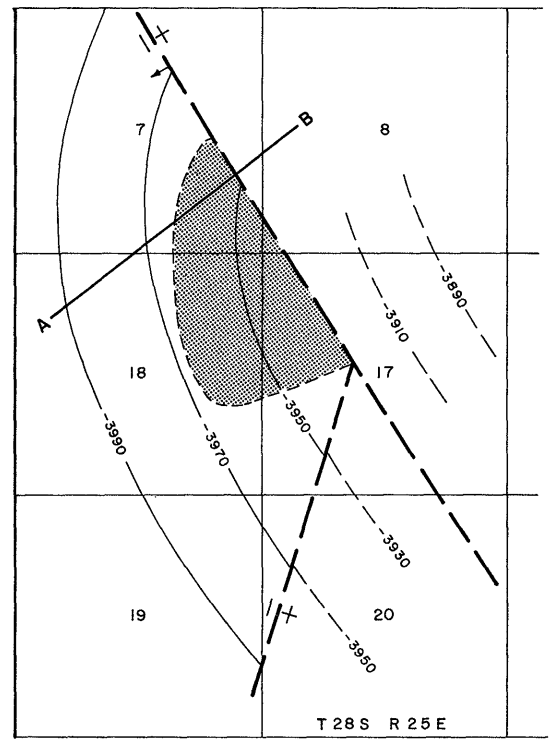
CONTOURS ON TOP OF Mc LURE



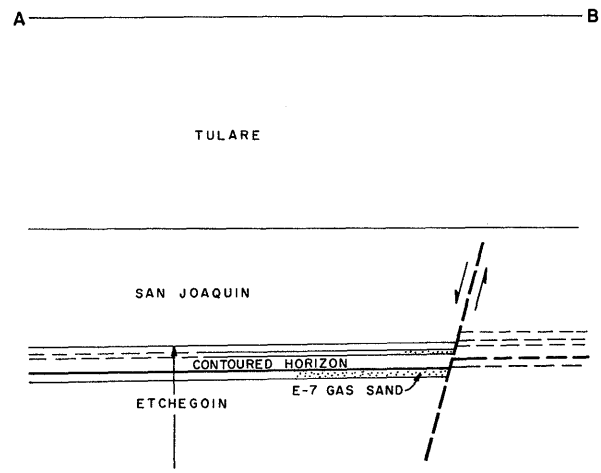
SHAFTER SOUTHEAST GAS FIELD
(Abandoned)



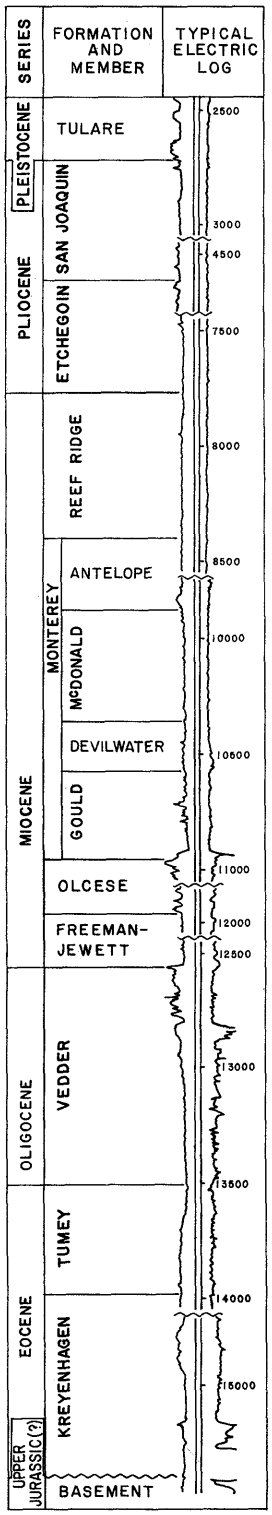
MAY 1980



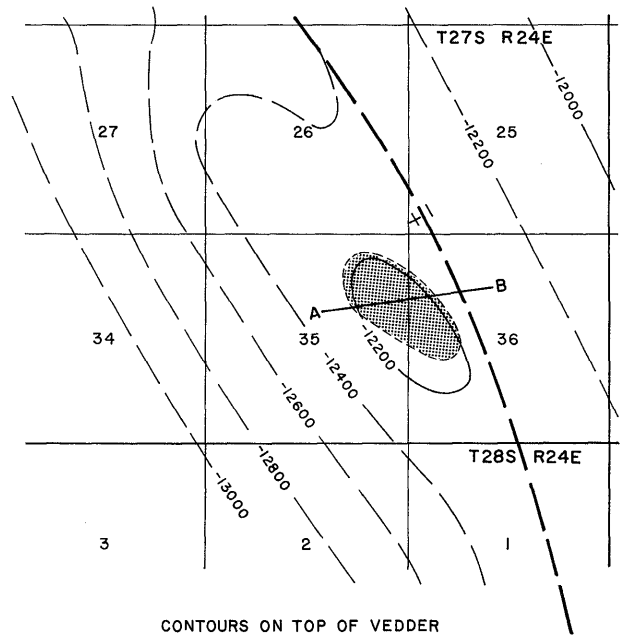
CONTOURS ON TOP OF E-7 GAS SAND



SHAFTER OIL FIELD
(Abandoned)



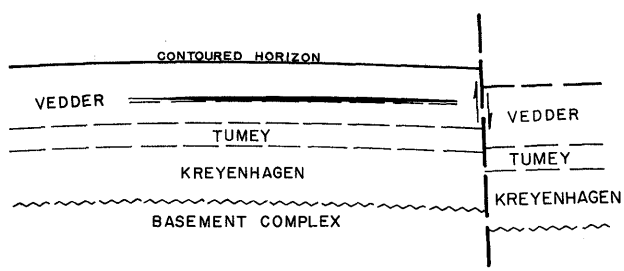
MAY 1980



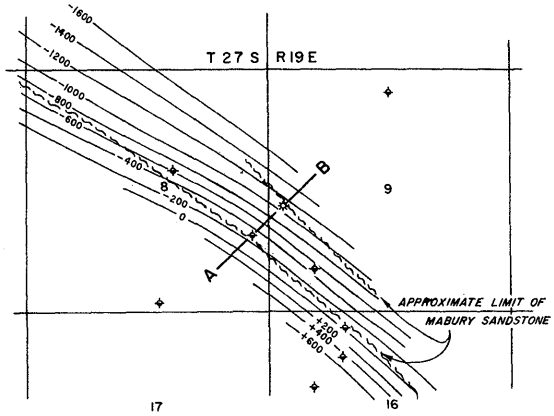
CONTOURS ON TOP OF VEDDER



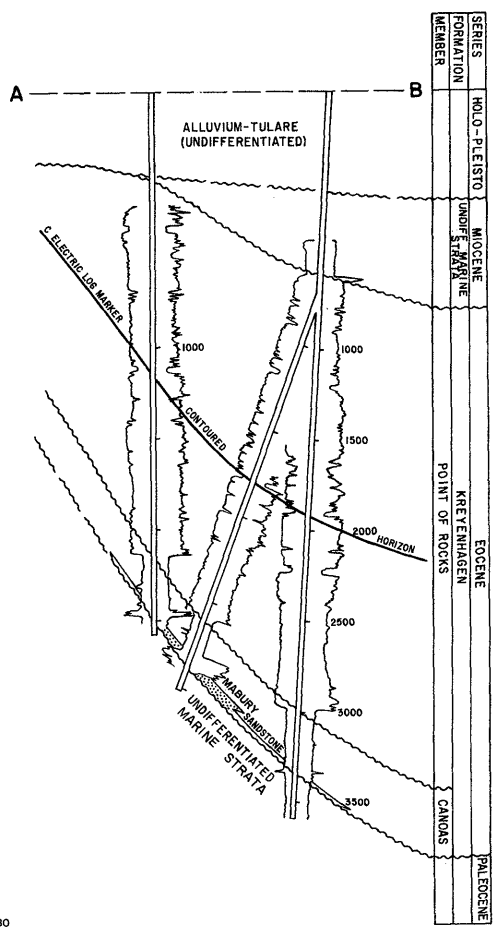
TULARE THROUGH FREEMAN-JEWETT



SHALE FLATS GAS FIELD
(Abandoned)

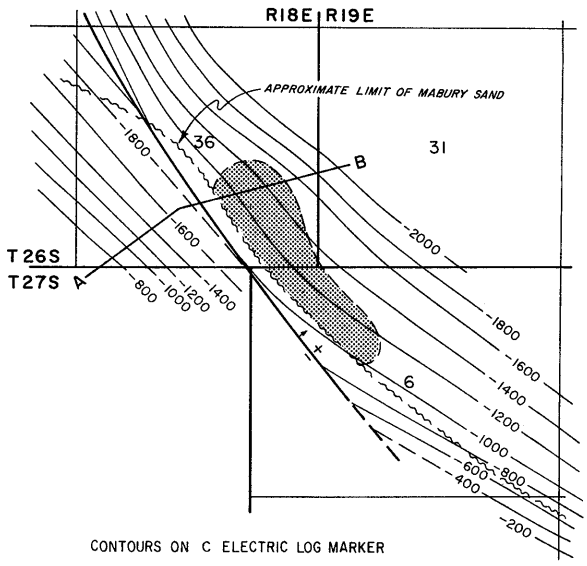


CONTOURS ON C ELECTRIC LOG MARKER

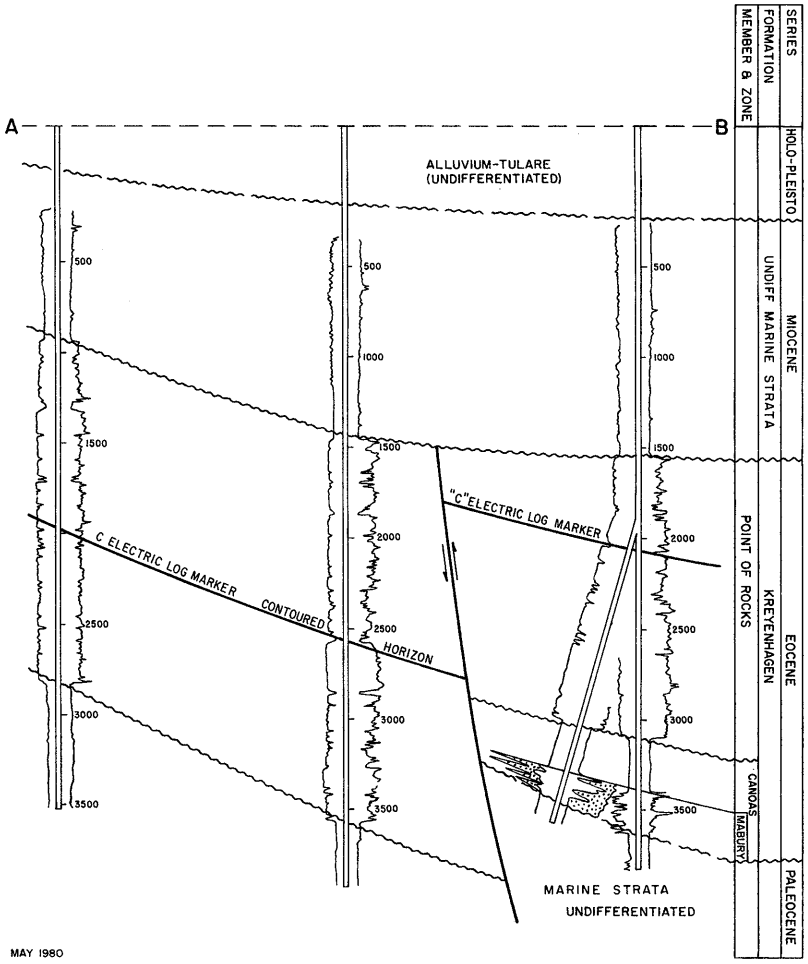


MAY 1980

SHALE POINT GAS FIELD



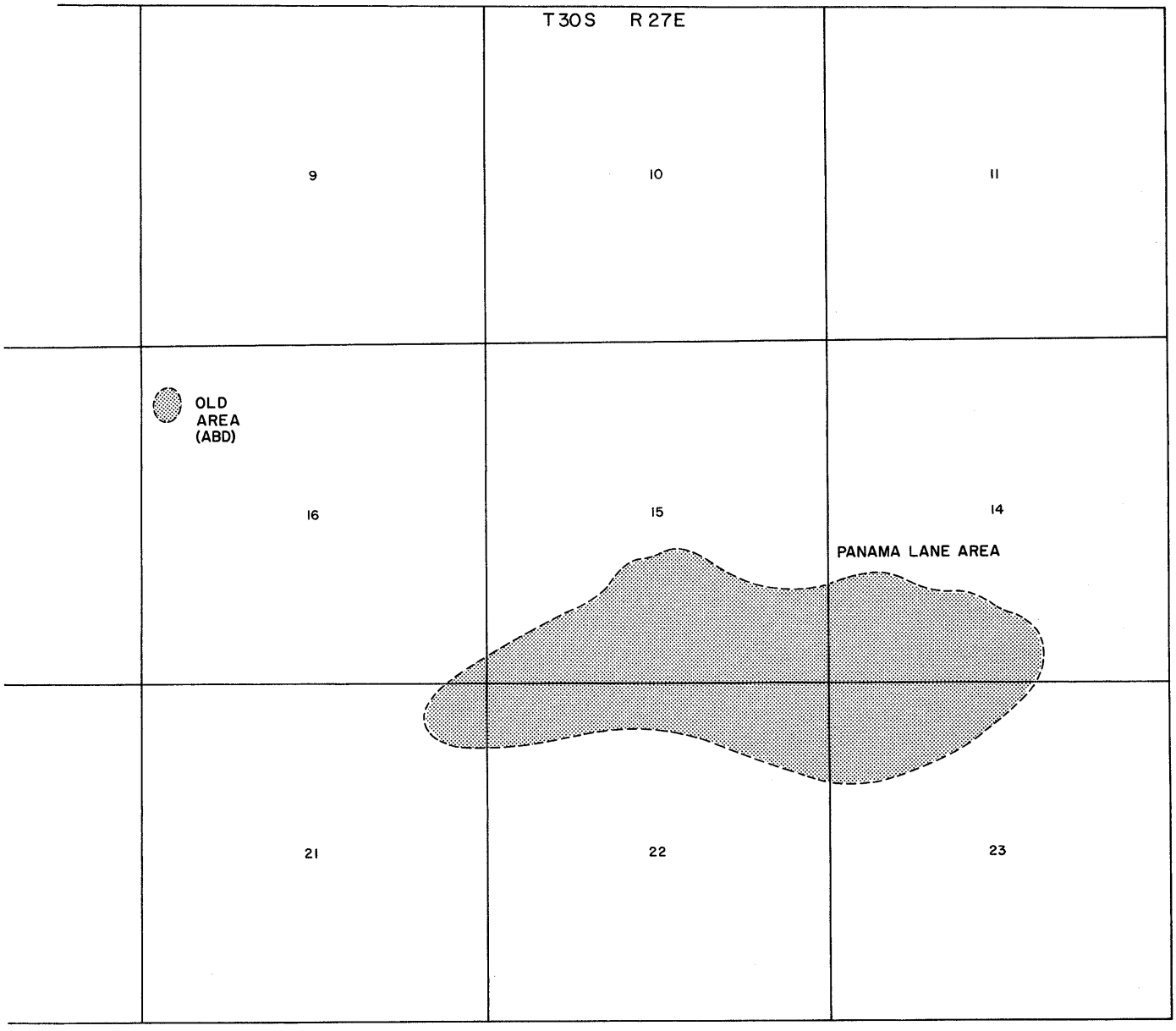
CONTOURS ON C ELECTRIC LOG MARKER



MAY 1980

STOCKDALE OIL FIELD

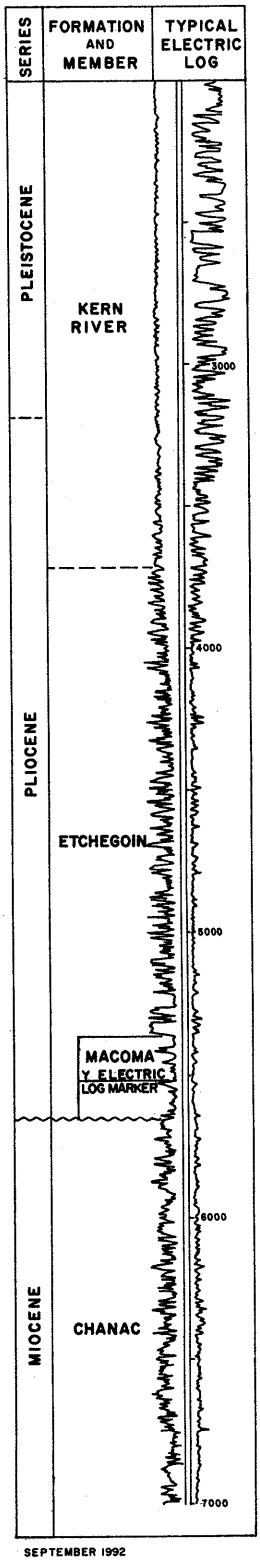
Index Map



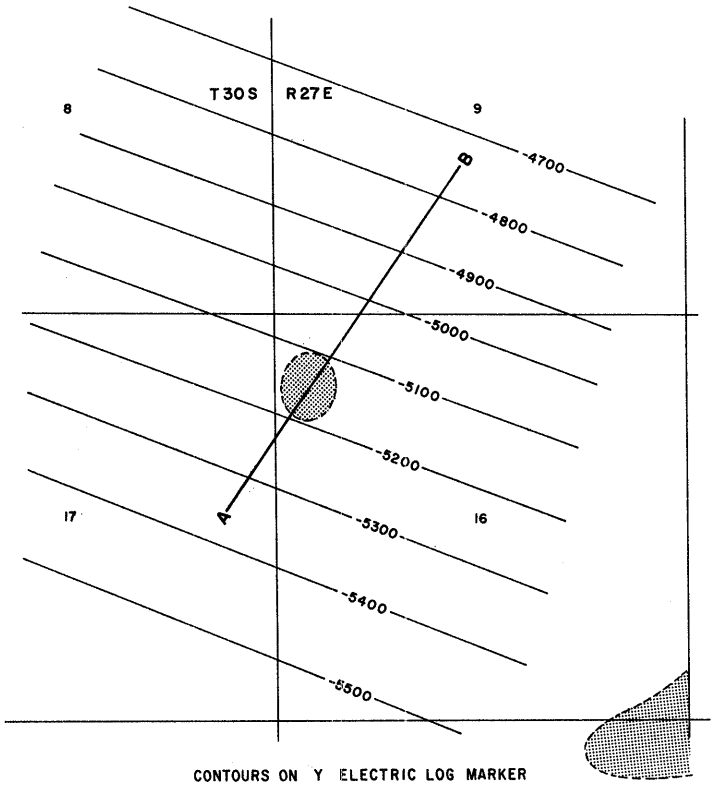
SEPTEMBER 1992

STOCKDALE OIL FIELD

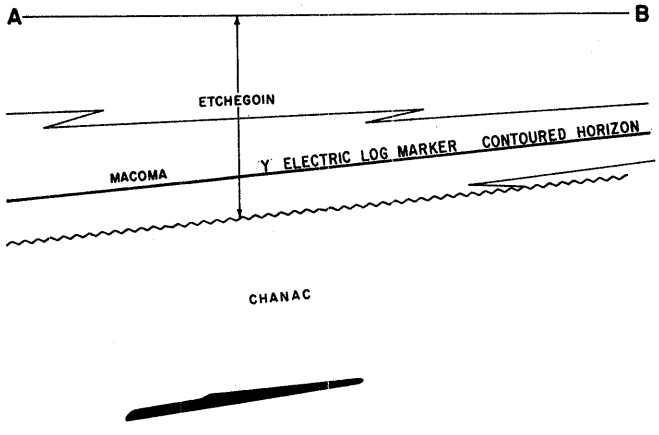
Old Area



SEPTEMBER 1992

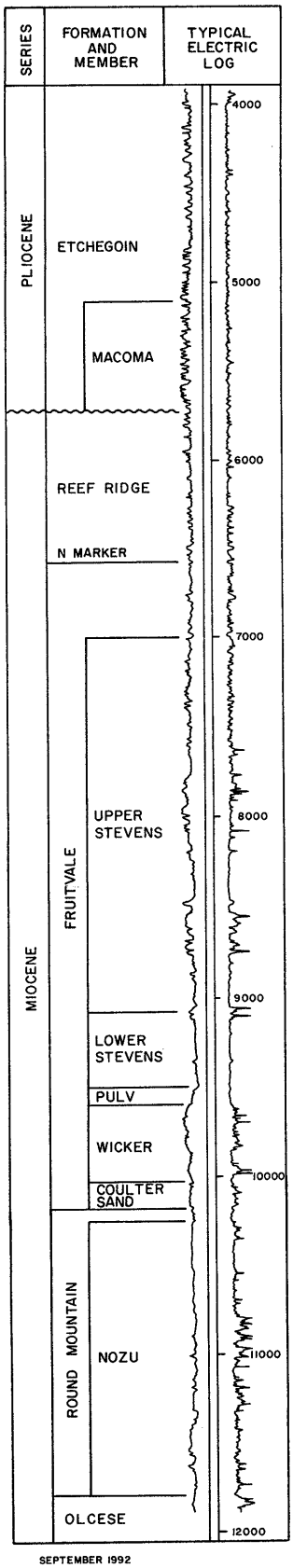


CONTOURS ON Y ELECTRIC LOG MARKER

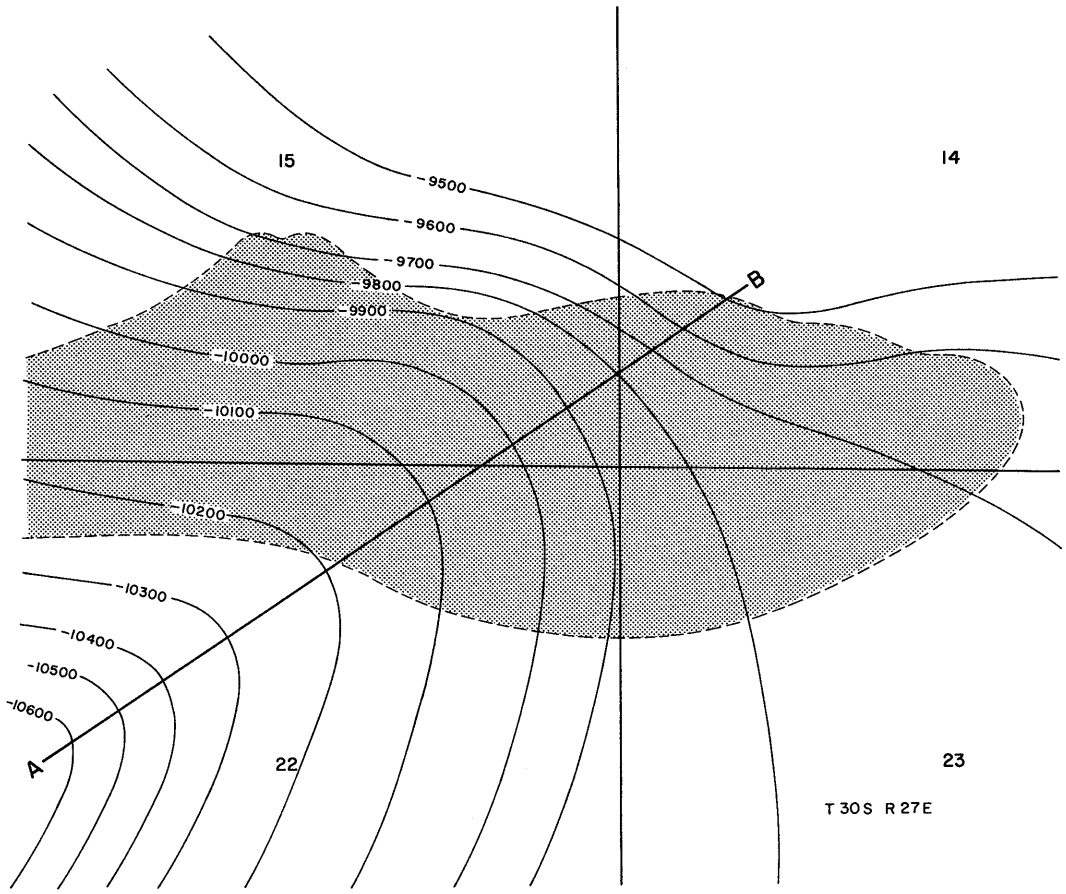


STOCKDALE OIL FIELD

Panama Lane Area

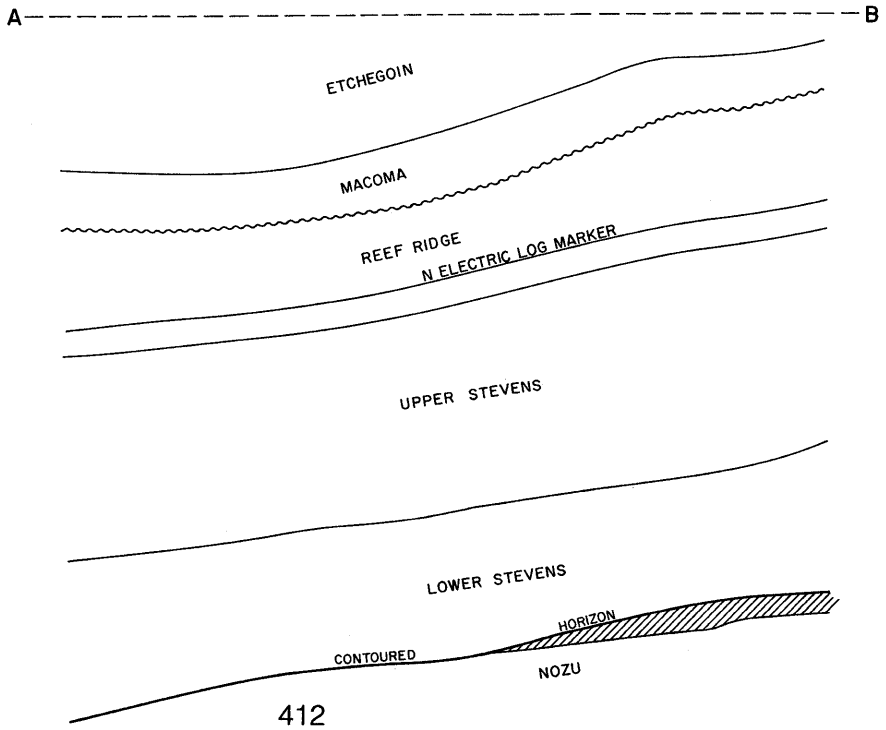


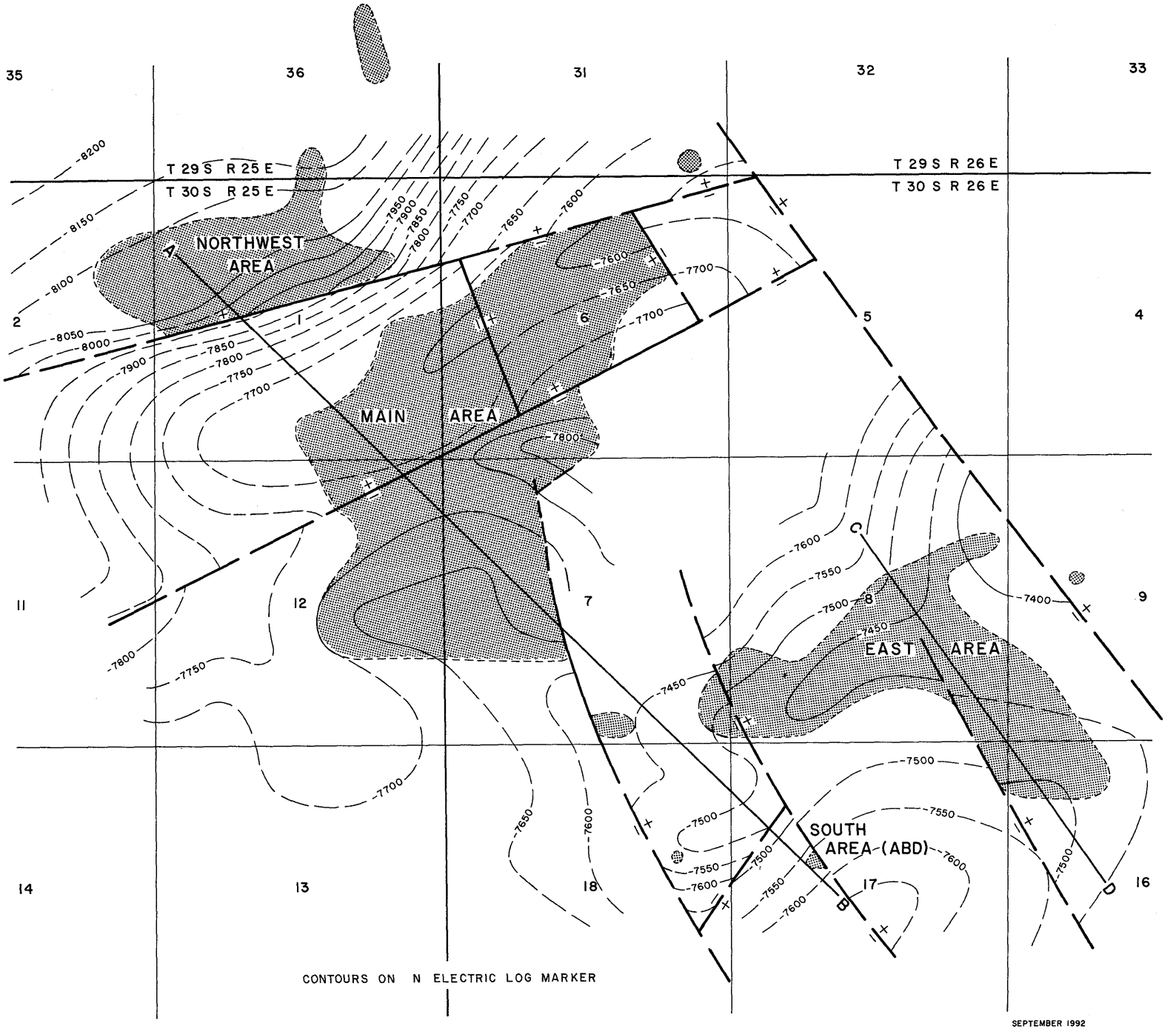
SEPTEMBER 1992



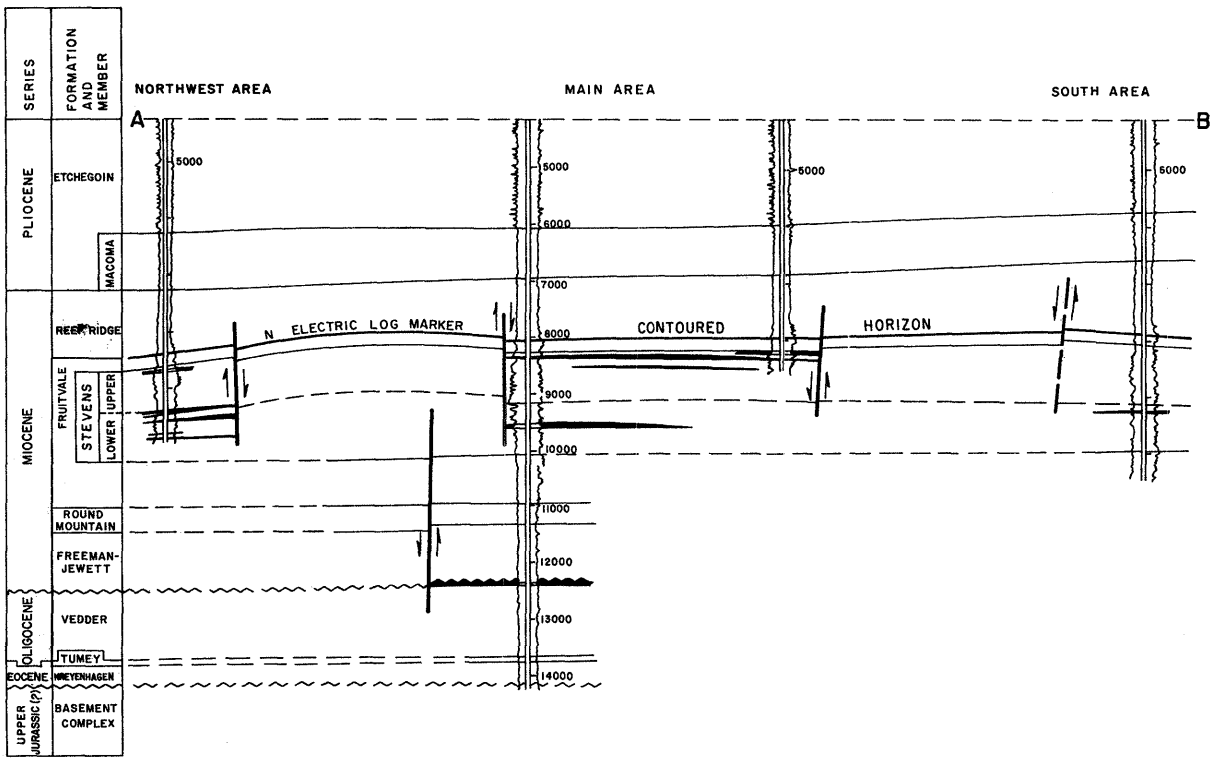
CONTOURS ON TOP OF NOZU

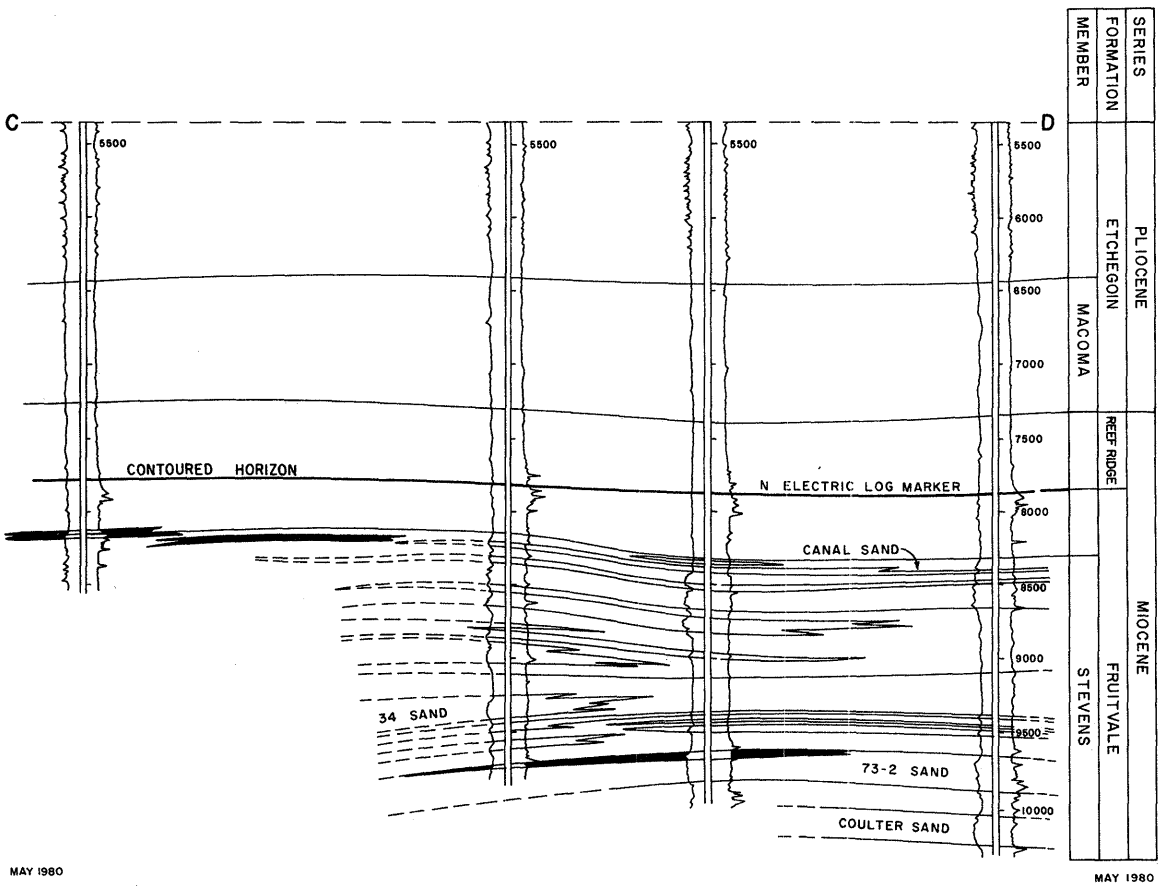
SCALE 1" = 1500'



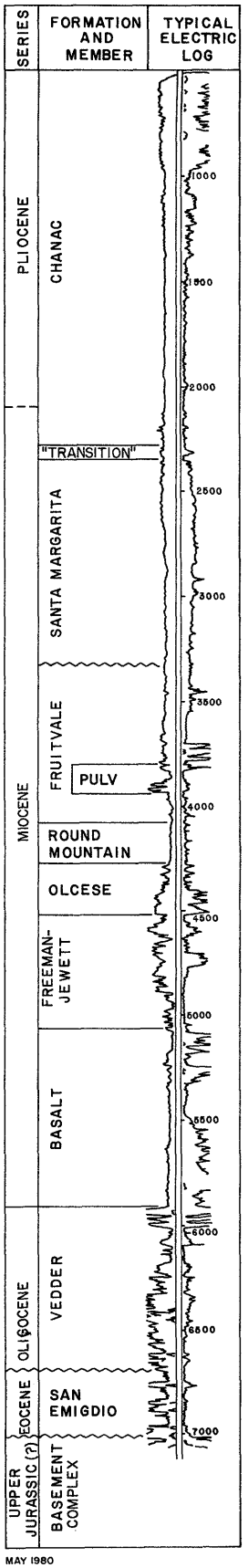

35
36
31
32
33
T 29 S R 25 E
T 30 S R 25 E
T 29 S R 26 E
T 30 S R 26 E
NORTHWEST AREA
MAIN AREA
EAST AREA
SOUTH AREA (ABD)
A
B
C
D
1
2
4
5
6
7
8
9
11
12
13
14
16
17
18
-8200
-8150
-8100
-8050
-8000
-7950
-7900
-7850
-7800
-7750
-7700
-7650
-7600
-7550
-7500
-7450
-7400
CONTOURS ON N ELECTRIC LOG MARKER
SEPTEMBER 1992

STRAND OIL FIELD

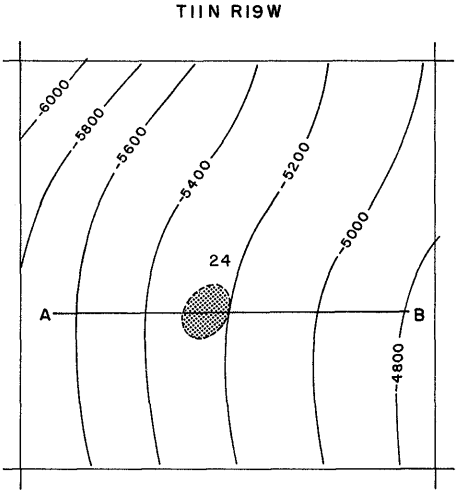




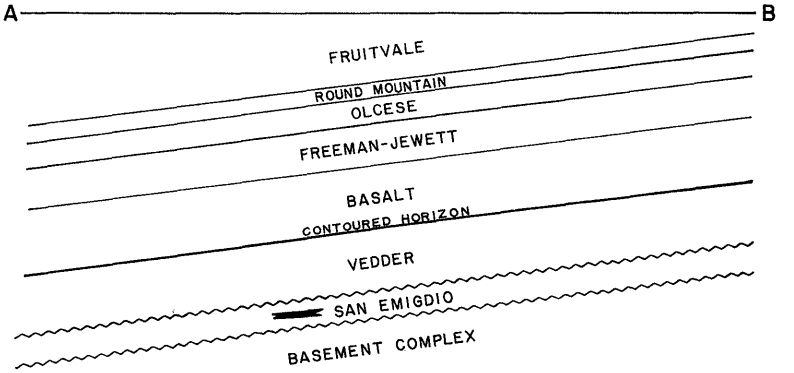
TEJON FLATS OIL FIELD
(Abandoned)



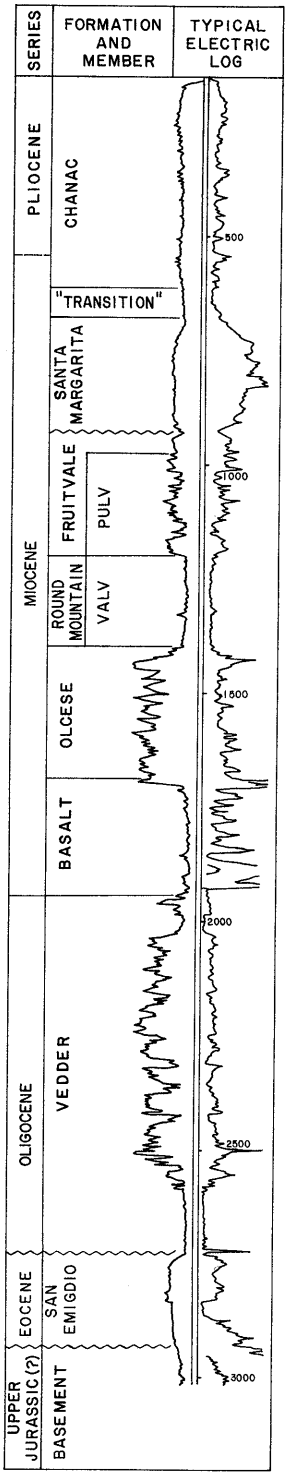
MAY 1980



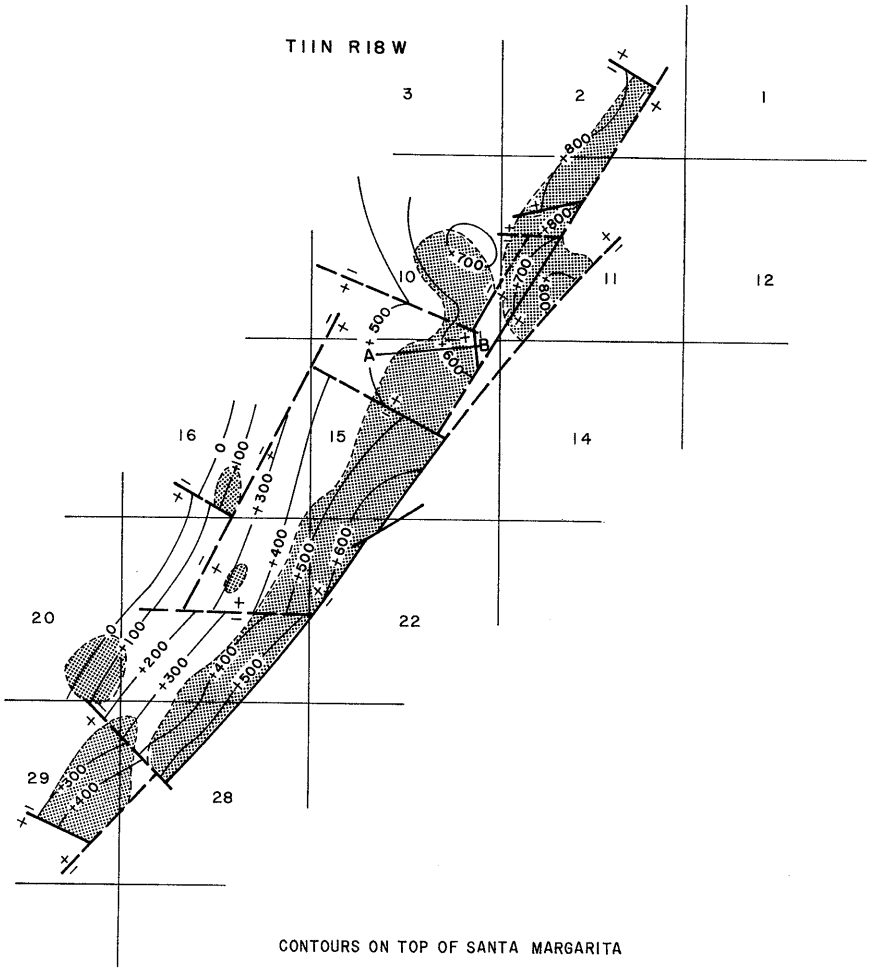
CONTOURS ON TOP OF VEDDER



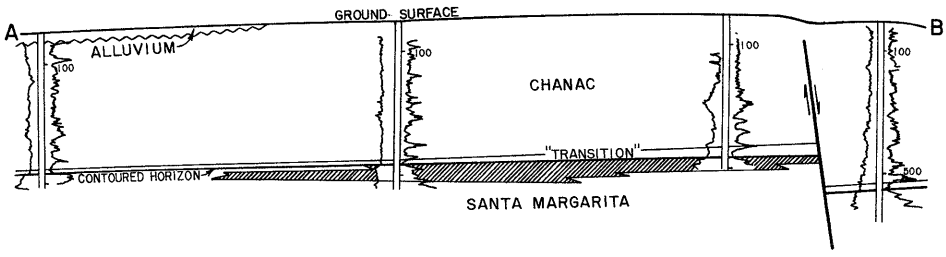
TEJON HILLS OIL FIELD



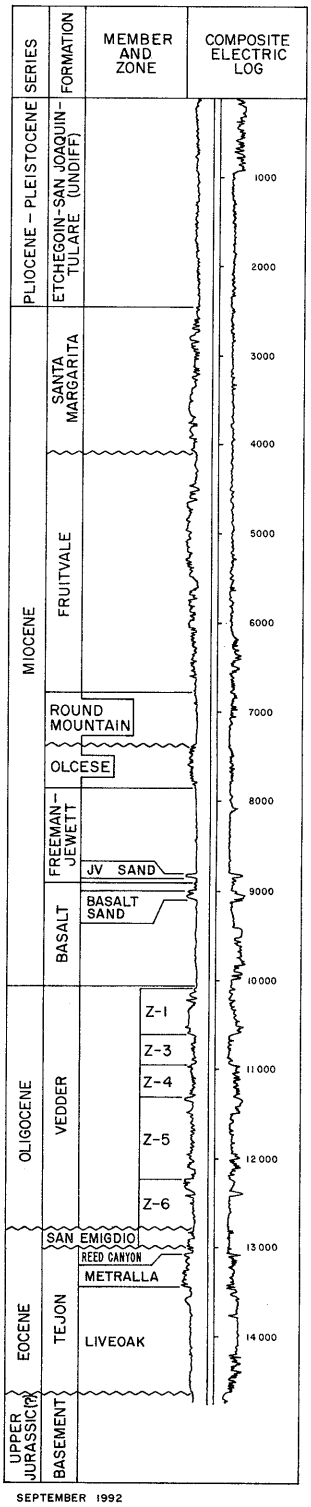
SEPTEMBER 1992



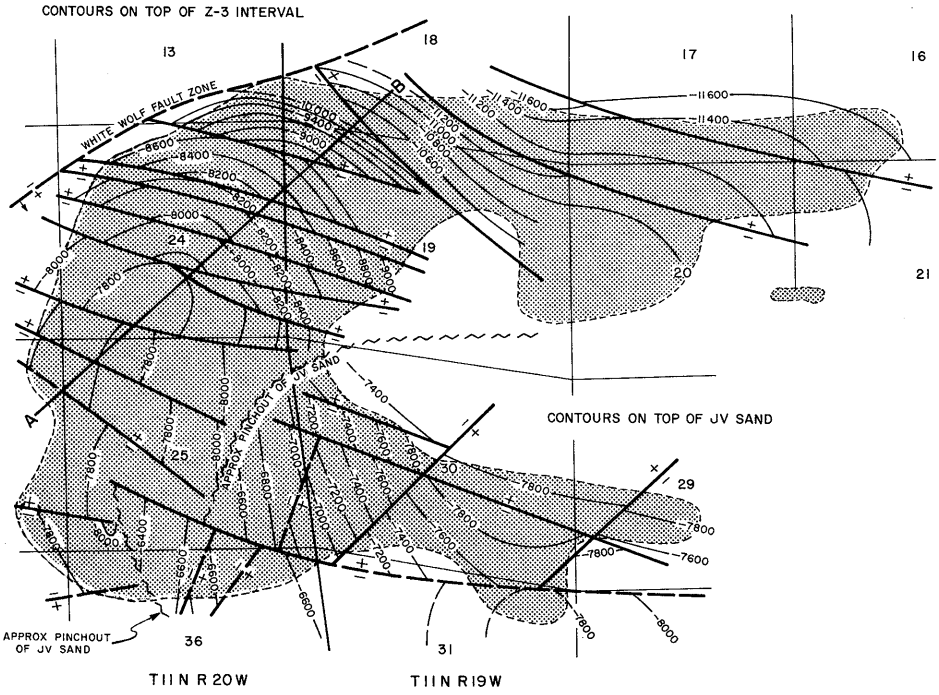
CONTOURS ON TOP OF SANTA MARGARITA

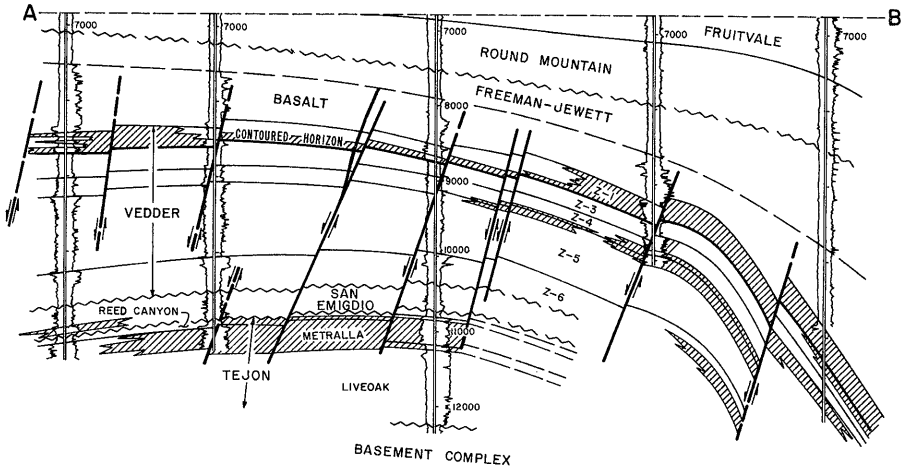


NORTH TEJON OIL FIELD

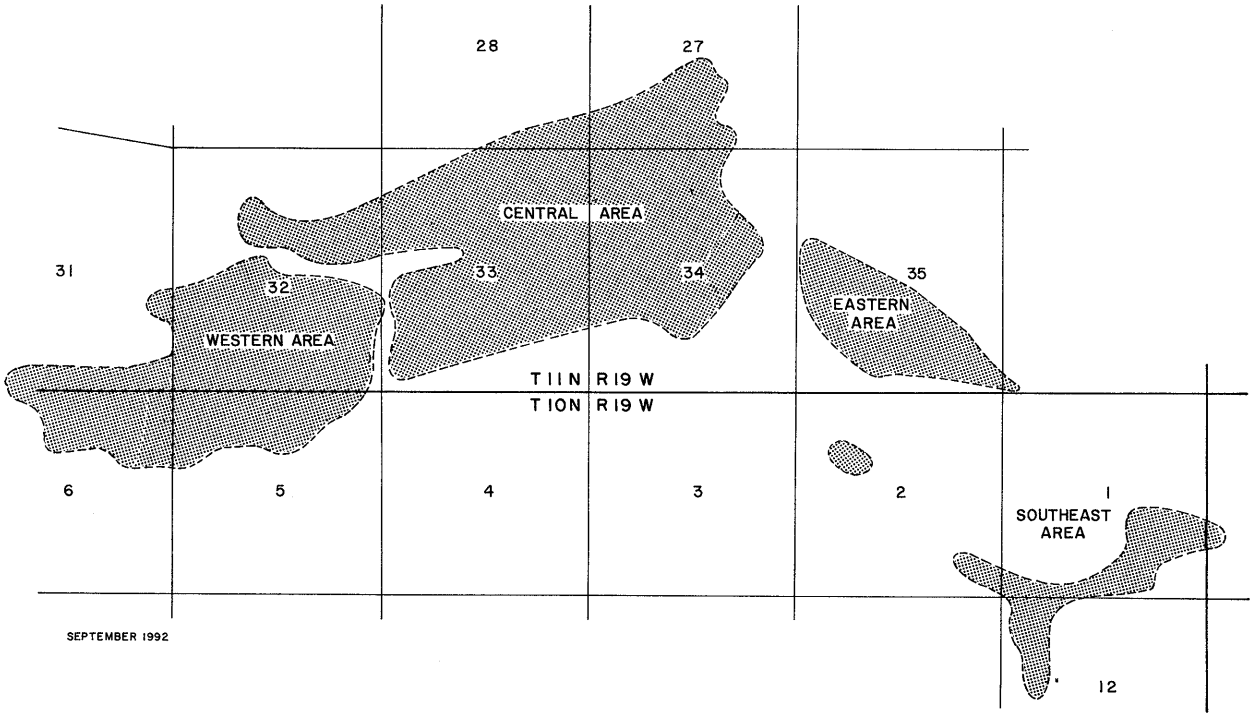


SEPTEMBER 1992

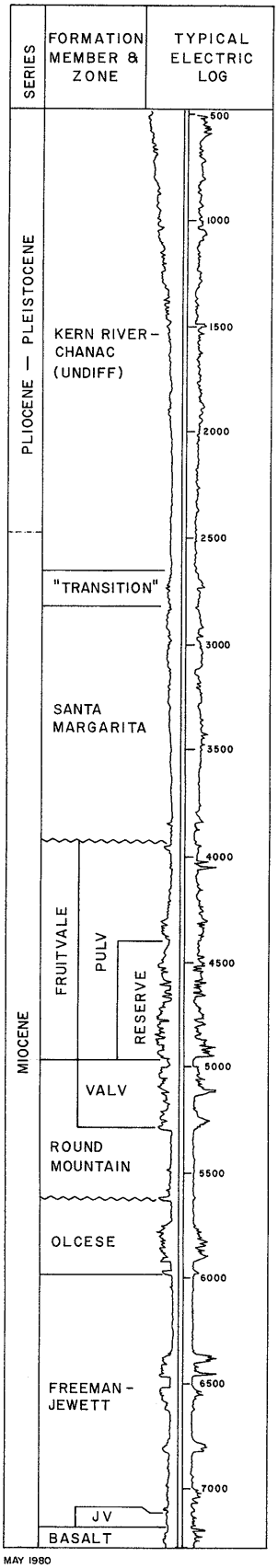




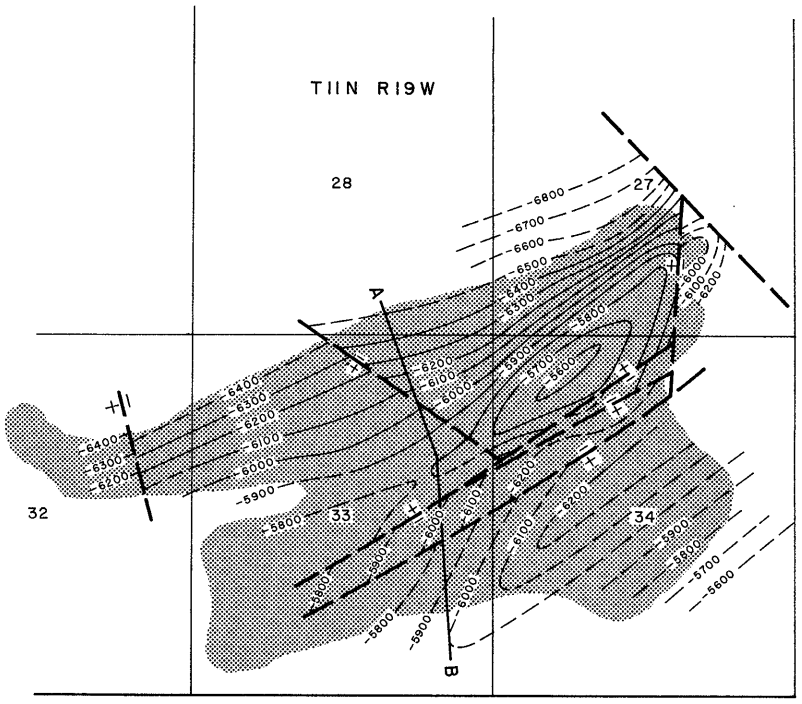
TEJON OIL FIELD
INDEX MAP



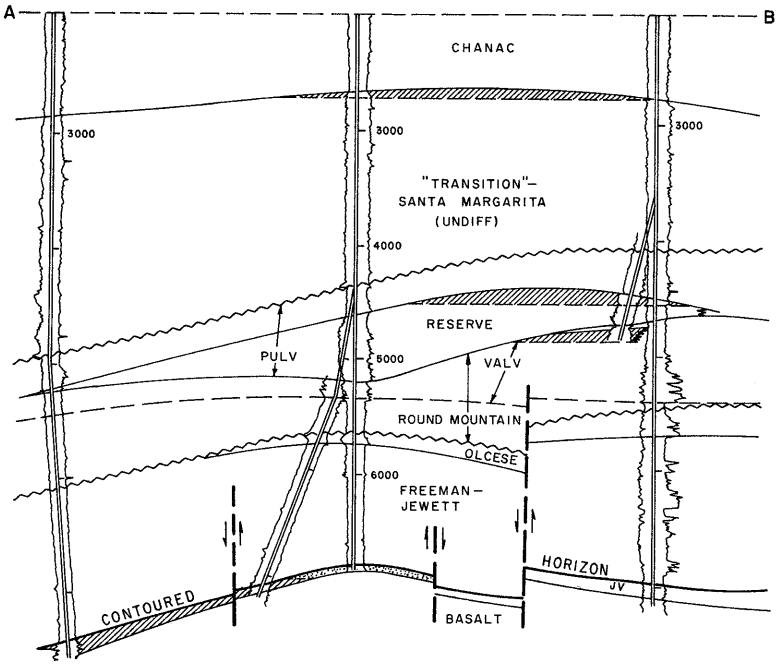
TEJON OIL FIELD
Central Area



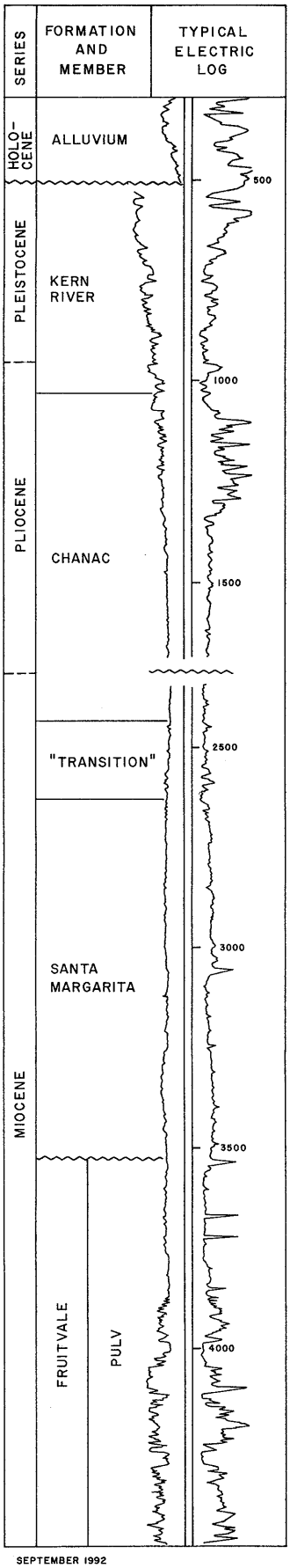
MAY 1980

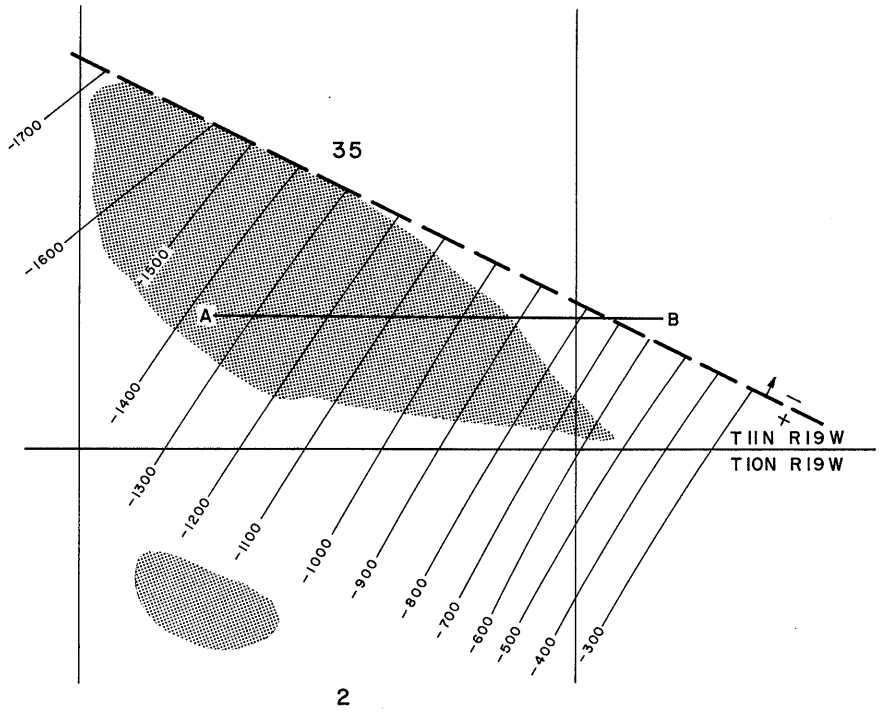


CONTOURS ON TOP OF THE JV SAND

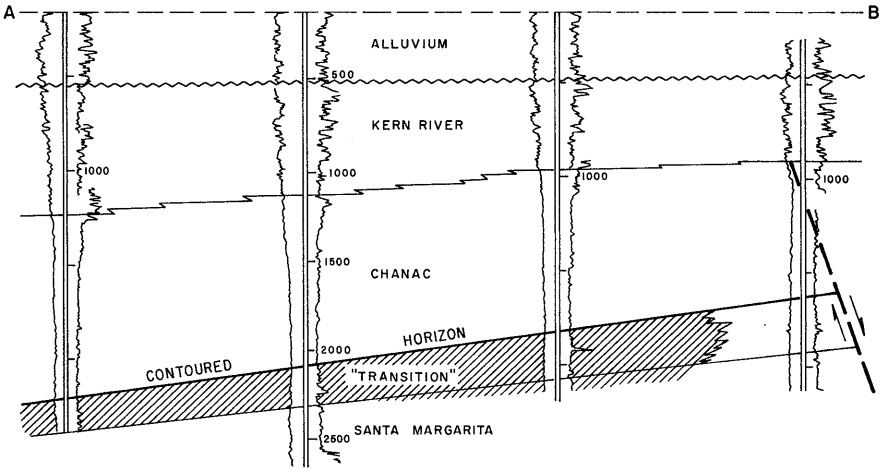


TEJON OIL FIELD
Eastern Area





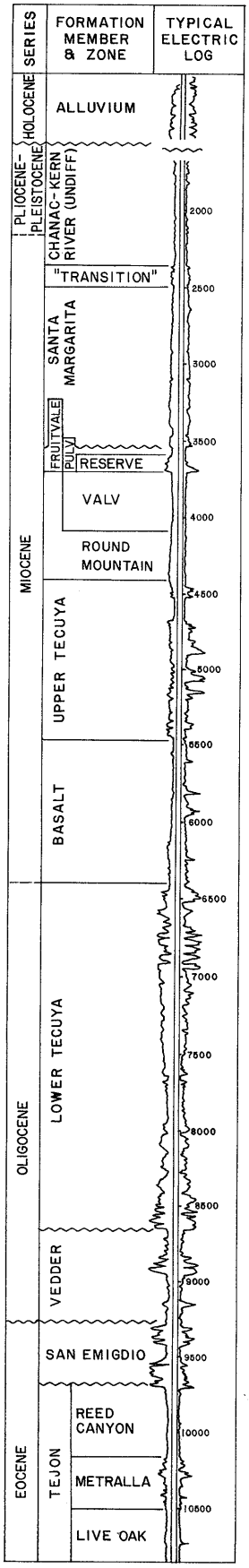
CONTOURS ON TOP OF "TRANSITION"



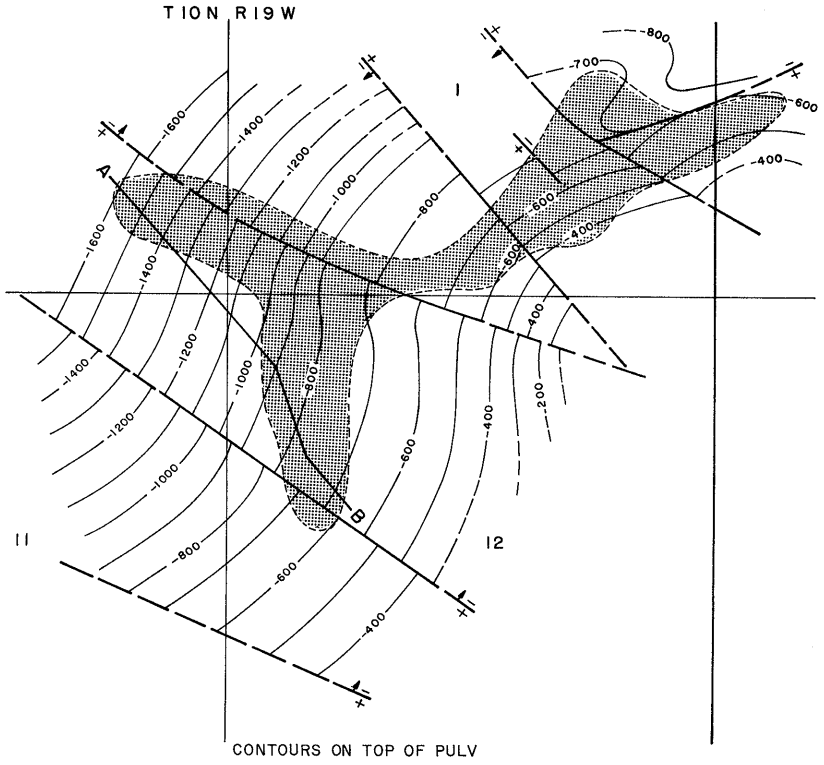
SEPTEMBER 1992

TEJON OIL FIELD

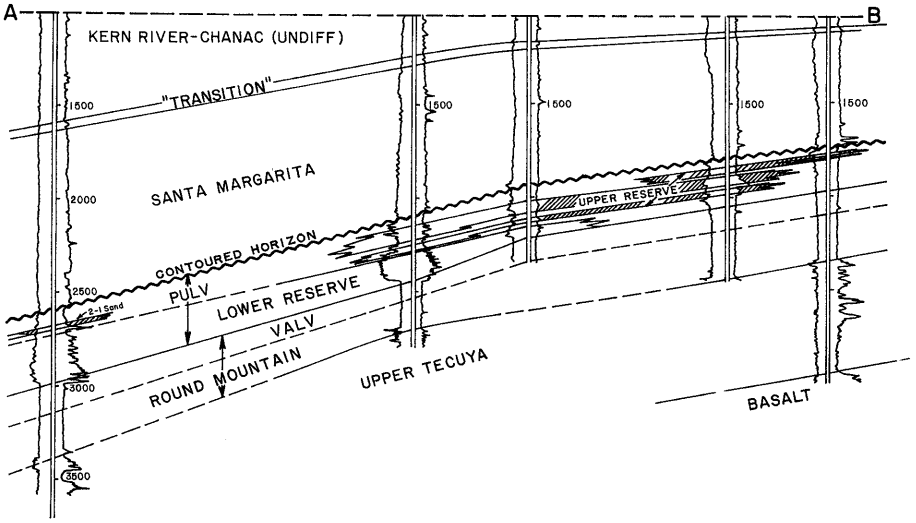
Southeast Area



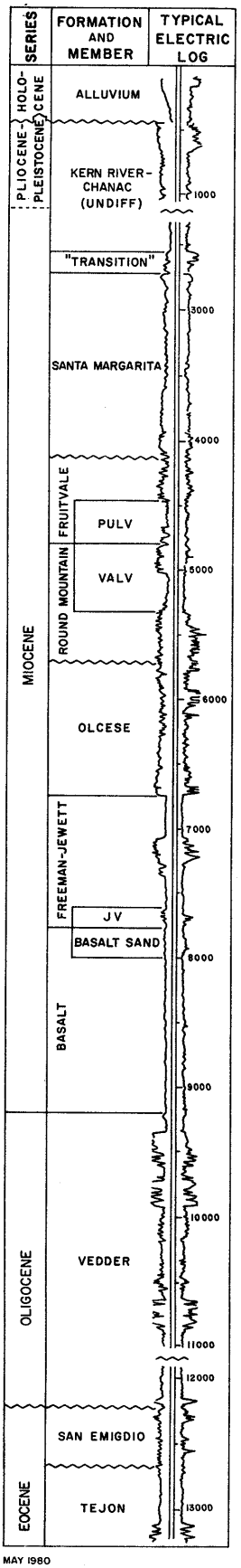
MAY 1980



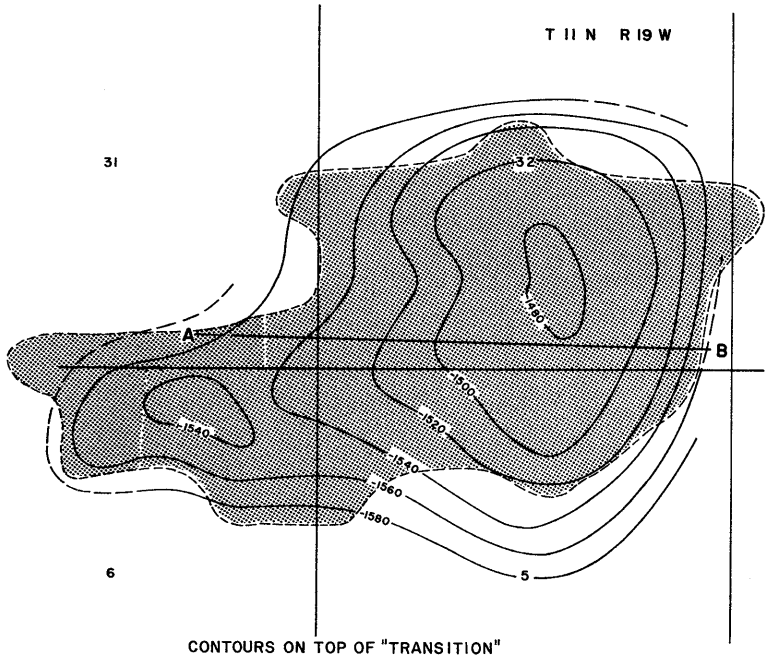
CONTOURS ON TOP OF PULV



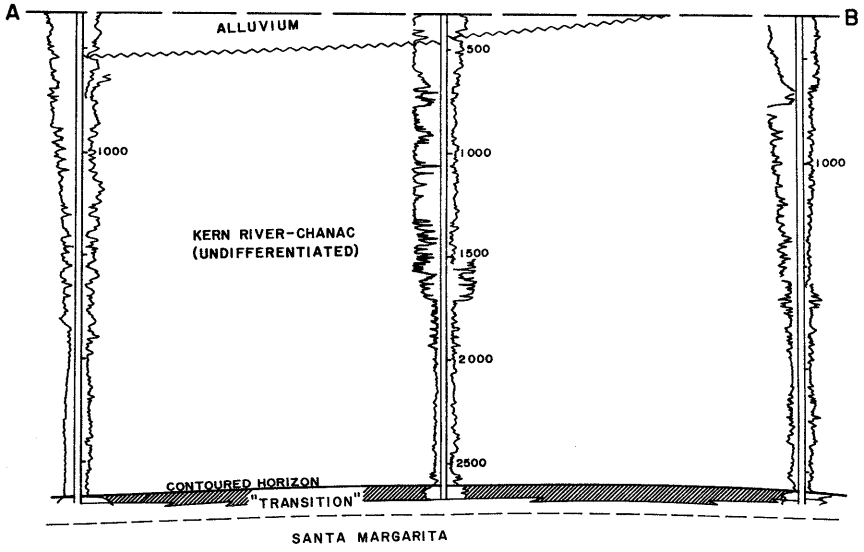
TEJON OIL FIELD
Western Area



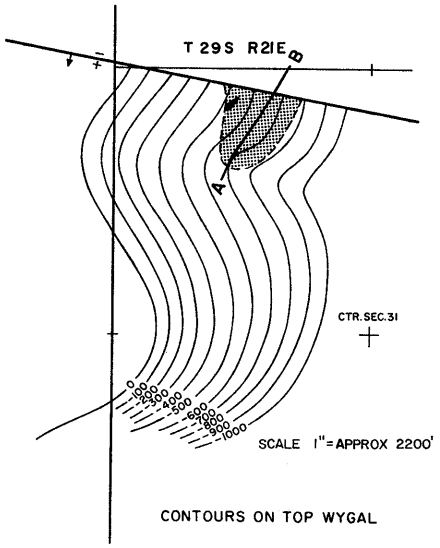
MAY 1980



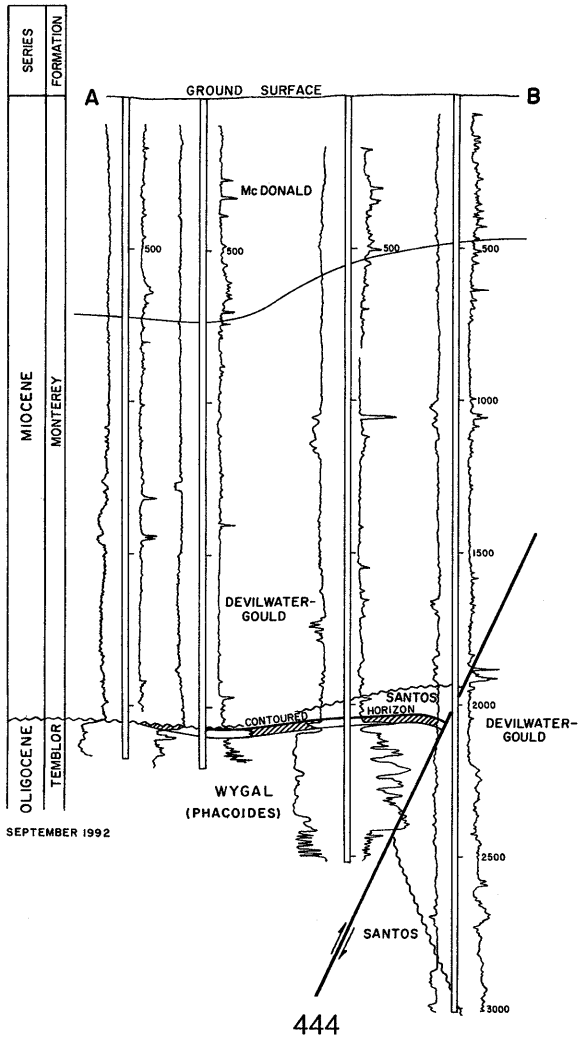
CONTOURS ON TOP OF "TRANSITION"



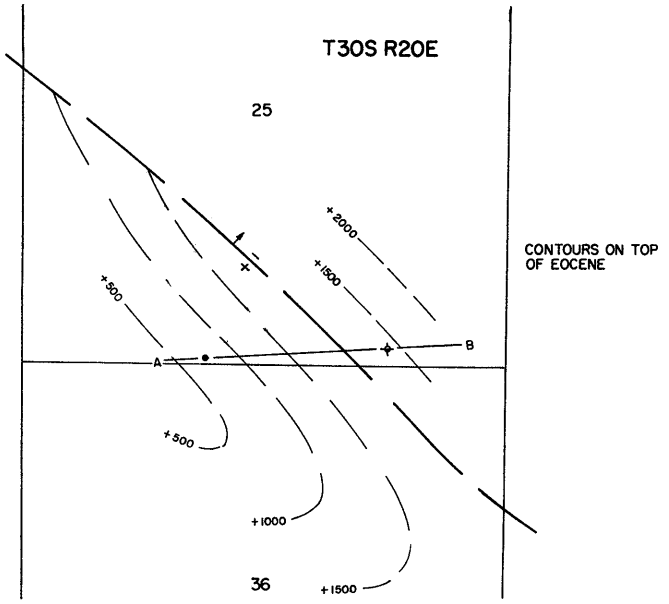
EAST TEMBLOR OIL FIELD
(Abandoned)

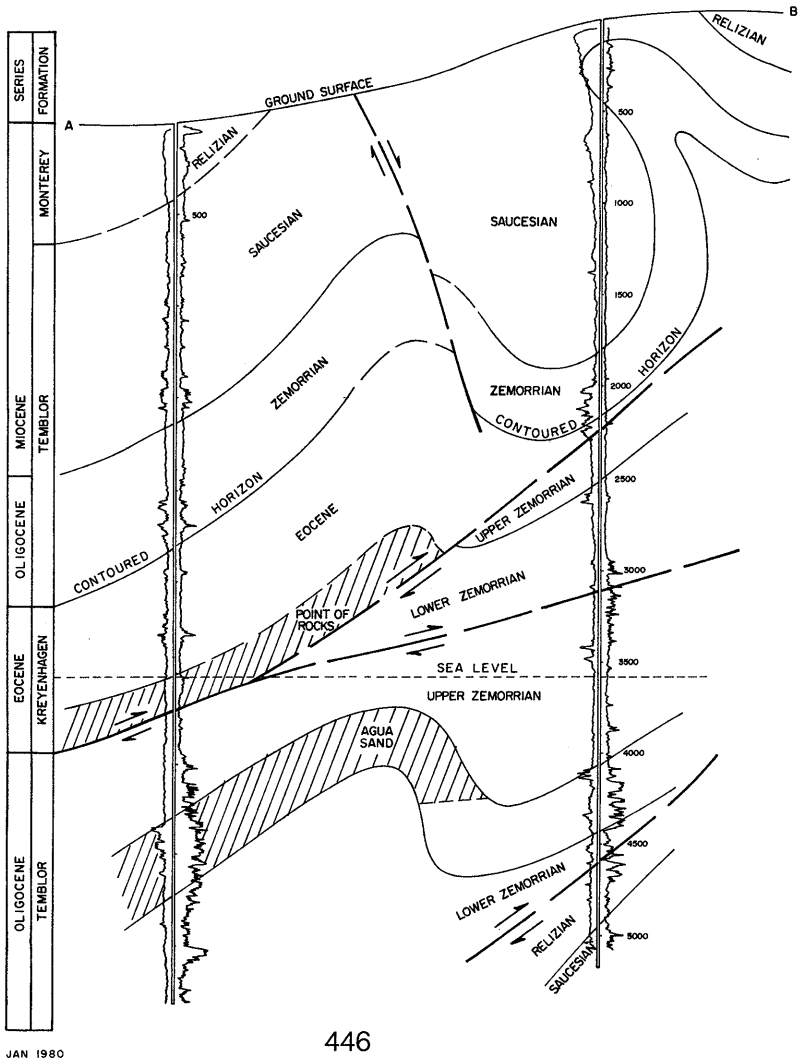


CONTOURS ON TOP WYGAL



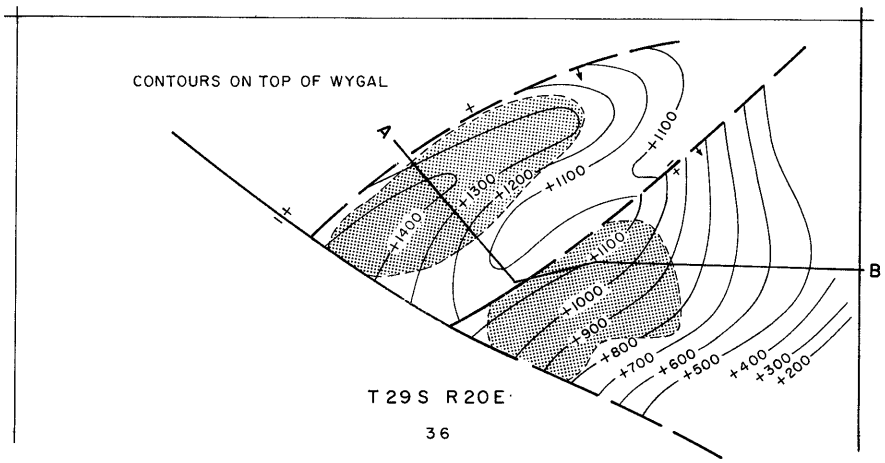
TEMBLOR HILLS OIL FIELD

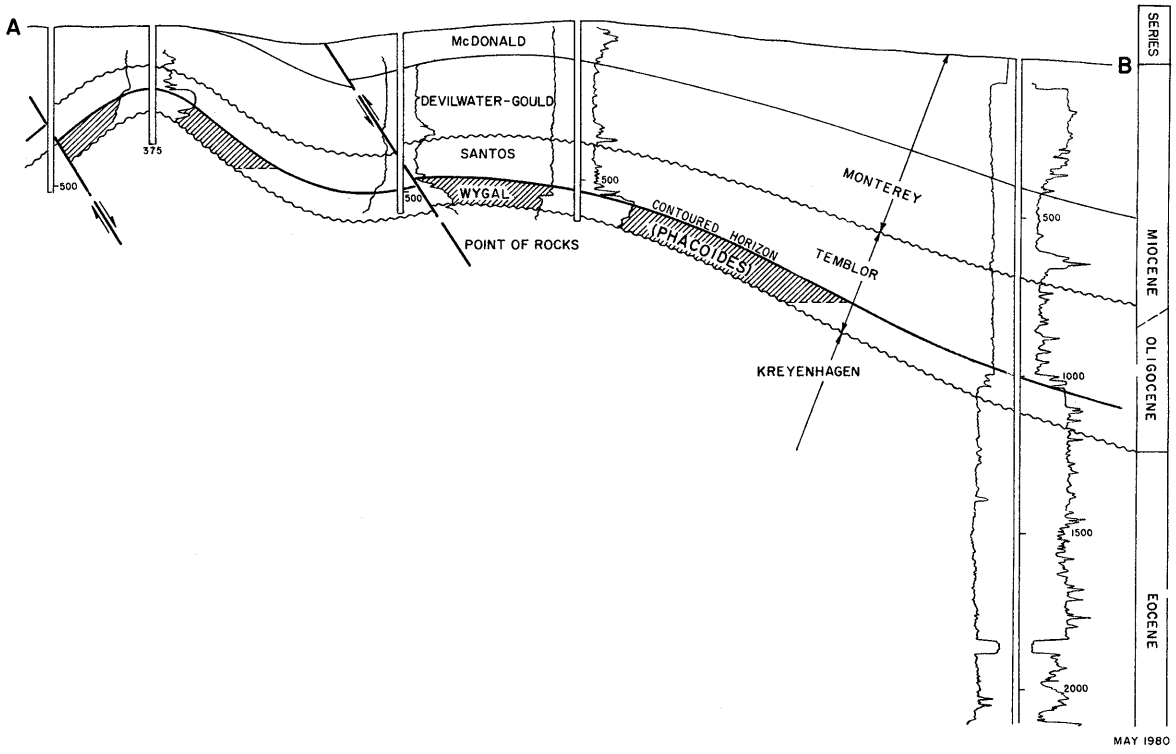




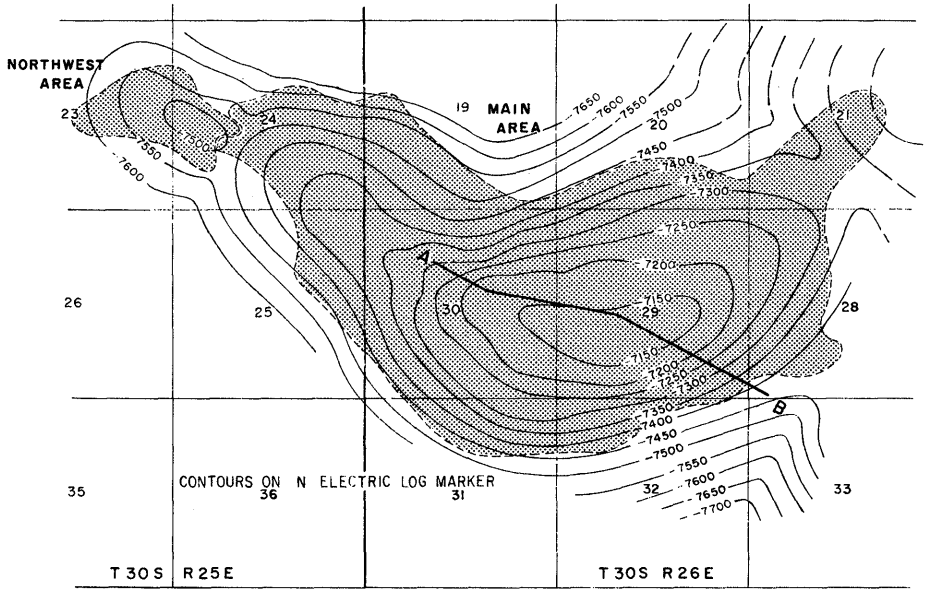
JAN 1980

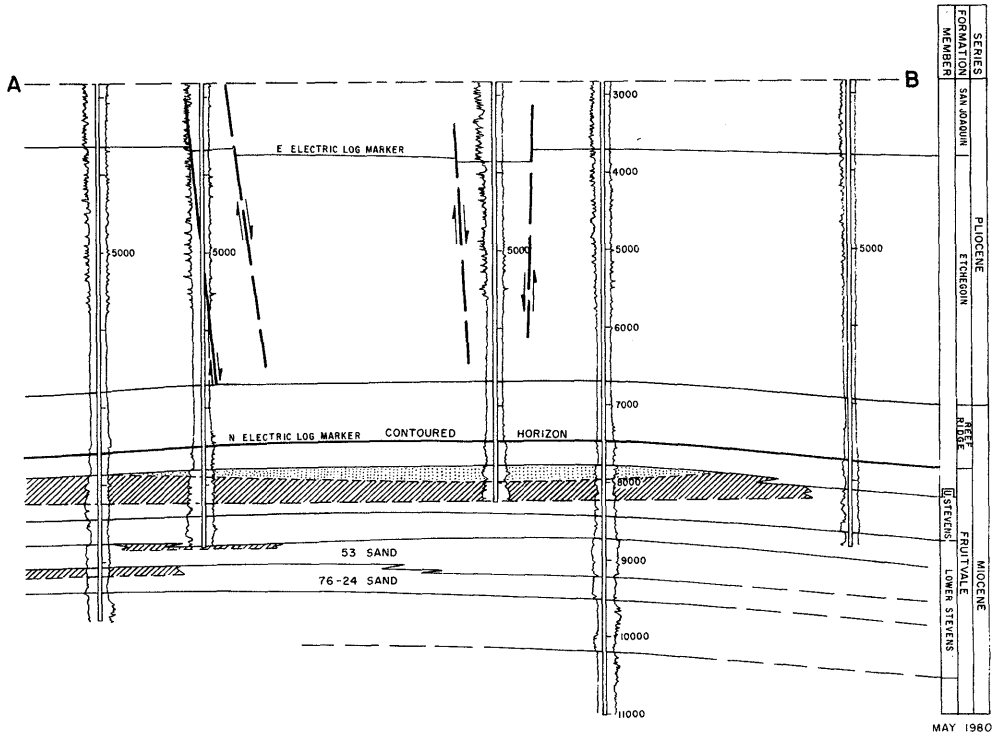
TEMBLOR RANCH OIL FIELD



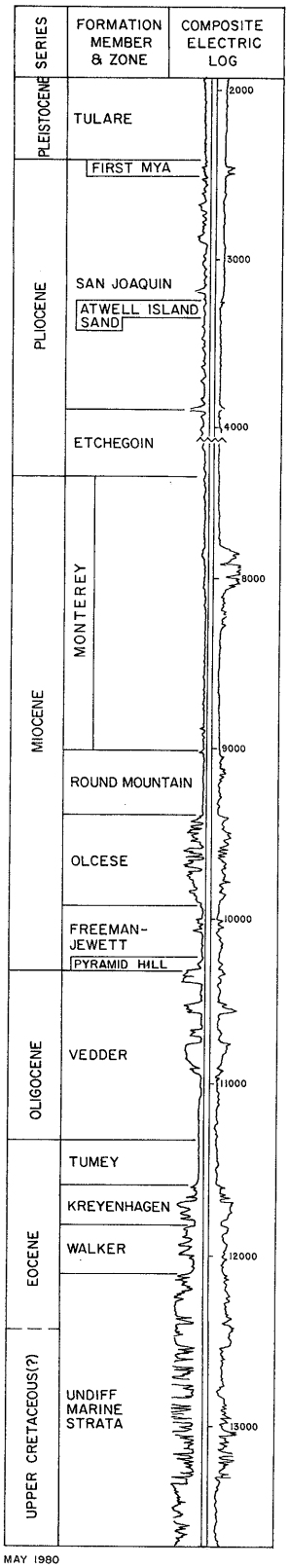


TEN SECTION OIL FIELD

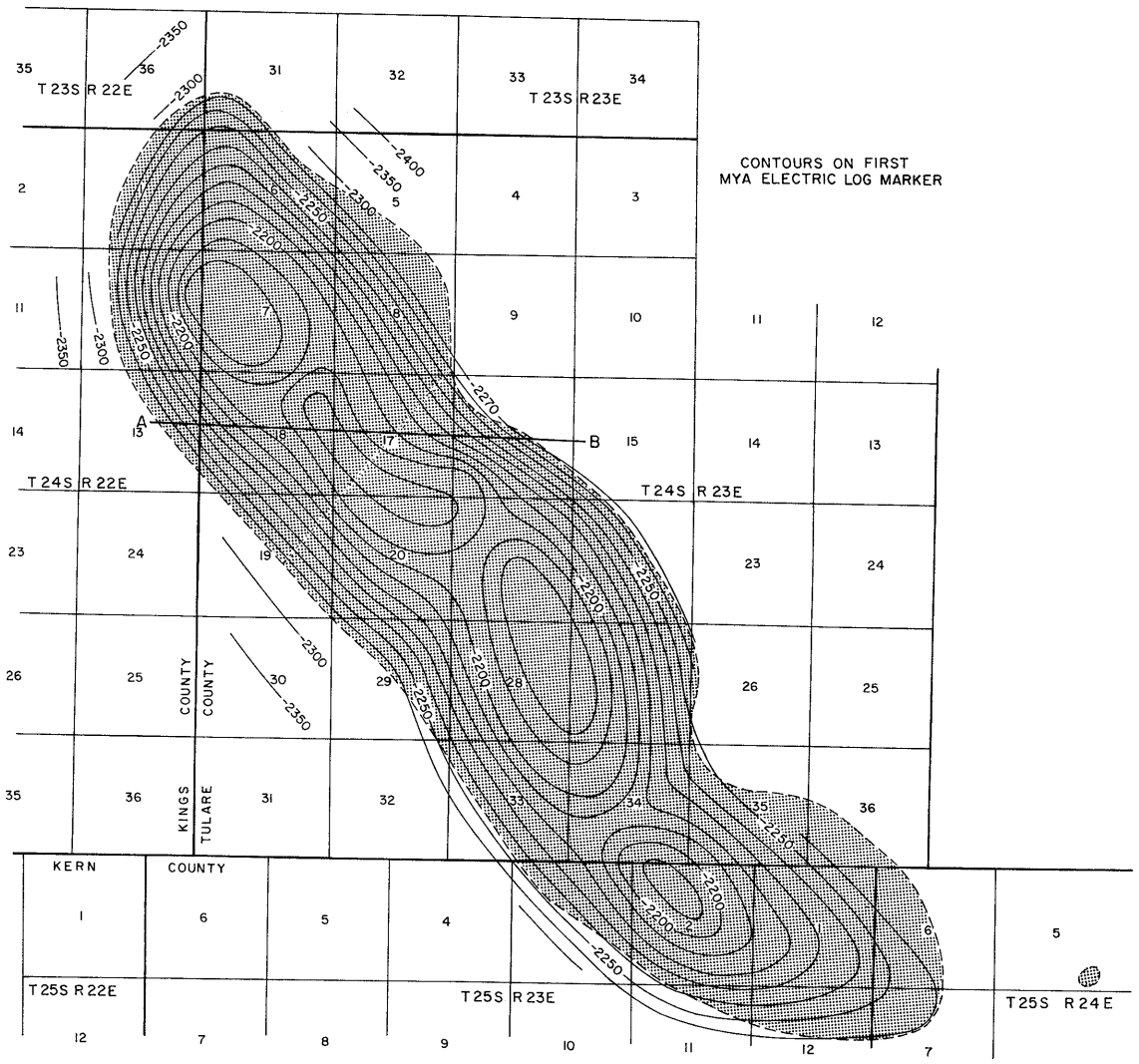


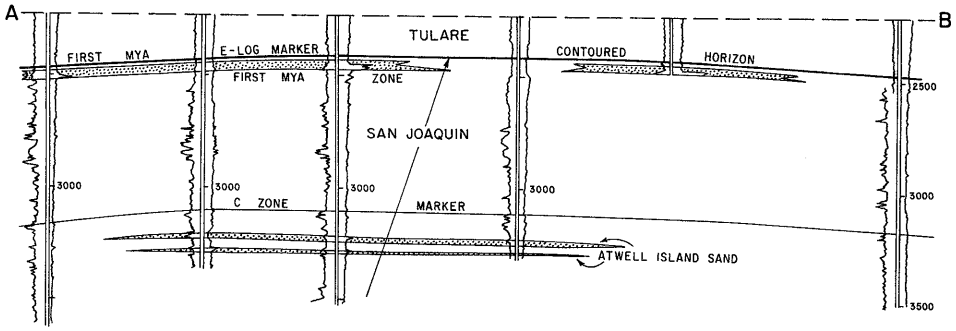


TRICO GAS FIELD

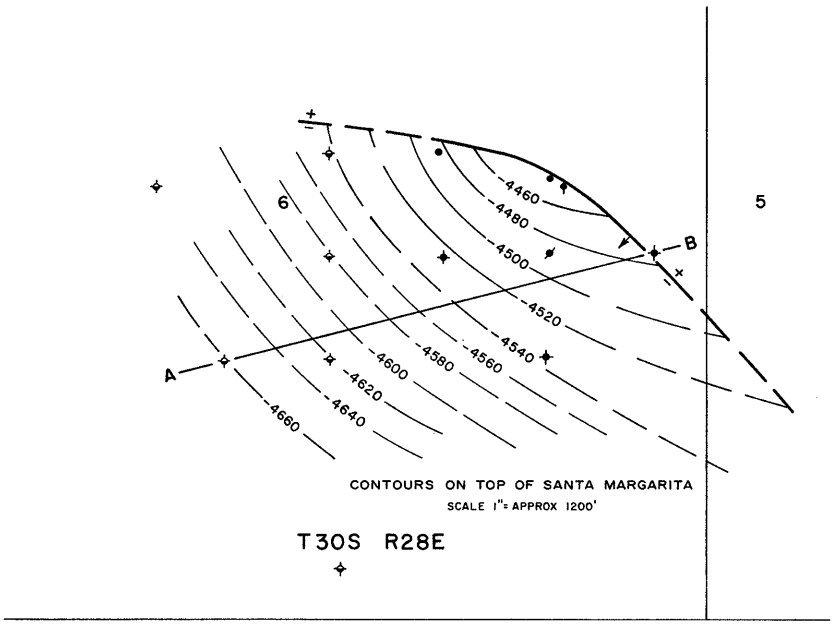


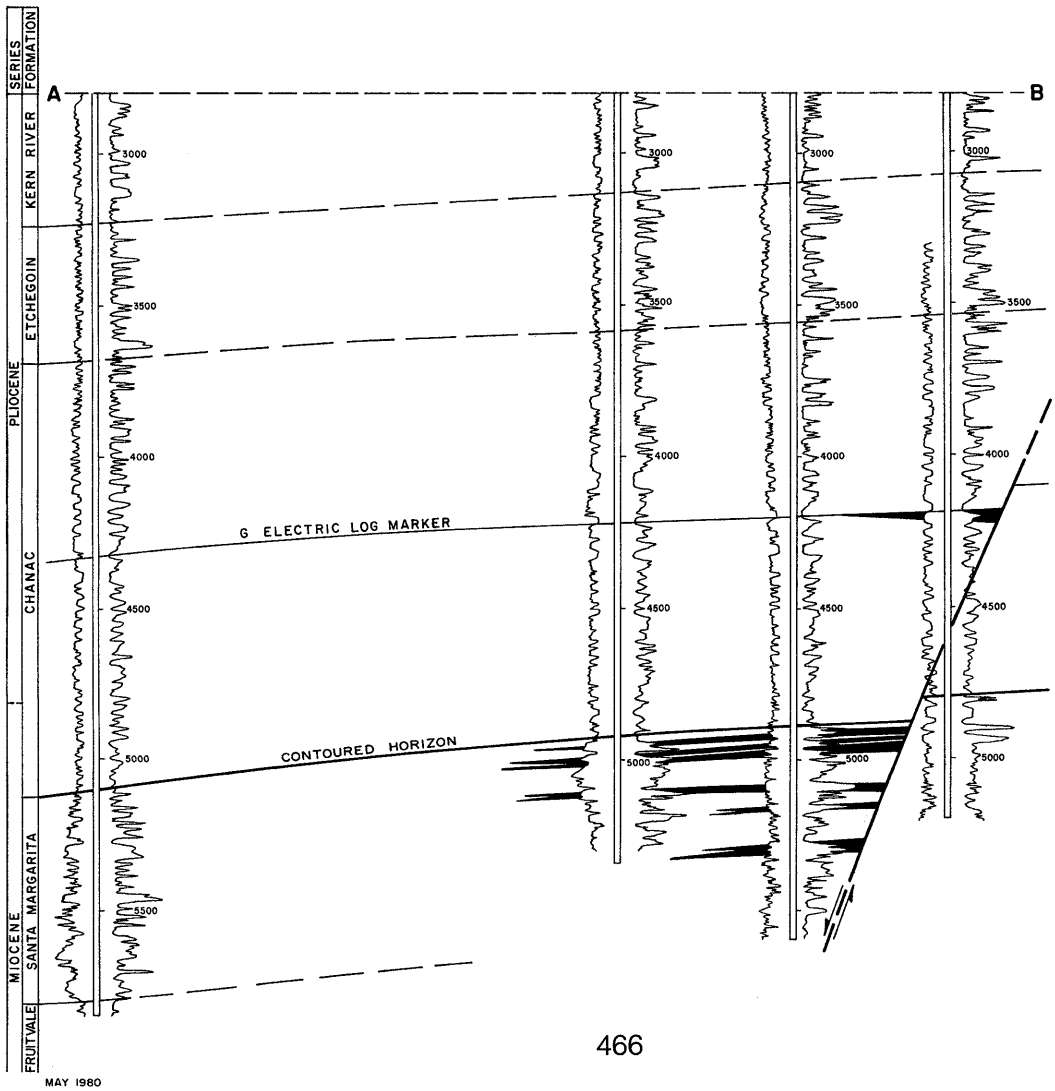
MAY 1980



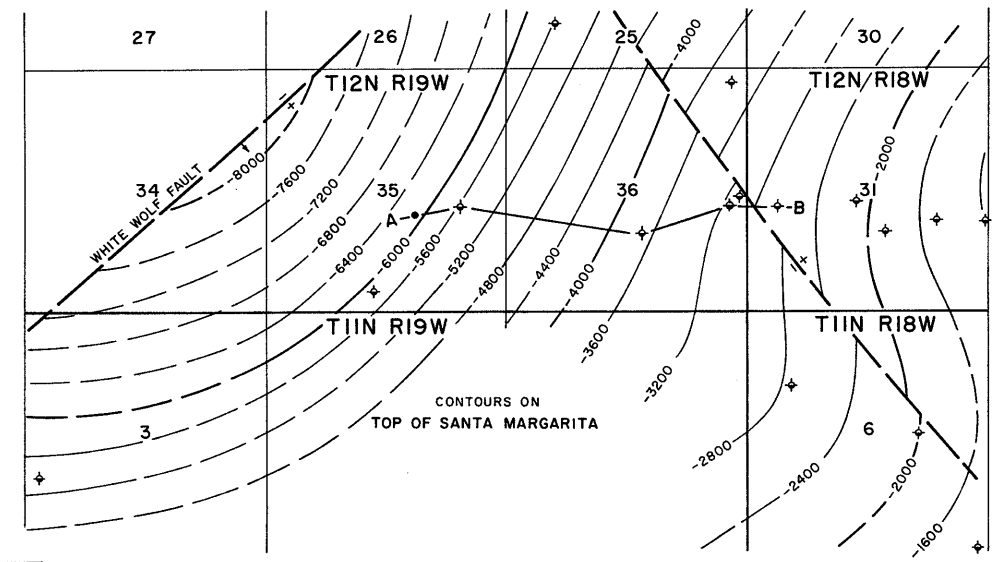


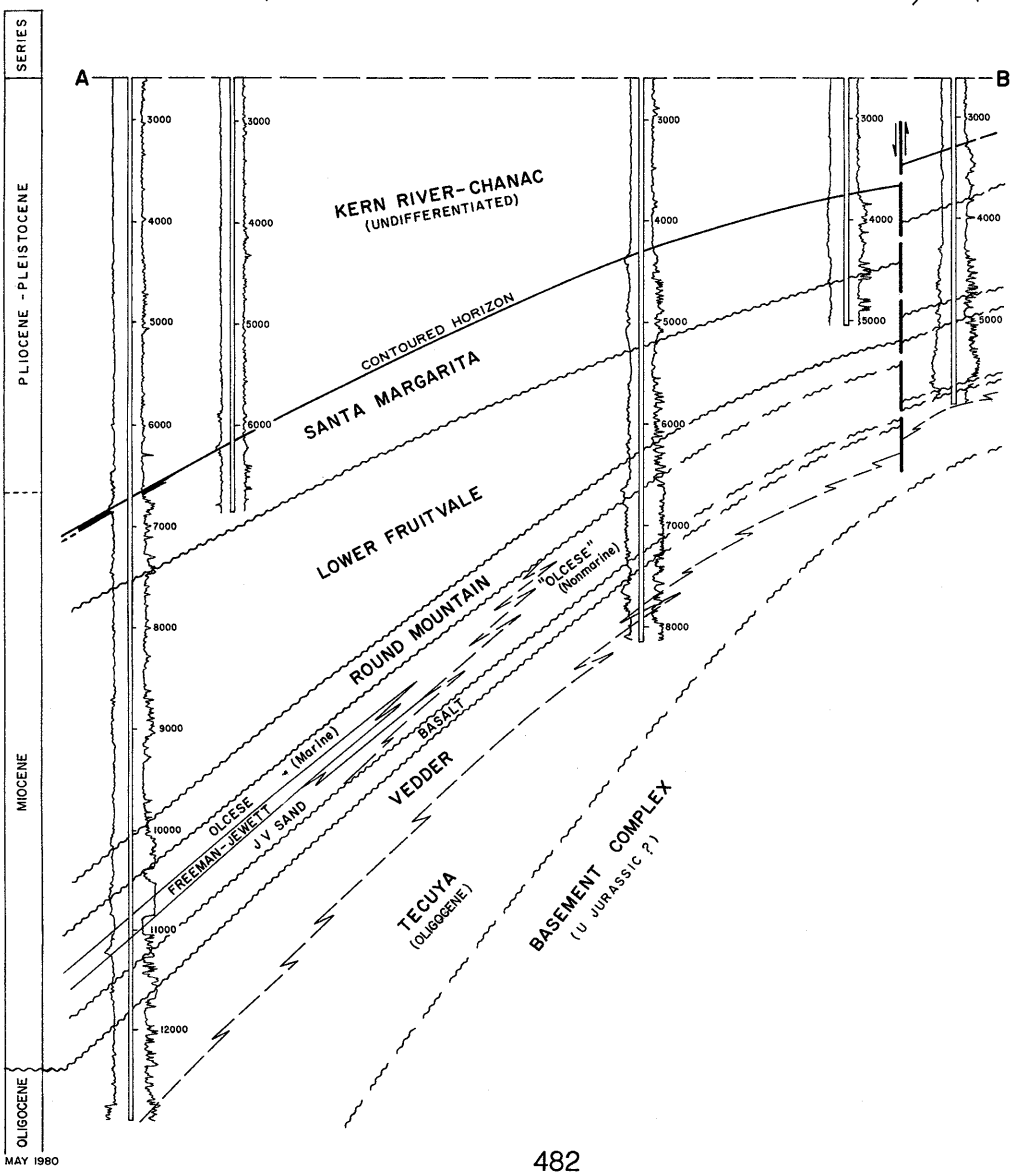
UNION AVENUE OIL FIELD





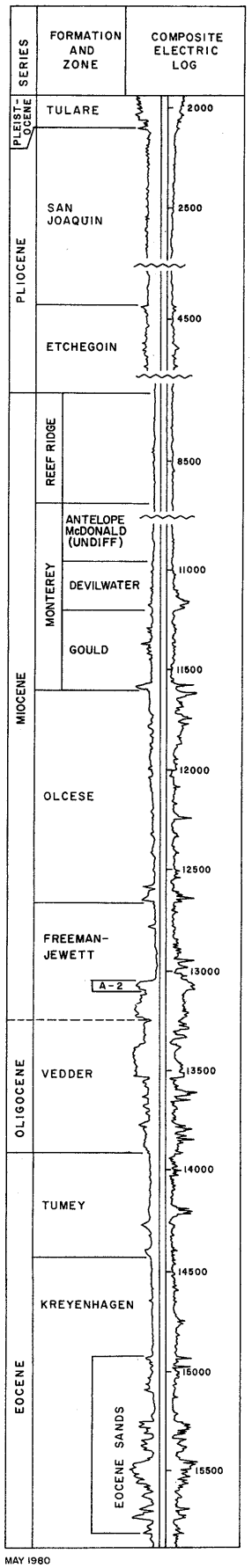
VALPREDO OIL FIELD



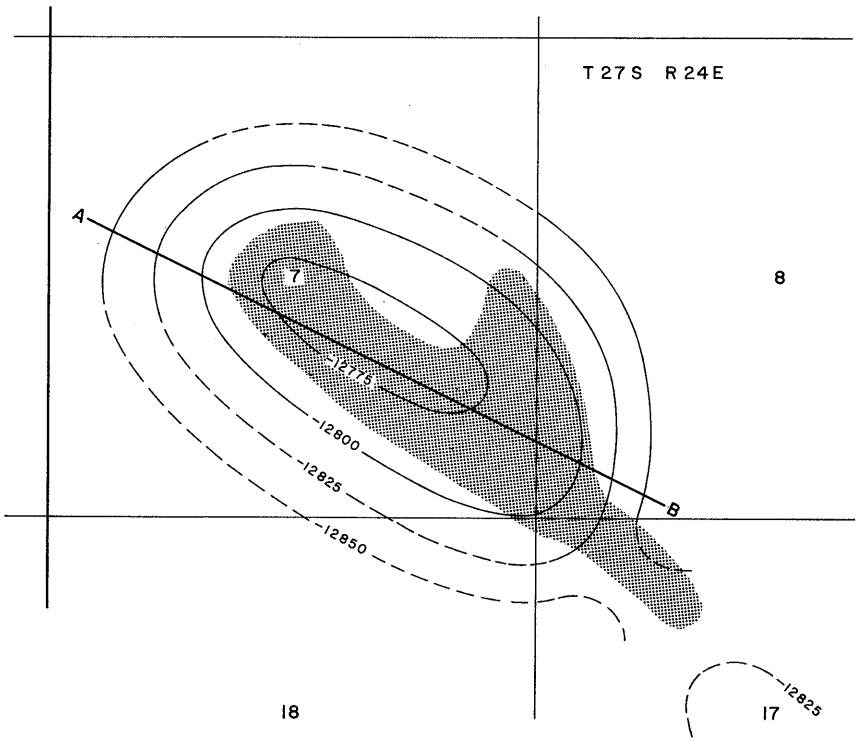


MAY 1980

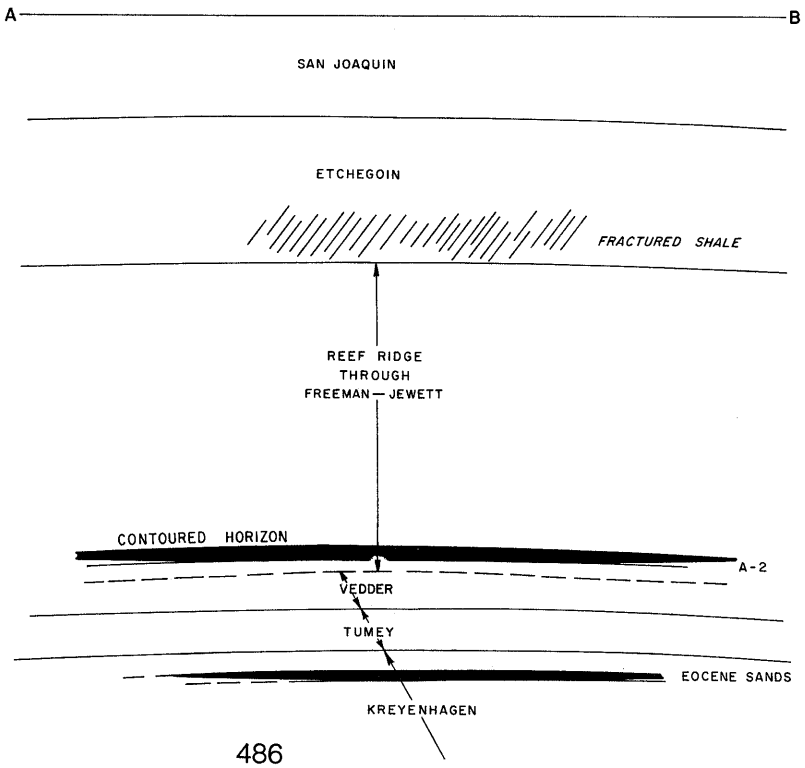
WASCO OIL FIELD



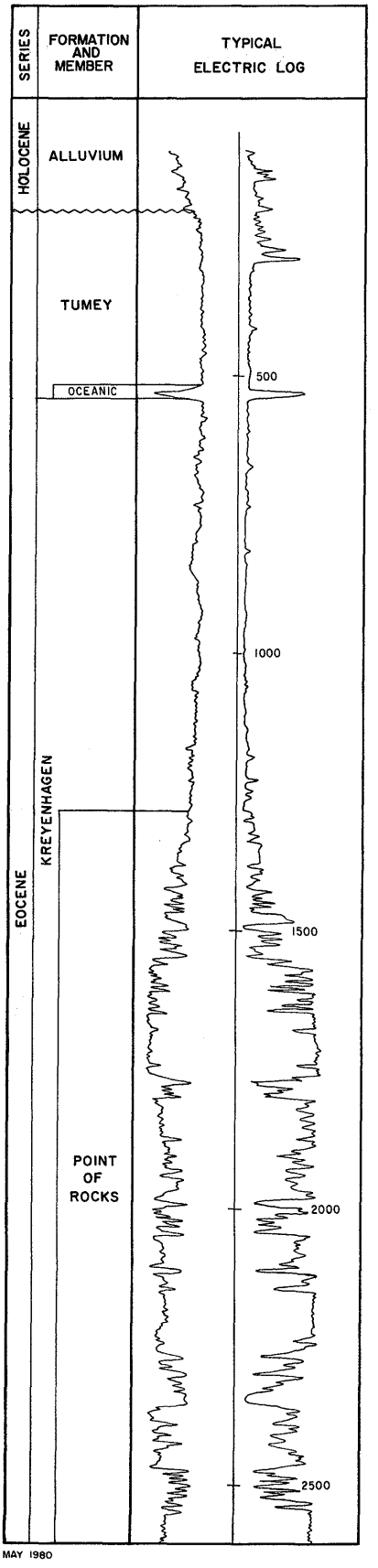
MAY 1980

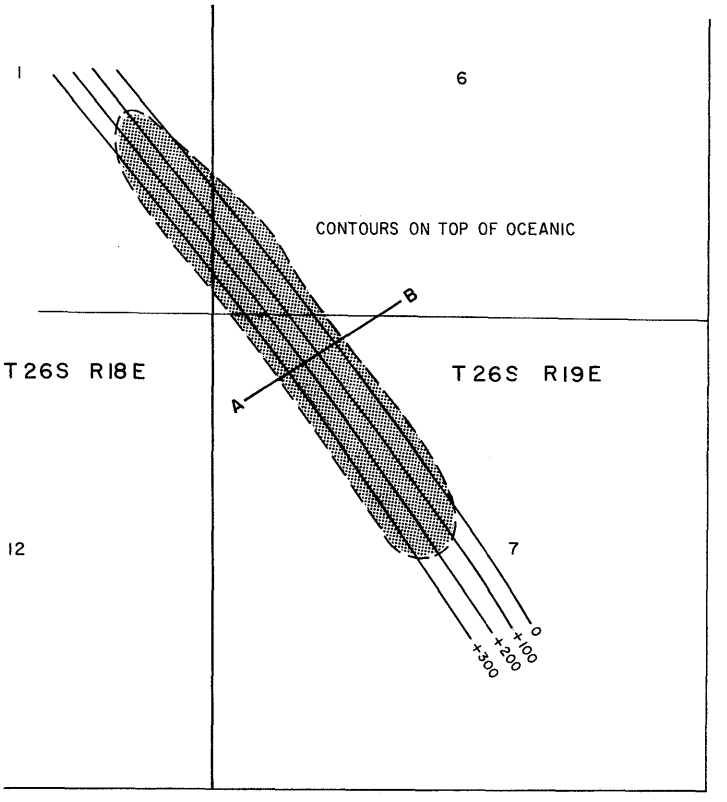


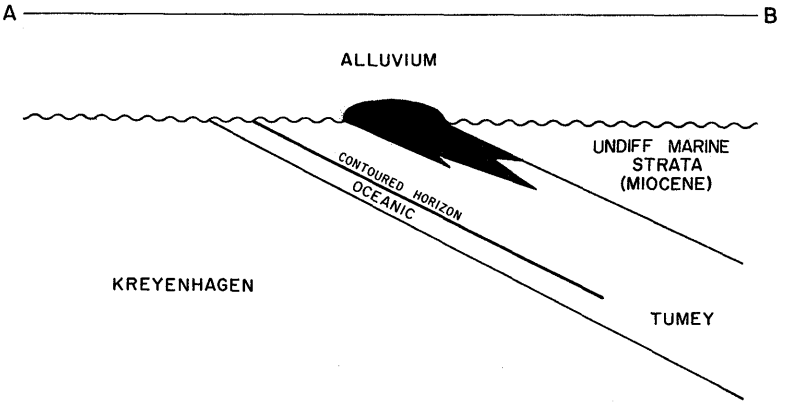
CONTOURS ON TOP OF A-2 SAND



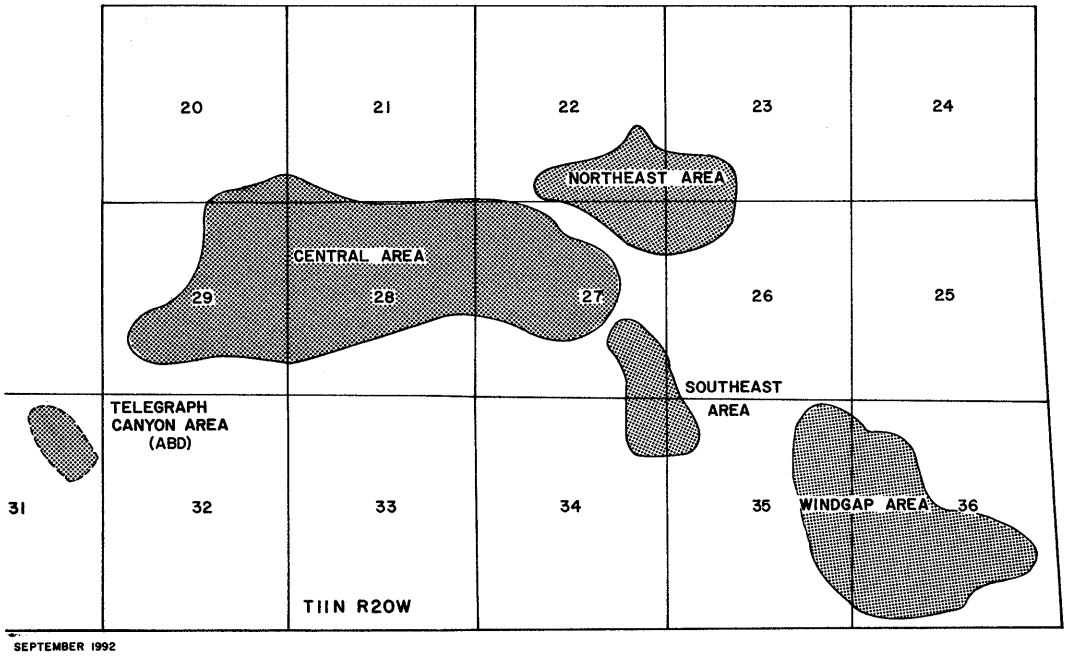
WELCOME VALLEY OIL FIELD





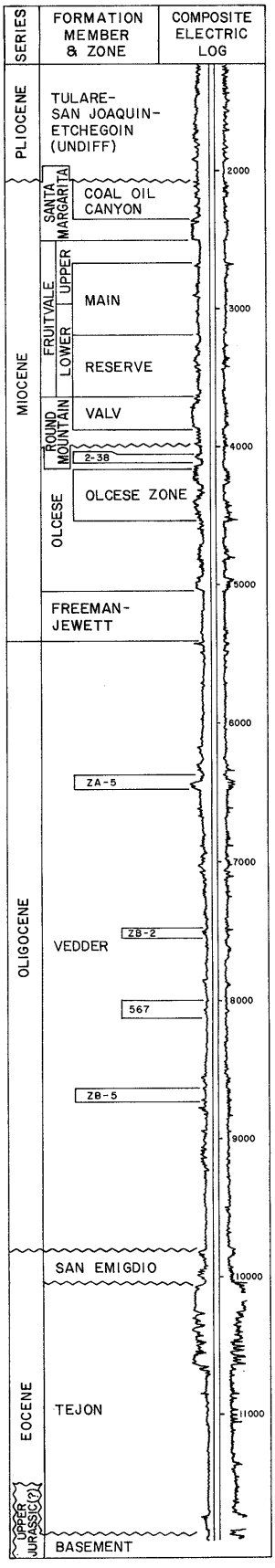


WHEELER RIDGE OIL FIELD
Index Map

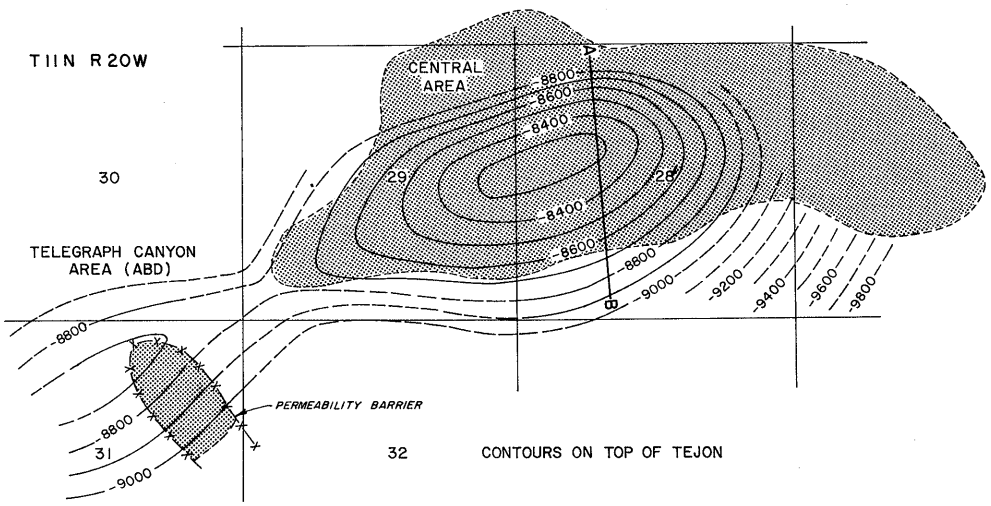


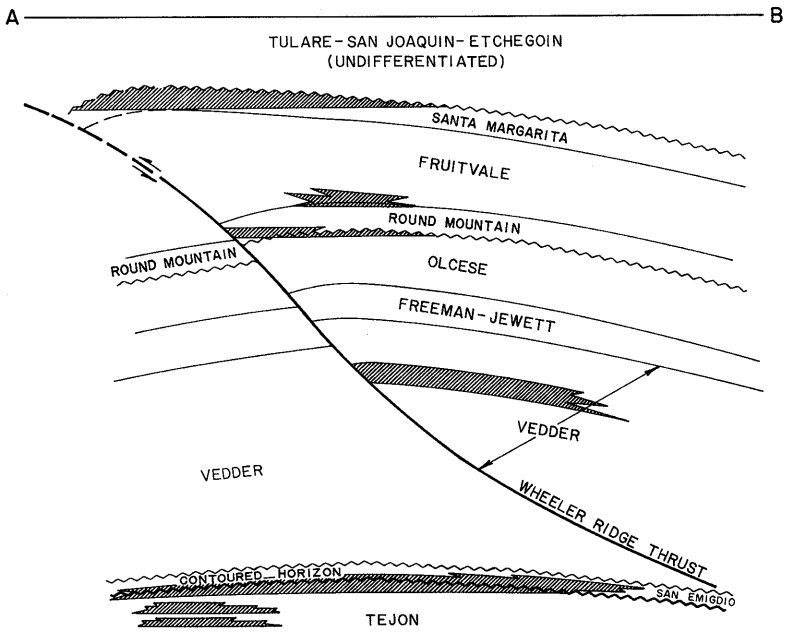
WHEELER RIDGE OIL FIELD

Central and Telegraph Canyon Areas



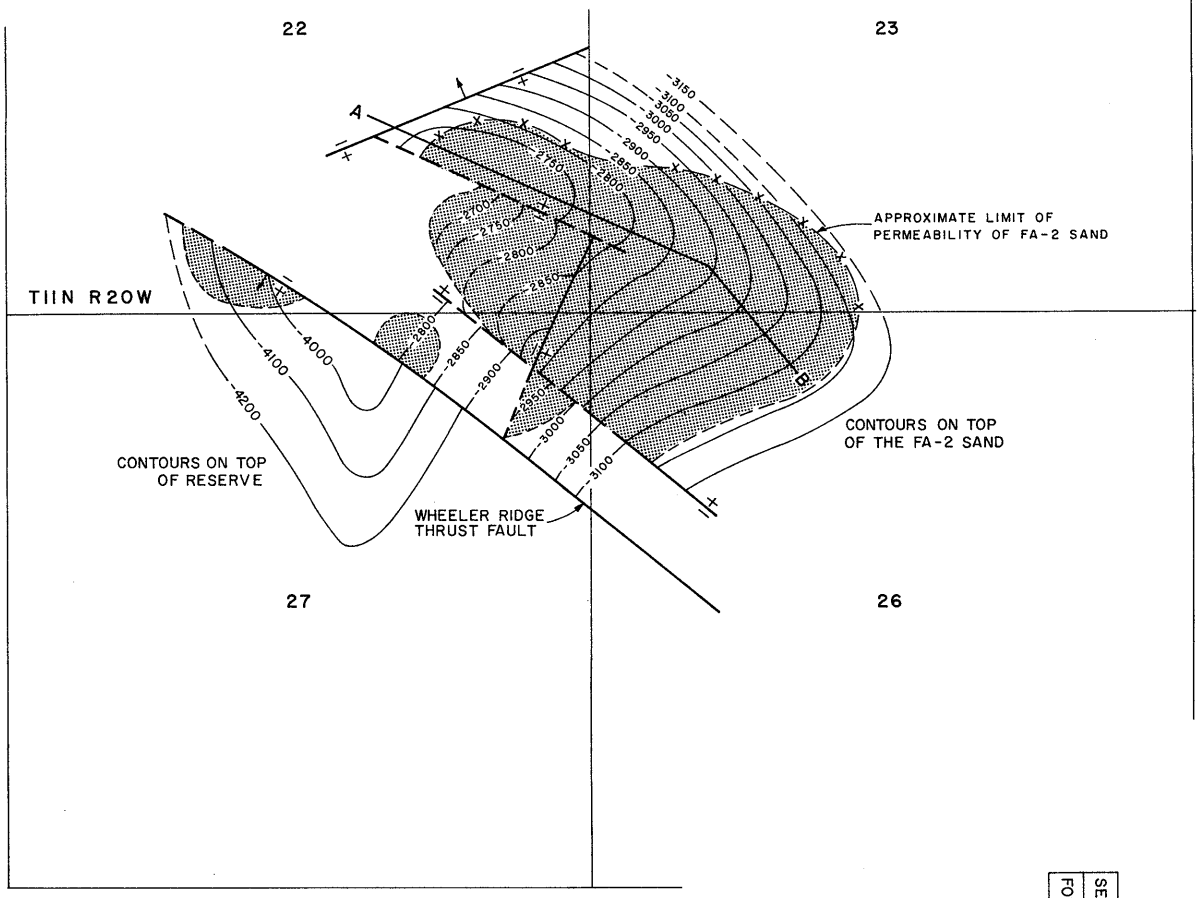
SEPTEMBER 1992

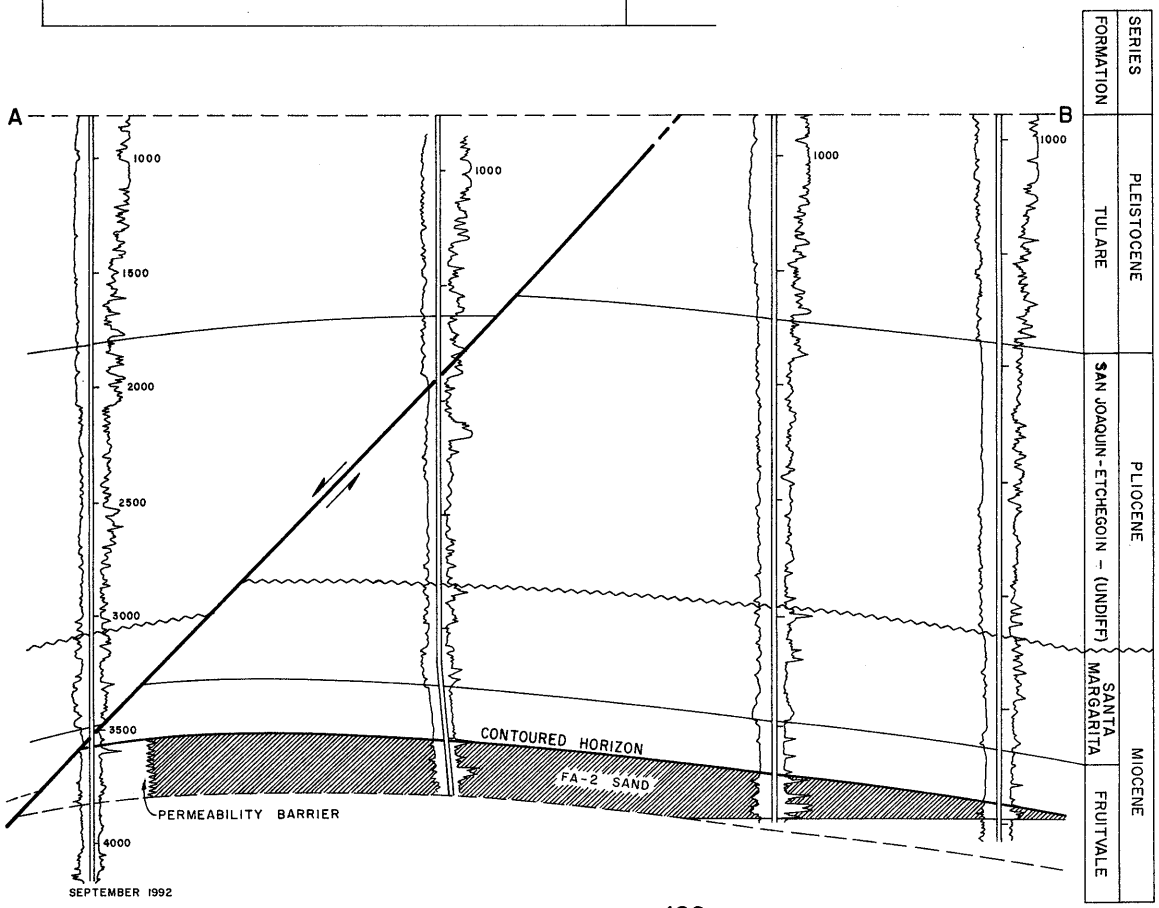




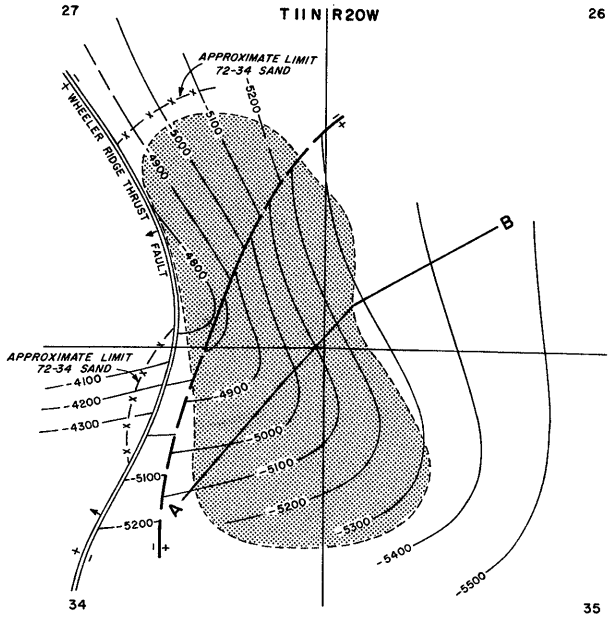
WHEELER RIDGE OIL FIELD

Northeast Area

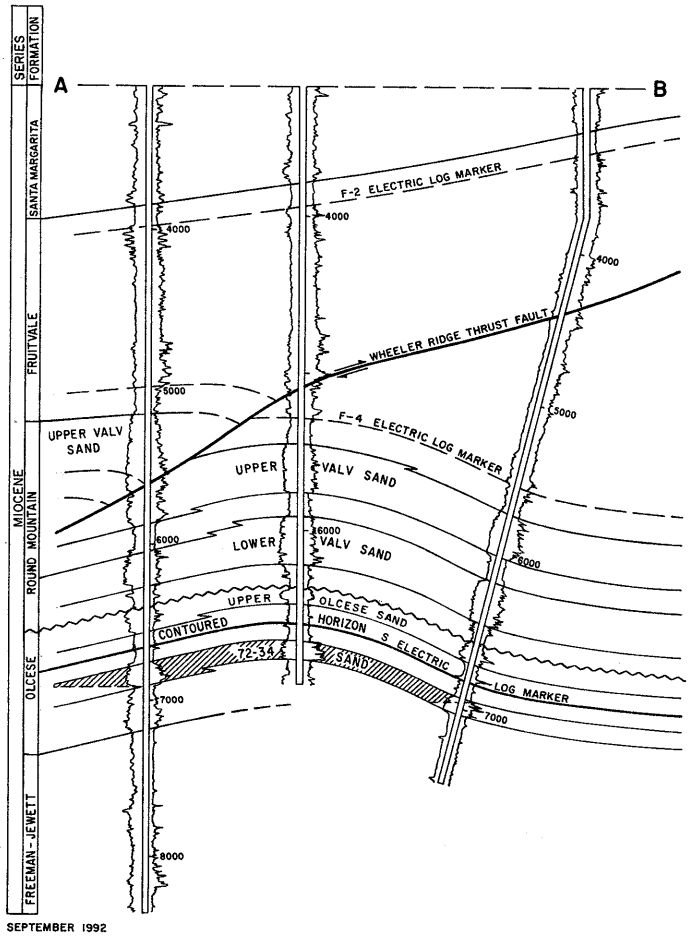




WHEELER RIDGE OIL FIELD
Southeast Area

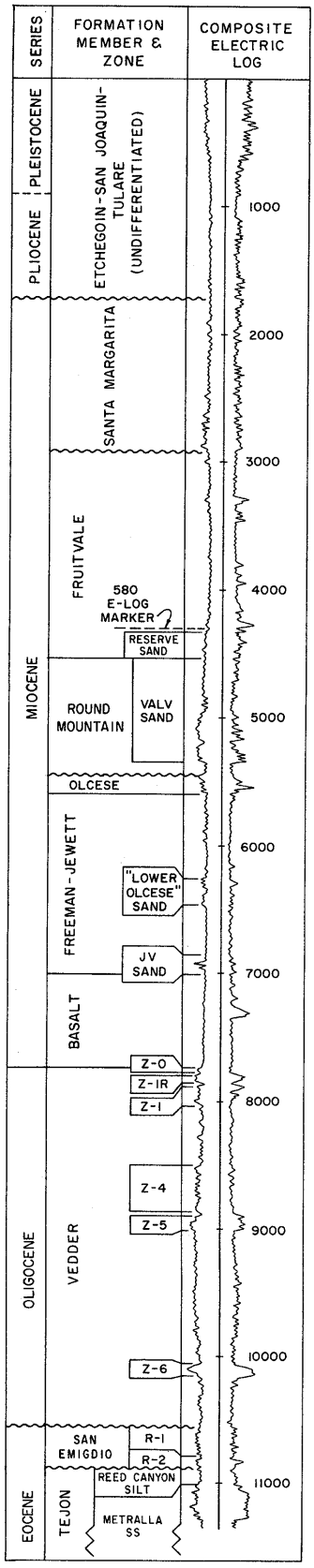


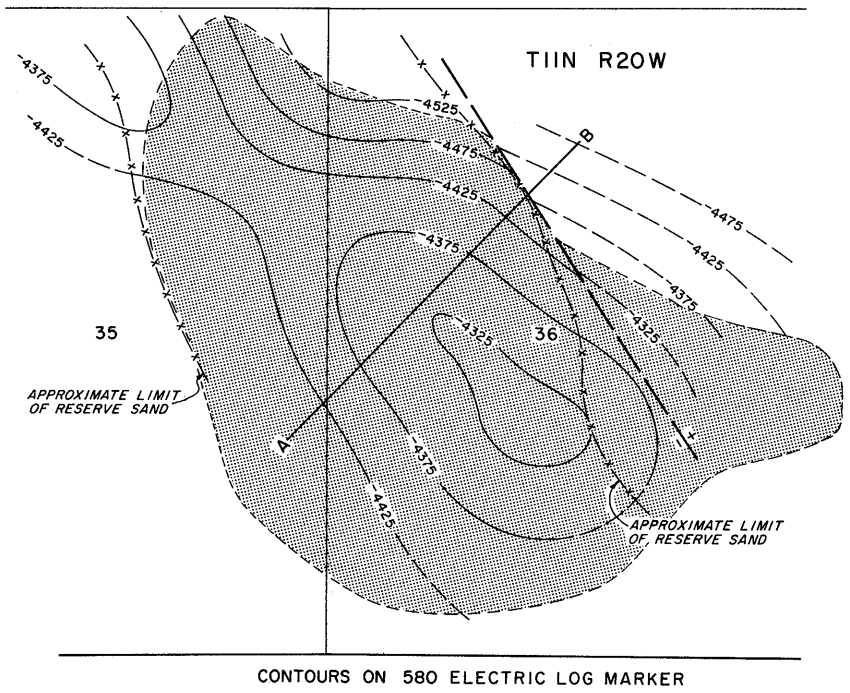
CONTOURS ON S ELECTRIC LOG MARKER
SCALE 1" = APPROX 1500'



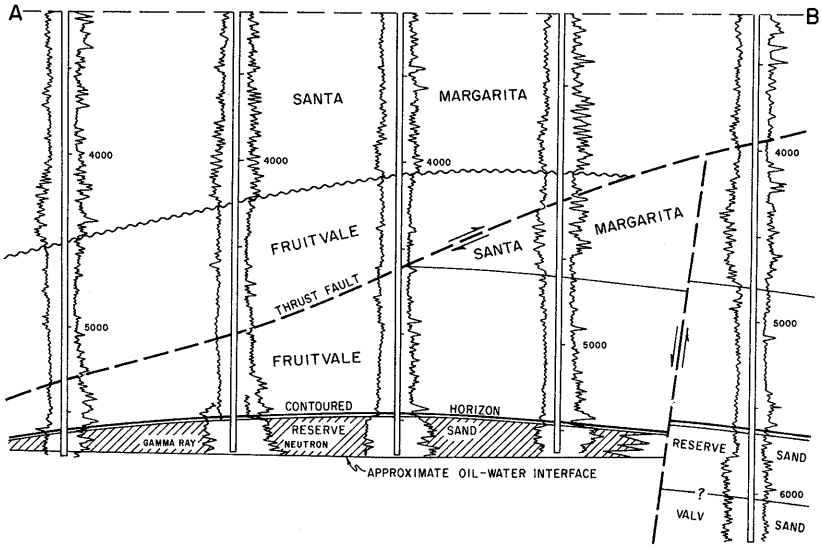
SEPTEMBER 1992

WHEELER RIDGE OIL FIELD
Windgap Area

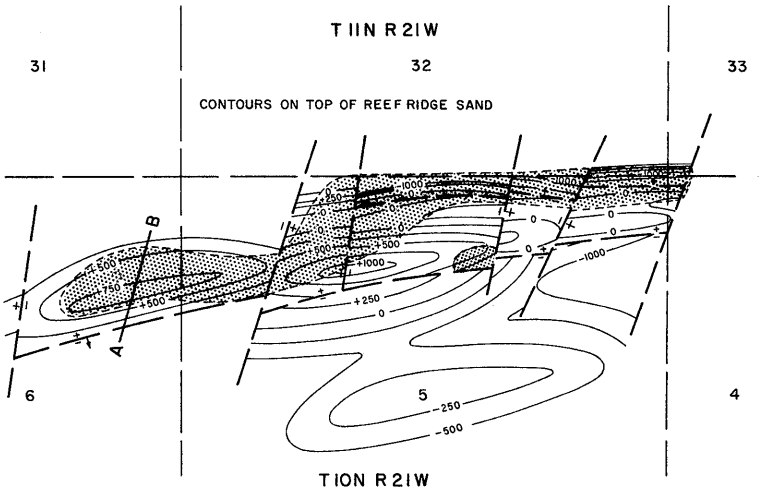


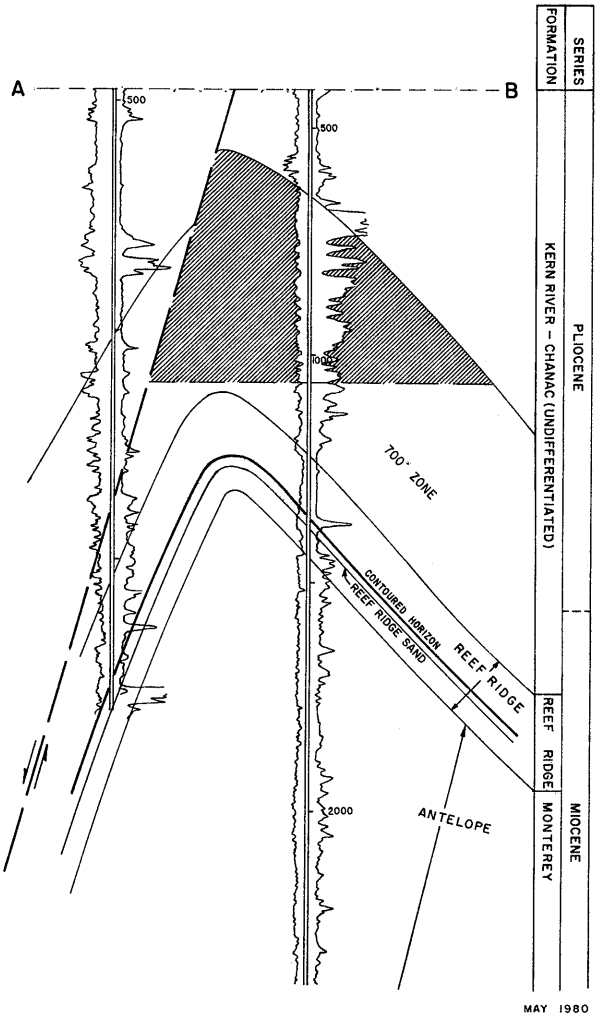


CONTOURS ON 580 ELECTRIC LOG MARKER

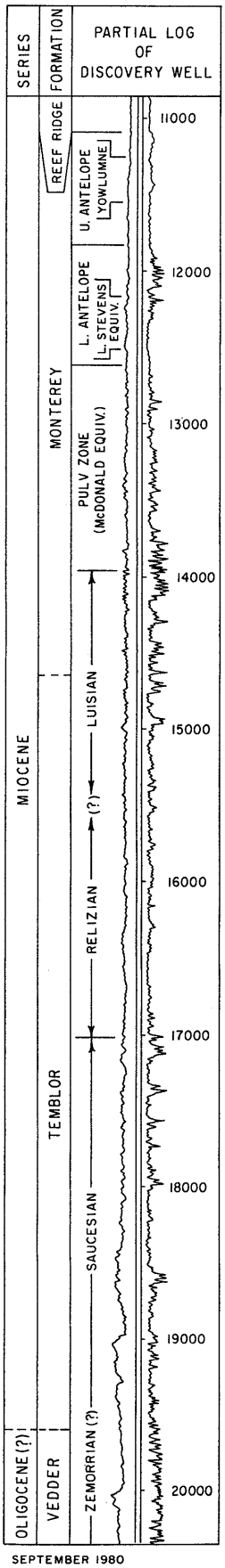


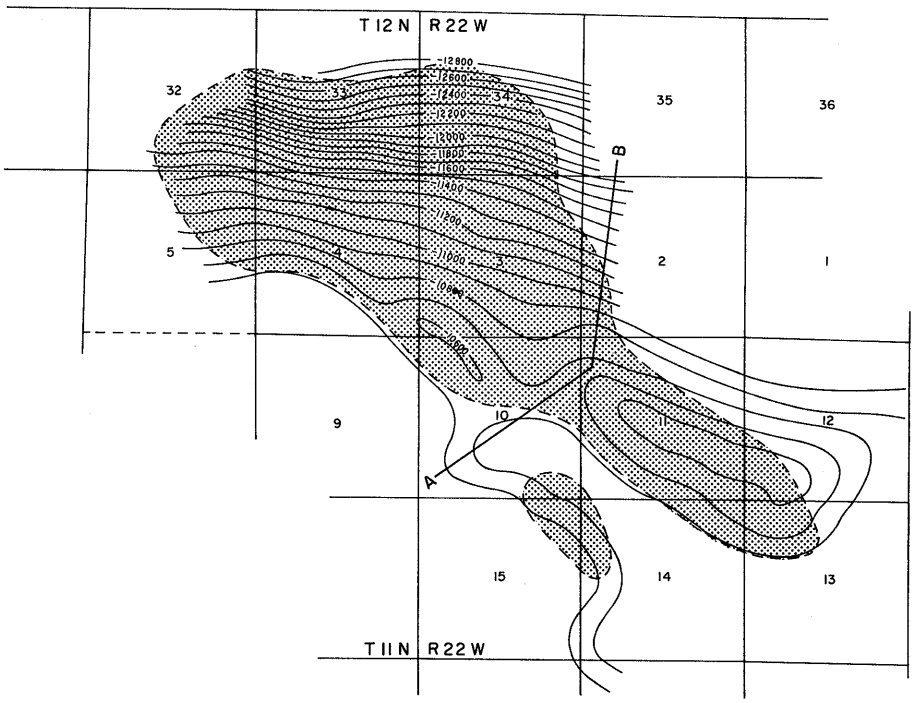
WHITE WOLF OIL FIELD



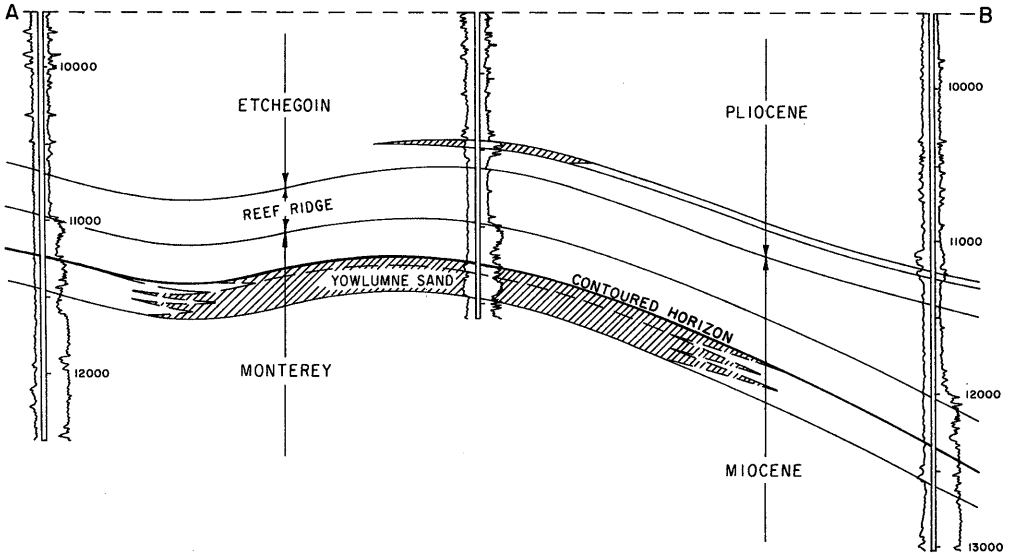


YOWLUMNE OIL FIELD





CONTOURS ON TOP OF YOWLUMNE SAND



Appendix B

NPDES and WDR Orders

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
1	440554	Phase II Small MS4	City of Wasco	City of Wasco	764 E Street		93280	Active
2	438619	Phase II Small MS4	CSU Bakersfield	CSU Bakersfield	9001 Stockdale Hwy		93311	Active
3	379899	NPDNON MUNIPRCS	Kern Mosquito & Vector Control District	Kern Mosquito & Vector Control District				Active
4	194891	MNSTW1	Bakersfield City (MNSTW1)	URBAN BAKERSFIELD STORM WATER DISCHARGES	1000 Buena Vista Road	Bakersfield	93311	Active
5	194981	MNSTW1	Kern Cnty Urban Area SW System	URBAN BAKERSFIELD STORM WATER DISCHARGES	2700 M	Bakersfield	93301	Active
6	351933	Industrial	Jorge Barajas	A & B Auto Dismantling	5941 C E Panama Rd	Bakersfield	93307	Active
7	196096	Industrial	Apex Bulk Commodities	Apex Bulk Commodities	2111 Bricyn Ln	Bakersfield	93308	Active
8	196153	Industrial	Asphalt Coatings Engineering	Asphalt Coatings Engineering	851 H St	Wasco	93280	Active
9	196073	Industrial	CAMS Juniper CA LLC	Badger Creek Ltd	535 Fano Ave	Bakersfield	93308	Active
10	416909	Industrial	Baker Hughes Centrilift	Baker Hughes Centrilift	1127 Carrier Parkway	Bakersfield	93308	Active
11	196065	Industrial	Baker Petrolite Corp	Baker Petrolite Corp	5135 Boylan St	Bakersfield	93308	Active
12	432828	Industrial	Baker Hughes Upstream	Bakers Hughes Upstream Chemical	19433 Colombo St	Bakersfield	93308	Active
13	196157	Industrial	Bakersfield City	Bakersfield City	Panorama Dr Columbus	Bakersfield	93309	Active
14	196247	Industrial	Rolling Frito Lay Sales	Bakersfield DC	6320 District Blvd	Bakersfield	93313	Active
15	441964	Industrial	Security Paving Company Inc	Bakersfield PCC Batch Plant	SEC of Hosking Ave and 99	Bakersfield	93307	Active
16	196136	Industrial	BNSF Railway Co	BNSF Railway Bakersfield	1501 F St	Bakersfield	93301	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
17	306033	Industrial	National Oilwell Varco LP	Brandt National Oilwell Varco LP Co	7300 Downing Ave	Bakersfield	93308	Active
18	368849	Industrial	Alfonso Rodriquez	C & L Auto Dismantling	3413 Edison Hwy	Bakersfield	93307	Active
19	196203	Industrial	Calpi Inc	Calpi Inc	7141 Downing Ave	Bakersfield	93308	Active
20	196238	Industrial	Cameron	Cameron	3004 Jewett Ave	Bakersfield	93301	Active
21	196227	Industrial	Cemex Construction Materials Pacific LLC	Cemex Construction Materials Pacific LLC	11638 Old River Rd	Bakersfield	93311	Active
22	326968	Industrial	Cemex Construction Materials Pacific LLC	Cemex Construction Materials Pacific LLC	1444 Kern St	Taft	93268	Active
23	196168	Industrial	Cemex Construction Materials Pacific LLC	Cemex Construction Materials Pacific LLC	1100 Garzoli Ave	Delano	93215	Active
24	359840	Industrial	CEMEX Construction Materials Pacific LLC	CEMEX Construction Materials Pacific LLC	1157 China Grade Loop	Bakersfield	93308	Active
25	196074	Industrial	CAMS Juniper CA LLC	Chalk Cliff Limited	29041 Highway 33	Maricopa	93252	Active
26	196114	Industrial	Chevron	Chevron	201 Mocal Rd	Fellows	93224	Active
27	196121	Industrial	Chevron	Chevron	201 Mocal Rd	Fellows	93224	Active
28	196067	Industrial	Chevron	Chevron	26251 Highway 33	Fellows	93224	Active
29	196210	Industrial	Clean Harbors Buttonwillow, LLC	Clean Harbors Buttonwillow LLC	2500 W Lokern Rd	Buttonwillow	93206	Active
30	196246	Industrial	BCI Coca Cola Bottling Co Of LA	Coca Cola Bottling Co Of Bakersfield	4320 Ride St	Bakersfield	93313	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
31	360205	Industrial	Commercial Coating Services International LLC	Commercial Coating Services Int LLC	4217 Armour Ave	Bakersfield	93308	Active
32	196110	Industrial	Con Way Freight	Con Way Freight UBF	226 Washington St	Bakersfield	93307	Active
33	196239	Industrial	Stanley & Wanda Cooper	Coopers Mine East & West	5 Miles West of McKittrick on Hwy 58	Mc Kittrick	93251	Active
34	368781	Industrial	Custom Bldg Prod	Custom Bldg Prod	1900 Norris Rd	Bakersfield	93308	Active
35	440676	Industrial	JoseLuis Mendoza Diaz	Diaz Auto Dismantling	2129 South Union Ave	Bakersfield	93307	Active
36	196070	Industrial	CAMS Juniper CA LLC	Double C Limited	34759 Lencioni Ave	Bakersfield	93308	Active
37	196241	Industrial	Irene Bernal	Edison Sand Co	3851 Neumarkel Rd	Bakersfield	93307	Active
38	281919	Industrial	Key Energy Services California Inc	Elk Hills Yard	28590 Hwy 119	Tupman	93276	Active
39	281892	Industrial	Ennis Paint	Ennis Paint	200 2nd St	Bakersfield	93304	Active
40	196102	Industrial	Fed Ex Freight Bakersfield	Fed Ex Freight West	6100 District Blvd	Bakersfield	93313	Active
41	425529	Industrial	FMC Technologies	FMC Technologies	5200 Northspur Court	Bakersfield	93308	Active
42	306878	Industrial	GE Betz	GE Betz	3050 Pegasus Dr	Bakersfield	93308	Active
43	307186	Industrial	Golden Empire Concrete Co	Golden Empire Concrete Mt Vernon	216 Mt Vernon Ave	Bakersfield	93307	Active
44	325159	Industrial	Golden Empire Concrete Co	Golden Empire Concrete Wasco	1316 Wasco Ave	Wasco	93280	Active
45	196113	Industrial	Golden Empire Transit District	Golden Empire Transit Dist	1830 Golden State Ave	Bakersfield	93301	Active
46	419024	Industrial	Elias Gonzalez Vega	Gonzalez Auto Dismantling	2129 S Union Ave	Bakersfield	93307	Active
47	196218	Industrial	Greenfield School District	Greenfield Sch Dist Mot Facili	1624 Fairview Rd	Bakersfield	93307	Active
48	402183	Industrial	Griffith Company	Griffith Co Rock Plant	39439 Edmonston Pumping Plant	Bakersfield	93308	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
49	196183	Industrial	Hansen Pipe & Precast	Hanson Pipe & Prod	30781 San Diego St	Shafter	93263	Active
50	196071	Industrial	CAMS Juniper CA LLC	High Sierra Ltd	10600 Oilfields Rd	Bakersfield	93308	Active
51	401187	Industrial	Holliday Rock Co Inc	Holliday Rock Bakersfield #16	2603 E Brundage Ln	Bakersfield	93307	Active
52	196123	Industrial	Hondo Chemical Inc	Hondo Chemical Inc	20807 Stockdale Hwy	Bakersfield	93314	Active
53	432833	Industrial	Hunting Titan Ltd	Hunting Titan Ltd Bakersfield	19479 Creek Rd	Bakersfield	93314	Active
54	196212	Industrial	J & R Dairy	J & R DAIRY	WILDWOOD RD AND RIVERSIDE DR	Buttonwillow	93206	Active
55	311726	Industrial	JDS Ranch	JDS Ranch	27333 Garces Hwy	Wasco	93280	Active
56	196175	Industrial	JH Biotech Inc	Jh Biotech Inc	250 Washington St	Bakersfield	93307	Active
57	402133	Industrial	Kag West LLC	KAG West LLC	4401 Armour Ave	Bakersfield	93308	Active
58	196142	Industrial	Kern Cnty Waste Management Dept	Kern Co Shafter Wasco Sanitary	17621 Scofield Ave	Shafter	93263	Active
59	196141	Industrial	Kern Cnty Waste Management Dept	Kern Co Taft Sanitary Landfill	13351 Elk Hills Rd	Taft	93268	Active
60	196139	Industrial	Kern Cnty Waste Management Dept	Kern Co Waste Mgt Dept Bakersf	2951 Newmarkle Rd	Bakersfield	93518	Active
61	196069	Industrial	CAMS Juniper CA LLC	Kern Front Limited	12241 Oilfield Rd	Bakersfield	93308	Active
62	347248	Industrial	Key Energy Services California Inc	Kern River Yard	0000 Warehouse Rd	Oildale	93308	Active
63	433467	Industrial	Kern Steel Fabrication Inc	Kern Steel Fabrication Inc	627 Williams St	Bakersfield	93305	Active
64	281917	Industrial	Key Energy Services California Inc	Key Energy Services California Inc	18835 Hwy 65	Bakersfield	93308	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
65	281912	Industrial	Key Energy Services California Inc	Key Energy Services LLC	59231 Contractors Rd	Mc Kittrick	93308	Active
66	196063	Industrial	KW California	Kw CA	1861 Sunnyside Ct	Bakersfield	93308	Active
67	196217	Industrial	La Paloma Generating Co LLC	La Paloma Generating Co LLC	1760 W Skyline Rd	Mc Kittrick	93251	Active
68	196075	Industrial	CAMS Juniper CA LLC	Live Oak Limited	7001 S Granite Rd	Bakersfield	93308	Active
69	437386	Industrial	Brenda Carrillo	Masters Auto Dismantling	2116 B E California Avenue	Bakersfield	93305	Active
70	196072	Industrial	CAMS Juniper CA LLC	McKittrick Limited	4905 Reward Rd	Mc Kittrick	93251	Active
71	196124	Industrial	McKittrick Waste Treatment	Mckittrick Waste Treatment	56533 Highway 58	Mc Kittrick	93251	Active
72	405963	Industrial	Mendoza Auto Dismantling	Mendoza Auto Dismantling	7780 S Union Ave	Bakersfield	93307	Active
73	426879	Industrial	Metro Ready Mix LP	Metro Ready Mix	1635 James Road	Bakersfield	93308	Active
74	422743	Industrial	MI SWACO	MI Swaco	4400 Fanucchi Way	Shafter	93263	Active
75	196083	Industrial	Minter Field Airport District	Minter Field Airport Dist	201 Aviation St	Shafter	93263	Active
76	281879	Industrial	Motor City 2	Motor City 2	2017 S Union Ave	Bakersfield	93307	Active
77	196117	Industrial	Nabors Completion & Production	Nabors Completion & Production	7515 Rosedale Hwy	Bakersfield	93308	Active
78	196118	Industrial	Nabors Completion & Production	Nabors Completion & Production	1954 James Rd	Bakersfield	93308	Active
79	196169	Industrial	Nabors Completion & Production	Nabors Completion & Production	1025 Earthmover Ct	Bakersfield	93312	Active
80	361374	Industrial	National Oilwell DHT LP	National oilwell Varco Downhole	1102 Black Gold Rd	Bakersfield	93308	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
81	281895	Industrial	Inergy Propane LLC	North Coles Levee	9224 Tupman Rd	Tupman	93276	Active
82	360749	Industrial	National Oil Well Varco LP	Nov Mobile Rigs Bakersfield	3100 Steam Ct	Bakersfield	93308	Active
83	196129	Industrial	Orange Belt Stages	Orange Belt Stages Bakersfield	3640 Sillect Ave	Bakersfield	93308	Active
84	443022	Industrial	Pacific Coast Siteseeing Tours and Charters Inc	Pacific Coast Siteseeing Tours and Charters Inc	1800 Golden State Ave	Bakersfield	93301	Active
85	281970	Industrial	Calmat Company dba Vulcan Materials Co	Panama Lane	8517 Panama Ln	Bakersfield	93311	Active
86	438165	Industrial	Patterson Motor Freight	Patterson Motor Freight	1300 Roberts Lane	Bakersfield	93308	Active
87	196134	Industrial	Pick Your Part Auto Wrecking	Pick Your Part Auto Wrecking	5311 S Union Ave	Bakersfield	93307	Active
88	430100	Industrial	Premier Silica LLC	Premier Silica LLC	9952 Enos Ln	Bakersfield	93312	Active
89	406773	Industrial	Quinn Company	Quinn Company	2200 Pegasus Dr	Bakersfield	93308	Active
90	405588	Industrial	Quinn Co	Quinn Rental Services	3501B Fruitvale Ave	Bakersfield	93308	Active
91	196189	Industrial	Richmar Farms	RICHMAR FARMS	1129 Shafter Rd	Bakersfield	93307	Active
92	196062	Industrial	Rio Bravo	Rio Bravo Poso	16608 Porterville Hwy	Bakersfield	93308	Active
93	422882	Industrial	RockTenn CP LLC	RockTenn CP LLC	2710 O St	Bakersfield	93301	Active
94	331030	Industrial	SA Recycling LLC	SA Recycling LLC 31	2000 E Brundage Ln	Bakersfield	93307	Active
95	412447	Industrial	SA Recycling LLC	SA Recycling LLC 60	1643 Glenwood St	Delano	93215	Active
96	196115	Industrial	CalMat Co dba Vulcan Materials Co	San Emidio	Highway 166 West of Old River Rd	Bakersfield	93313	Active
97	196098	Industrial	Savage Services	Savage Wasco Coal Terminal	1040 H St	Wasco	93280	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
98	443218	Industrial	Schlumberger Technology Corp Coil Tubing Services	Schlumberger Coil Tubing Services	34967 Imperial Avenue	Bakersfield	93308	Active
99	196171	Industrial	Schlumberger Well Services	Schlumberger Wireline & Test	2841 Pegasus Dr	Bakersfield	93308	Active
100	439029	Industrial	Scientific Drilling Intl Inc	SDI Bakersfield	31101 Coberly Road	Shafter	93263	Active
101	196068	Industrial	Sierra Recycling & Demo	Sierra Recycling & Demo	1620 E Brundage Ln	Bakersfield	93307	Active
102	196125	Industrial	South Union Truck Repair	South Union Truck Repair	2130 S Union Ave	Bakersfield	93307	Active
103	359111	Industrial	Sunbelt Transformer Ltd	Sunbelt Transformer Ltd	2903 Patton Wy Ste C	Bakersfield	93308	Active
104	196226	Industrial	Sunrise Power Company LLC	Sunrise Power Co LLC	12857 Shale Rd	Fellows	93224	Active
105	196221	Industrial	Taft Union High School District	Taft HS Transportation	701 7th St	Taft	93268	Active
106	196230	Industrial	Taft Production CoOil Dri Corp America	Taft Production Co	950 Petroleum Club Rd	Taft	93268	Active
107	196231	Industrial	Taft Production Company	Taft Production Co	PO Box 1277	Taft	93268	Active
108	439564	Industrial	Key Energy Services LLC	Taft Yard	4300 Midway Road	Taft	93268	Active
109	196232	Industrial	Target Distribution Center	Target Corp Shafter	3880 Zachary Ave	Shafter	93263	Active
110	196220	Industrial	Standard School	Trans	222 Ferguson Ave	Bakersfield	93308	Active
111	196219	Industrial	Taft City School District	Trans Garage	820 6th St	Taft	93268	Active
112	196224	Industrial	Delano Joint Union High School District	Transportation Dept	18 18th And Randolph St	Delano	93215	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
113	306040	Industrial	National Oilwell Varco LP	Tuboscope Pacific Inspection	2910 Wear St	Bakersfield	93308	Active
114	306035	Industrial	National Oilwell Varco LP	Tuboscope Pacific Inspection	7102 Downing Ave	Bakersfield	93308	Active
115	306036	Industrial	National Oilwell Varco LP	Tuboscope Sucker Rods	4621 Burr St	Bakersfield	93308	Active
116	196081	Industrial	Western Auto Recycling	U Pick U Save Auto Dismantling	1945 S Union Ave	Bakersfield	93307	Active
117	196248	Industrial	Jose Alvarez	Union Auto Wrecking	2021 S Union Ave	Bakersfield	93307	Active
118	281954	Industrial	United Rentals North America Inc	United Rentals Branch No 434	6045 Rosedale Hwy	Bakersfield	93308	Active
119	337738	Industrial	United Parcel Freight	UPS Ground Fright Inc	600 S Williams St	Bakersfield	93305	Active
120	196179	Industrial	63d Regional Support Command	US Army Reserve Ctr Wilkson Hall	4101 Chester Ave	Bakersfield	93301	Active
121	196090	Industrial	West Coast Wood Preserving LLC	West Coast Wood Preserving	5601 District Blvd	Bakersfield	93313	Active
122	196116	Industrial	Western Scrap Inc	Western Scrap Inc	7200 Downing Ave	Bakersfield	93308	Active
123	196162	Industrial	CalMat Co dba Vulcan Materials Co	Wheeler Ridge	4501 Sabondan	Mettler	93301	Active
124	196166	Industrial	Wholesale Fuels	Wholesale Fuels	2200 E Brundage Ln	Bakersfield	93307	Active
125	400181	Industrial	YRC Worldwide, Inc.	YRC Inc 822	4901 Lisa Marie Ct	Bakersfield	93313	Active
126	431044	Construction	Wal Mart Real Estate Business Trust	2557 3 Walmart Expansion	8400 Rosedale Highway	Bakersfield	93312	Active
127	440120	Construction	Derrels Mini Storage Inc	37 Wilson Satellite	Wilson Rd and Real Rd	Bakersfield	93309	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
128	415107	Construction	99 Cents Only Stores	99 Only Delano	626 Cecil Ave	Delano	93215	Active
129	405753	Construction	Associated Builders and Contractors Central California Chapter	ABC Training Facility	19466 Flightpath Way	Bakersfield	93308	Active
130	438223	Construction	SunEdison	Adobe Solar	Northeast of Adobe Road and David Road	Bakersfield	93307	Active
131	407456	Construction	Aera Energy LLC	Aera Energy Section 27 Water Plant	Section 27 T28S R21E	Lost Hills	93311	Active
132	425519	Construction	MJM Enterprises INC	ARCO AMPM and Retail Center	1801 to 1823 E Brundage Lane	Bakersfield	93301	Active
133	408350	Construction	Housing Authority of the County of Kern	Baker Street Village Phase 1	1006 Baker Street	Bakersfield	93305	Active
134	437482	Construction	MHP Builders Inc	Bakersfield 112 LP	Tract 6338 Poseidon St and Paladino Dr	Bakersfield	93306	Active
135	439795	Construction	MHP Builders Inc	Bakersfield 159 LP	Intersection of McCutchen Road and Breccia Way	Bakersfield	93313	Active
136	420836	Construction	General Services Administraion Pacific Rim Region	Bakersfield Courthouse	510 19th Street	Bakersfield	93301	Active
137	444350	Construction	Bayswater Exploration & Production	Bayswater Paloma 12 33	Pieri Road and Hill Road	Taft	93268	Active
138	442476	Construction	Black Ops Real Estate II LLC	Black Ops II Rosedale	Corner of Rosedale Hwy and Sablewood Road	Bakersfield	93314	Active
139	436287	Construction	Lennar Fresno Inc	Blackhawk Tract 6252	Renfro Road and Noriega Road	Bakersfield	93314	Active
140	364346	Construction	McMillin Real Estate Services LP	Bridgeton	NWC Etchart Rd. and Calloway Dr.	Bakersfield	93314	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
141	442901	Construction	Buttonwillow Recreation and Park District	Buttonwillow 12 Acre Park	556 Milo Avenue	Buttonwillow	93206	Active
142	433019	Construction	North Kern Water Storage District	Calloway Canal Cross Valley Canal Intertie Canal	Rosedale Highway and Coffee Road	Bakersfield	93308	Active
143	423883	Construction	Caterpillar Inc	Caterpillar Inc DC4	xx Santa Elena Dr	Lebec	93243	Active
144	438837	Construction	Chevron USA Incorporated	Chevron Parking Lot	9500 Ming Avenue	Bakersfield	93311	Active
145	442570	Construction	DB Bakersfield LLC	CHP Field Dispatch Office Relocation	9855 Campagnoni Street	Bakersfield	93313	Active
146	425668	Construction	Clinica Sierra Vista	Clinica Sierra Vista Greenfield	9001 South H Street	Bakersfield	93307	Active
147	438229	Construction	CSU Bakersfield	CSUB Student Housing Project	9001 Stockdale Highway	Bakersfield	93311	Active
148	422335	Construction	Chevron North America Exploration and Production	Cymric 1Y Gauge Setting 5	3646 W Reward Road	McKittrick	93251	Active
149	436581	Construction	Chevron USA Inc	Cymric Diatomite Gauge Setting 99	West of Franco Western Road	Bakersfield	93251	Active
150	441564	Construction	Delano Growers Grape Products	Delano Growers	32351 Bassett Avenue	Delano	93215	Active
151	437821	Construction	DR Horton	Diamond Ridge	McKee Road and Mountain Ridge Drive	Bakersfield	93313	Active
152	439511	Construction	City of Bakersfield	DR MARTIN LUTHER KING JR BOULEVARD	815 Dr Martin Luther King Jr Blvd	Bakersfield	93307	Active
153	428782	Construction	JEC Panama LLC	Gosford Apartments	4900 Gosford Road	Bakersfield	93313	Active
154	443444	Construction	Castle & Cooke California Inc	Gosford Villiage Superpads Chilis ect	5397 5419 and 5443 Gosford Road	Bakersfield	93313	Active
155	401989	Construction	Bolthouse Properties LLC	Grand Island Village	NWC of Ming Ave and Buena Vista Rd	Bakersfield	93301	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
156	431856	Construction	HealthSouth	Health South 20 Bed Addition	5001 Commerce Drive	Bakersfield	93309	Active
157	437701	Construction	Kern County Water Agency	Henry C Garnett Water Purification Plant	811 Nadine Lane	Bakersfield	93308	Active
158	441477	Construction	City of Bakersfield	Hosking Avenue Widening & Related Improvements	2833 Hosking Avenue	Bakersfield	93313	Active
159	440642	Construction	City of Bakersfield	Hosking Stockpile	Hosking at SR 99	Bakersfield	93307	Active
160	441005	Construction	CITY OF SHAFTER	ITTC BNSF Rail Project	Driver Road	Shafter	93263	Active
161	435823	Construction	Ross Dress For Less Inc	JMM Distribution Center	Northwest corner of Zachary Avenue and Imperial Street	Shafter	93263	Active
162	403645	Construction	Julianas Garden LLC	Julianas Garden Tract 6452	SEC City Hills Dr & Canteria Dr	Bakersfield	93306	Active
163	436205	Construction	Promotora Jardines Del Eden	Julianas Garden Tract No 6452 Ph1 and 2	City Hills Drive and Garden Park	Bakersfield	93306	Active
164	422874	Construction	Pacific Gas and Electric Company	Kern Power Plant	2401 Coffee Road	Bakersfield	93312	Active
165	402818	Construction	650 Hail Ln LP	McFarland Family Apartments	SE Corner of Elmos Hwy & Kendrea St	Mc Farland	93250	Active
166	442538	Construction	Chevron Environmental Management Company	McKittrick Mine Pit No 2	3646 Reward Road	Mc Kittrick	93251	Active
167	443929	Construction	Seven Oaks Assisted Living and Memory Care LLC	Memory Care & Assisted Living at Seven Oaks	4225 Buena Vista Road	Bakersfield	93311	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
168	437304	Construction	Memorial Medical Plaza LLC	Millennium Surgery Center	3850 San Dimas	Bakersfield	93301	Active
169	440907	Construction	City of Bakersfield	Mohawk Street Improvements	2779 Mohawk Street	Bakersfield	93308	Active
170	440905	Construction	CITY OF BAKERSFIELD	Morning Drive	Morning Drive and SR 178	Bakersfield	93306	Active
171	436642	Construction	Lennar Fresno Inc	Mountain Gate 1	Mountain Ridge Drive and McKee Road	Bakersfield	93313	Active
172	410711	Construction	Kern High School District	New Continuation High School	3700 East Belle Terrace	Bakersfield	93309	Active
173	421271	Construction	Bakersfield City School District	New Elementary & Middle School	xx Vineland Rd	Bakersfield	93305	Active
174	442956	Construction	Kern County	New ITS Building	4175 Mount Vernon Avenue	Bakersfield	93306	Active
175	427517	Construction	Kern High School District	North High School	300 Galaxy Avenue	Bakersfield	93308	Active
176	354456	Construction	Western Properties	Northshore Apt Complex	5601 Coffee Rd	Bakersfield	93312	Active
177	444336	Construction	First Solar	OLD RIVER ONE SOLAR	South and West of intersection Shafter Rd and Ashe Rd	Bakersfield	93313	Active
178	432250	Construction	DR Horton	Palomino	Intersection of Heath Road and Meacham Road	Bakersfield	93314	Active
179	441305	Construction	City of Bakersfield	Panama Lane Pavement Rehabilitation 2013 phase 2	1304 Panama Lane	Bakersfield	93307	Active
180	442517	Construction	M and L LLC	Pandol Bros	33164 Pond Road	Delano	93215	Active
181	441051	Construction	City of Bakersfield	Pavement Rehab Beale Ave	1911 Beale Ave	Bakersfield	93305	Active
182	430219	Construction	Plains LPG Services Limited Partnership	Plains LPG Services Office Building	19430 Beech Avenue	Shafter	93263	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
183	440549	Construction	Pacific Gas and Electric Company	Poso Mountain Substation New Bank	Bakersfield Glennville Road	Bakersfield	93308	Active
184	417389	Construction	Prince Properties	Prince Truck Stop	None	Bakersfield	93313	Active
185	433735	Construction	Pacific Gas and Electric Company	Region 5F Electric Capacity Bundled Services	Near Bronze Hill Road Segment 1104	Oildale	93308	Active
186	438200	Construction	SunEdison	Regulus Solar	13651 East Panama Lane	Bakersfield	93307	Active
187	431540	Construction	Rio Bravo Investment Group LLC	Rio Bravo Cancer and Imaging Center	4500 Morning Drive	Bakersfield	93306	Active
188	431421	Construction	Nickel Family LLC	Rio Bravo Diversion Dam Dredging Project	999999 Highway 178	Bakersfield	93306	Active
189	310157	Construction	Meritage Homes	Saddleback	Rudd and Hageman Rd	Bakersfield	93301	Active
190	405946	Construction	Baker 60 LLC	Scottish Isles Tract 6463	fairfax newquist	Bakersfield	93306	Active
191	419195	Construction	Bolthouse Properties LLC	Seven Oaks Business Park PM 11952 Bolthouse Properties	Parcel 1 of PM 11952	Bakersfield	93311	Active
192	444581	Construction	City of Bakersfield	SR 178 and Masterson	12234 California 178	Bakersfield	93306	Active
193	442497	Construction	City of Bakersfield	State Route 58 Gap Closure	State Route 58 between Hwy 99 and Cottonwood	Bakersfield	93301	Active
194	366120	Construction	Semitropic Water Storage District	SWSD North South In Lieu Project	24371 Hwy 46	Wasco	93280	Active
195	441368	Construction	CITY OF SHAFTER	Tank and Booster Station 5	33101 Lerdo Highway	Shafter	93263	Active
196	441494	Construction	Housing Authority of the County of Kern	The Residences of Old Town Kern	SWC of Lake Street and Baker Street	Bakersfield	93305	Active
197	443625	Construction	Castle & Cooke California Inc	The Shops at Riverwalk Phase 2B w 3 and 5	Along Stockdale Hwy South of Buena Vista Road	Bakersfield	93311	Active
198	279274	Construction	Lennar Fresno Inc	Tr 6453 Lin Annex	Allen Road At Reina Road	Bakersfield	93312	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
199	403936	Construction	Casa Bella Partners LLC	Tract 6333 Ph 2	S Union and Panama Ln	Bakersfield	93307	Active
200	309046	Construction	Lennar Fresno Inc	Tract 6343	NW Corner Calloway Dr and Etchard Rd	Bakersfield	93312	Active
201	433371	Construction	Palma Homes Inc	Tract 6454	NW Wible Road and Hosking Road	Bakersfield	93311	Active
202	439533	Construction	Beazer Homes Holdings Corp	Tract 6553 Asheland Meadows	Panama Lane and Mountain Ridge Road	Bakersfield	93308	Active
203	435814	Construction	Meritage Homes	Tract 6557 Phase 1	Stine and Berkshire Road	Bakersfield	93313	Active
204	439303	Construction	Froehlich Inc	Tract 6796 Phase 1	Jenkins and Brimhall	Bakersfield	93314	Active
205	439312	Construction	Meacham64 LLC	Tract 6817	NE Corner of Renfro Road Meacham Road	Bakersfield	93314	Active
206	402988	Construction	Cavu Rock Properties Project I LLC	Tract 6850 Phase 1 & 2	11200 Lake Ming Rd	Bakersfield	93306	Active
207	436906	Construction	Summit Capital Ventures Inc	Tract 6853	Calloway Frontage Road and El Toro Viejo	Bakersfield	93312	Active
208	444292	Construction	Benchmark Communities	Tract 7222 Parcel 1 Panama	Panama Ln between Stine and Ash	Bakersfield	93313	Active
209	443952	Construction	Black Ops Real Estate LLC	Tract 7222 Parcel 2 Panama	Panama Ln between Stine and Ash	Bakersfield	93313	Active
210	441284	Construction	D&A Premier Properties LLC	Tract Map No 6410	Akers Road and Taft Highway	Bakersfield	93313	Active
211	279271	Construction	Lennar Fresno Inc	Tradewinds	Harris Road and Gosford Rd	Bakersfield	93309	Active
212	429101	Construction	Dipmala Enterprises	Travelers Oasis	Zachary Avenue and Merced Avenue	Bakersfield	93308	Active
213	279272	Construction	Lennar Fresno Inc	Treasures	Ashe Road At Panama Lane	Bakersfield	93309	Active
214	437637	Construction	City of Bakersfield	Truxtun Ave Pavement Rehabilitation 2011 Phase 1	4101 Truxtun Avenue	Bakersfield	93309	Active
215	401928	Construction	Venoco Inc	Venoco Inc Gooselake 1 to 9	N of Sullivan Rd & E of Inter 5	Buttonwillow	93206	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
216	421714	Construction	VDC LLC	Villa Del Caribe Tract 6416	NE Corner of Perkins and Garzoli Roads	McFarland	93250	Active
217	437823	Construction	DR Horton	Village Green	Stockdale Hwy and Wildrye Way	Bakersfield	93314	Active
218	442212	Construction	Kern Land Partners LLC	VTTM 7239 River Run	River Run Blvd and Elkhorn Creek ln	Bakersfield	93311	Active
219	439283	Construction	Wal Mart Stores Inc	Walmart 3140 000	SWC Chester Avenue and Day Avenue	Bakersfield	93308	Active
220	442654	Construction	MG 88 Corporation	West Day Street Apartments	609 West Day Street	Bakersfield	93308	Active
221	433370	Construction	Standard Pacific Corp	West Village	Stine Road and McCutchen Road	Bakersfield	93313	Active
222	430552	Construction	Lennar Fresno Inc	Weston 2	Wible Road and Rawhide Road	Bakersfield	93313	Active
223	437498	Construction	City of Bakersfield	Westside Parkway Phase 6C	WSP between Heath and Allen Road	Bakersfield	93314	Active
224	433300	Construction	Standard Pacific Corp	Windwood	Harris Rd and Mt Vista Dr	Bakersfield	93313	Active
225	434781	Caltrans Construction	Caltrans District 06	060G8304 ker 99	1824 Norris Road	Bakersfield	93308	Active
226	441399	Caltrans Construction	Caltrans District 06	califronia on Ramp to SB 99	California Ave at Rte 99	Bakersfield	93304	Active
227	441694	Caltrans Construction	Caltrans District 06	Ker 99 North Widening	Route 99 PM 27	Bakersfield	93308	Active
228[(a)]	430477	Construction	CL Knox Incorporated dba Advanced Industrial Services	Advanced Industrial Services	Parcels 2 18 19 of Parcel Map 11596	Bakersfield	93308	Active
229[(a)]	442771	Construction	Bakersfield Crude Terminal LLC	Bakersfield Crude Terminal LLC	999999 Santiago Road	Taft	93268	Active
230[(a)]	438526	Construction	Hillcrest Beverly Oil Corp	Fixed Tilt Solar Panel Project	none	Bakersfield	93308	Active

Table B-1: List of NPDES Dischargers in Project Area

No.	ID	Program	Discharger	Facility Name	Street Address	City	Zip Code	Status
231[(a)]	420515	Construction	SunnyGem LLC	Lerdo Almond Huller	West Lerdo Hwy	Wasco	93280	Active
232[(a)]	297135	Construction	Old River Road LLC	Old River Road LLC	SWC Old River Road & Chipmunk St	Bakersfield	93311	Active
233[(a)]	442105	Construction	Park Square at Seven Oaks Partners LLC	Park Square Apartments at Seven Oaks	11325 Park Square Drive	Bakersfield	93311	Active
234[(a)]	439318	Construction	DR Horton	Rio Bravo	Via Bassano Drive	Bakersfield	93306	Active
235[(a)]	437127	Construction	Old River Road LLC	Tract 6678	Panama Lane	Bakersfield	93311	Active

Notes: Source – California SWRCB (CA SWRCB 2014a)

(a) Locations not mapped in Section 3 Figure 3-6 due to unclear or non-existent address provided

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
1	A B Land Development Inc	GOLDEN HILLS COUNTRY CLUB	22630 WOODFORD-TEHACHAPI, Tehachapi, CA 93561	Recycled Water Use Area	REC	Active	Reclamation Requirements	81-123	5D151078001	12/11/1981
2	Aera Energy LLC	AERA ENERGY EMPLOYEE HOUSING	CA	Wastewater Treatment Facility	WDRMUNIOTH	Active	WDR	74-225	5D152053001	3/22/1974
3	Aera Energy LLC	Aera Drilling Mud Discharges, Midway-Sunset Oil Field	Midway-Sunset Oil Field, Taft, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00159	12/4/2013
4	Aera Energy LLC	Aera Drilling Fluid Discharges, Lost Hills Oil Field	Lost Hills Oil Field, Lost Hills, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00160	12/4/2013
5	Aera Energy LLC	Aera Drilling Fluid Discharges, S. Belridge Oil Field	South Belridge Oil Field, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00158	12/4/2013
6	Aera Energy LLC	Aera Drilling Fluid Discharges, N. Belridge Oil Field	N. Belridge Oil Field, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00157	12/4/2013

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
7	Aera Energy LLC	Aera Drilling Mud Discharges, Mckittrick Oil Field	McKittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00171	12/27/2013
8	Aera Energy LLC	Aera Drilling Fluid Discharges, Cymric Oil Field	McKittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00172	12/27/2013
9	Alon Bakersfield Property, Inc.	Alon Bakersfield Refinery	6451 ROSEDALE HWY, Bakersfield, CA 93308	Petroleum Refinery	WDRINDIVLRG	Active	WDR	91-102	5D152015002	4/26/1991
10	Arvin City	ARVIN WWTF	PO BOX 548, Arvin, CA 93203	Wastewater Treatment Facility	WDR, WDRMUNILRG	Active	WDR	00-093	5D150107001	4/28/2000
11	BELLAIRE OIL COMPANY	EDISON, SADIE ANDREWS	SW1/4,NW1/4,Sec 33,T29S,R29E, Bakersfield, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	92-110	5D159016001	5/29/1992
12	BOB FERGUSON	ASPHALTO, GOVT-FERGUSON(A)	NW 1/4 NW1/4 SEC 26 T30S R22E, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	R5-2004-0056	5D153093001	4/23/2004
13	BOLTHOUSE, W M	BOLTHOUSE BAKERSFIELD CARROT PLANT	7200 BRUNDAGE, Bakersfield, CA 93307	Food Processor	WDRINDIVLRG	Active	WDR	5-00-150	5D151194001	6/16/2000

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
14	BOLTHOUSE, W M	Grimmway West Plant	29750 HWY 58, Buttonwillow, CA 93206	Food Processor	WDRINDIVLRG	Active	WDR	5-00-152	5D152211001	6/16/2000
15	Baker Petrolite Corporation	BAKER PETROLITE TAFT PRODUCTION FACILITY	19815 Lake, Taft, CA	Manufacturing NEC	WDRINDIVSML	Active	WDR	00-225	5C15NC00007	10/27/2000
16	Bakersfield City	BAKERSFIELD RECYCLING PROJECT	ADJ TO CITY PLANT #2, Bakersfield, CA 93307	Recycled Water Use Area	REC	Active	Reclamation Requirements	82-049	5D151160001	4/23/1982
17	Bakersfield City	BAKERSFIELD WWTP #2	1700 PLANZ, Bakersfield, CA 93307	Wastewater Treatment Facility	WDR, WDRMUNILRG	Active	WDR	R5-2009-0122	5D150100001	12/10/2009
18	Bakersfield City	BAKERSFIELD WWTP #3	8101 ASHE Road, Bakersfield, CA 93313	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	R5-2009-0087	5D150100002	8/13/2009
19	Berry Petroleum Company	POSO CREEK, USL	SW1/4 SEC14, T27S, R27E, MDB&M, Bakersfield, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	R5-2002-0067	5D153085005	4/26/2002
20	Berry Petroleum Company	Berry Drilling Mud Discharges, McKittrick Oil Field	McKittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00170	1/2/2014

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
21	Berry Petroleum Company	Berry Drilling Mud Discharges, Midway-Sunset Oil Field	Taft, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00169	1/2/2014
22	BreitBurn Operating LP	BrietBurn Drilling Fluid Discharges, N and S Belridge Oil Fields	Lost Hills, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00181	2/26/2014
23	Buttonwillow CWD	Buttonwillow WWTF	1/2 MI N OF BUTTONWILLOW, Buttonwillow, CA 93206	Wastewater Treatment Facility	WDR, WDRMUNILRG	Active	WDR	R5-2009-0123	5D150101001	12/10/2009
24	CATHER-HERLEY OIL COMPANY	ASPHALTO, CA FEDERAL (A)	NE1/4,NW1/4,SEC 26,T30S,R22E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	R5-2004-0057	5D153091002	4/23/2004
25	CRIMSON RESOURCE MGMT CORP	ASPHALTO, ASPHALTO STANDARD	SEC 23, T30S, R22E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	R5-2004-0058	5D153215001	4/23/2004
26	Ca Dept of Corrections Sacramento	CCI TEHACHAPI UST CLEANUP	24900 STATE HWY 202, Tehachapi, CA 93581	Prison	WDRNONMUNIPRCS	Active	WDR	R5-2005-0021	5C15NC00061	1/27/2005
27	Ca Dept of Corrections Soledad	Kern Valley State Prison WWTF	29393 CECIL AVENUE, Delano, CA 93215	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	R5-2007-0090	5C15NC00056	6/22/2007

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
28	Ca Dept of Corrections Soledad	Tehachapi Correctional Inst WWTF	End of Highway 202, Tehachapi, CA 93561	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	R5-2011-0007	5D150803001	2/3/2011
29	Ca Dept of Corrections Soledad	Wasco State Prison WWTF	15215 SCOFIELD, Wasco, CA 93280	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	90-217	5D150803003	8/10/1990
30	Ca Dept of Corrections Soledad	CDC Tehachapi Prison Biosolids Project	Tehachapi, CA	Prison	WDRMUNIENROTH	Active	Enrollee	2004-0012-DWQ	5C15NC00117	5/18/2010
31	Ca Dept of Transportation District 6 Sacramento R5F	LEBEC SRRA (TEJON PASS)	I-5 NEAR LEBEC, Lebec, CA	Wastewater Treatment Facility	WDRMUNIOTH	Active	WDR	93-051	5D150801001	3/26/1993
32	Cawelo Water District	CAWELO RESERVOIR B	Oildale, CA	Recycled Water Use Area	NPDESWW, NPDINDLRG, WDRNONMUNIPRCS	Active	WDR	R5-2012-0059	5D152013001	6/8/2012
33	Cawelo Water District	PRODUCED WATER RECL PROJECT	CAWELO RESERVOIR B, Oildale, CA 93388	Recycled Water Use Area	NPDMINING, WDRMINING	Active	WDR	R5-2012-0058	5D153020018	6/8/2012

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
34	Chevron USA Inc Bakersfield	CHEVRON BKSFLD FORMER REFINERY	CHINA GRADE LOOP/MANOR, Bakersfield, CA 93308	Petroleum Refinery	SLIC, WDRNONMUNIPRCS	Active	Enrollee	R5-2003-0044	5D156001001	3/14/2003
35	Chevron USA Inc Bakersfield	PRODUCED WATER RECL PROJECT	CAWELO RESERVOIR B, Oildale, CA 93388	Recycled Water Use Area	NPDMINING, WDRMINING	Active	WDR	R5-2012-0058	5D153020018	6/8/2012
36	Chevron USA Inc Bakersfield	Chevron U.S.A. Drilling Fluid Discharges, Lost Hills Oil Field	Lost Hills Oil Field, Lost Hills, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00177	2/11/2014
37	Chevron USA Inc Bakersfield	Chevron U.S.A. Drilliing Mud Discharges, Cymric Oil Field	Cymric Oil Field, Mckittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00178	2/11/2014
38	Chevron USA Inc Bakersfield	Chevron U.S.A. Drilling Mud Discharges, Midway-Sunset Oil Field	Midway-Sunset Oil Field, Taft, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00179	2/11/2014
39	Clean Energy Systems Inc	KIMBERLINA POWER PLANT	16000 DRIVE ROAD, Bakersfield, CA 93308	Power Plant	WDRNONMUNIPRCS	Active	Enrollee	R5-2008-0182	5C15NC00060	1/28/2004
40	Concordia Ranch, LLC	Hathaway Kern Front Oilfield Lease Water Reuse Project	TBD Oilfield Road, Bakersfield, CA	Oil/Gas Extraction	REC	Active	Waiver	R5-2011-0077	5C15NC00118	10/13/2011

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
41	DELANO GROWERS GRAPE PRODUCTS	DELANO Growers Grape Products	32351 BASSETT, Delano, CA 93215	Food Processor	WDRINDFP	Active	WDR	86-068	5D152072001	3/28/1986
42	Delano City	Delano WWTF	AVE 278, Delano, CA 93215	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	5-01-247	5D150102001	10/19/2001
43	Delano City	Delano Biosolids Application Site	Near Lytle Road and Garces Highway, CA	Composting Facility	WDRMUNIENROTH	Active	Enrollee	2004-0012-DWQ	5C15NC00120	2/11/2014
44	Desert Farms of California	LOST HILLS RANCH EVAP BASIN	S23, T27S, R22E, Kern County, CA	Waste Pile	WDR	Active	WDR	93-160	5D155007001	8/6/1993
45	E & B Natural Resources Management Corporation	JOL-23 LEASE, JASMIN OIL FIELD	W1/2 of SEC 23,T25S,R27E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	68-206	5D152119001	4/11/1968
46	E & B Natural Resources Management Corporation	E&B Natural Resources Drilling Fluid Discharges, Poso Creek Oil Field	Oildale, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00176	2/10/2014
47	E & B Natural Resources Management Corporation	E&B Drilling Fluid Discharges, McDonald Anticline Oil Field	McDonald Anticline Oil Field, Lost Hills, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00182	4/8/2014

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
48	Five & Forty Six Property Owners Association	FIVE AND FORTY SIX WWTF	HWY 46 & I-5, Lost Hills, CA 93249	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	R5-2007-0151	5D151024001	10/26/2007
49	Freeport-McMoRan Oil and Gas	Freeport-McMoRan Drilling Sump, S. Belridge Oil Field	S. Belridge Oil Field, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00165	12/16/2013
50	Freeport-McMoRan Oil and Gas	Freeport Drilling Mud Sumps, Cymric Oil Field	Mckittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00168	12/24/2013
51	Freeport-McMoRan Oil and Gas	Freeport-McMoRan Drilling Mud Discharges, Midway-Sunset Oil Field	Midway-Sunset Oil Field, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00166	12/16/2013
52	Frito-Lay, Inc	Frito-Lay Chips & Pretzels Mfg Plant	22801 HWY 58, Bakersfield, CA 93312	Food Processor	WDRINDFP	Active	WDR	95-197	5D152033001	8/17/1995
53	GRIFFIN RESOURCES	MOUNT POSO, POSCAL PAC VILLARD	HWY 65 ON INTERSEC O FAMOSO, Kern County, CA	Oil/Gas Extraction	NPDESWW, WDRMINING	Active	WDR	R5-2002-0108 (NON15)	5C15NC00094	10/26/2007
54	Giumarra Vineyards Corporation	Giumarra Vineyards - EDISON WINERY	11220 Edison Highway, Edison, CA 93307	Food Processor	WDRINDIVLRG	Active	WDR	74-066	5D152006001	10/26/1974

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
55	Golden Hills Sanitation Co, Inc	Golden Hills WWTF	Tehachapi, CA 93561	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	81-122	5D151027001	12/11/1981
56	Golden State Vintners Franzia McFarland	MCFARLAND WINERY	31795 WHISTLER, Mcfarland, CA 93250	Food Processor	WDRINDFP	Active	WDR	91-040	5D152039001	1/25/1991
57	Grimmway Enterprises, Inc	Grimmway Fresh Processing	11412 MALAGA, Arvin, CA 93203	Food Processor	WDRINDFP	Active	WDR	01-014	5D152210002	1/26/2001
58	Grimmway Enterprises, Inc	GEI CAL-ORGANIC	12000 Main Street, Lamont, CA 93241	Food Processor	WDRINDFP	Active	WDR	R5-2012-0124	5C15NC00110	12/7/2012
59	Grimmway Enterprises, Inc	Grimmway Premier Packing	6301 South Zerker Road, Shafter, CA 93623	Food Processor	WDRINDFP	Active	WDR	01-140	5C15NC00025	7/14/2001
60	Grimmway Enterprises, Inc	Grimmway Mountain View Facility	6900 MOUNTAIN VIEW, Lamont, CA 93241	Food Processor	WDRINDIVLRG	Active	WDR	00-180	5D152209002	8/4/2000
61	Grimmway Frozen Foods, Inc	Grimmway Frozen Foods	830 East Sycamore, Arvin, CA 93203	Food Processor	WDRINDFP	Active	WDR	01-022	5D152209001	1/26/2001
62	HATHAWAY LLC	JASMIN, QUINN	W1/2,SEC15,T25 S,R27E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDR	Active	WDR	98-205	5D152135001	10/23/1998
63	HATHAWAY LLC	Hathaway Kern Front Oilfield Lease Water Reuse Project	TBD Oilfield Road, Bakersfield, CA	Oil/Gas Extraction	REC	Active	Waiver	R5-2011-0077	5C15NC00118	10/13/2011

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
64	HECK CELLARS	Heck Cellars	1 BEAR MOUNTAIN, Di Giorgio, CA 93217	Food Processor	WDRINDFP	Active	WDR	86-090	5D152038001	4/25/1986
65	HOWARD E CAYWOOD, INC	MIDWAY SUNSET, SEC 19 & 24 Leases	N1/4 SEC19,T31S R23E MDB&M, Taft, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	R5-2005-0163	5C15NC00065	10/21/2005
66	Hageman Properties LLC	Creekside RV Park	4949 Dennis McCarthy Drive, Bakersfield, CA 93307	Wastewater Treatment Facility	WDRMUNIENROTH	Active	Enrollee	97-010-DWQ	5C15NC00107	10/12/2010
67	Hart Creek Estates Mutual Water Company	Hart Creek Estates WTP	Carlyle Springs Road near Valley Oak Road, Keene, CA	Water Treatment Plant	WDRNONMUNIPRCS	Active	Enrollee	R5-2008-0182	5C15NC00121	11/10/2010
68	Holmes Western Oil Corporation	Holmes Drilling Mud Discharge, Midway-Sunset	Midway-Sunset Oil Field, Taft, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00156	12/4/2013
69	Horizon Nut LLC	Horizon Nut LLC - Lost Hills	14663 HIGHWAY 33, Lost Hills, CA 93249	Food Processor	WDRINDFP	Active	WDR	R5-2013-0006	5C15NC00089	2/1/2013
70	I-5 UTILITY COMPANY, INC	I-5 & Highway 58 WWTF	HWY 58 AT I-5, Buttonwillow, CA 93206	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	R5-2007-0152	5D151006001	10/26/2007
71	JG Boswell Tomato Company LLC	J G BOSWELL TOMATO, KERN FACILITY	36889 HIGHWAY 58, Buttonwillow, CA 93206	Food Processor	WDRINDFP	Active	WDR	R5-2008-0067	5C15NC00017	4/25/2008

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
72	JHAJ, GURVINDER S.	COMANCHE SHELL STATION - OWTS	Intersection of Comanche & Edison HWY, Bakersfield, CA 93306	Wastewater Treatment Facility	WDRMU NIENROTH	Active	Enrollee	97-010-DWQ	5C15NC00097	2/18/2009
73	Kern Cnty Eng & Surveying Services Dept	Kern Cnty CSA 39-Zone 2	ADJ HWY 178, Lake Isabella, CA 93240	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	74-370	5D150303020	6/28/1974
74	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 54 TRACTS 3906-3909	CSA #54, FRUITVALE, Bakersfield, CA 93301	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	78-009	5D150121001	1/27/1978
75	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 30.2 TRACT 3902	Kern County, CA	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	78-013	5D150120001	1/27/1978
76	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 56 TRACT 3848	ROSEDALE HWY & NORD AVE, Kern County, CA	Wastewater Treatment Facility	WDRMU NIENROTH, WDRMU NIOTH	Active	Enrollee	97-010-DWQ	5D151089001	1/17/2014
77	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 54 TRACT 3707	VERDUGO LN & HAGEMAN, Bakersfield, CA	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	75-116	5D151086001	5/23/1975

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
78	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 58 TRACTS 3619, 3620, 3964	Kern County, CA	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	78-219	5D1510 53001	11/17/1978
79	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 71.3 TRACT 3695	ROSEDALE, Bakersfield, CA	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	75-023	5D1510 22001	2/28/1975
80	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 51 LOS PADRES ESTATES	O'NIEL CANYON, Kern County, CA	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	74-018	5D1510 02001	7/27/1974
81	Kern Cnty Eng & Surveying Services Dept	KERN CO CSA 40-PINE MOUNTAIN CLUB	2524 BEECHWOOD, Frazier Park, CA 93225	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	75-235	5D1501 03001	10/24/1975
82	Kern Cnty Housing Authority	North Shafter Farm Labor Camp	P O BOX 638 (CENTRAL VALLEY H, Shafter, CA 93263	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	00-049	5D1501 11001	3/17/2000
83	Kern Cnty Waste Mgmt Dept	Kern Cnty Buena Vista Aquatic Rec Area	Kern County, CA	Campground	WDR, WDRMU NILRG	Active	WDR	86-104	5D1503 03023	5/30/1986

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
84	Kern Cnty Waste Mgmt Dept	Kern Cnty Sheriff's Lerdo WWTF	N/E LERDO HIGHWAY & QUALITY RD, Shafter, CA	Wastewater Treatment Facility	REC, WDRMU NILRG	Active	WDR	84-148	5D1501 06001	11/28/1984
85	Kern Cnty Waste Mgmt Dept	Kern Cnty CSA 39.8-Reeder Tract	2150 Edith Street, Lake Isabella, CA 93240	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	88-096	5D1503 03029	6/22/1988
86	Kern Front Sec 35 Partners	KERN FRONT, SIGNAL	SEC 35,T28S,R27E,MD B&M, Kern County, CA	Oil/Gas Extraction	WDRMIN ING	Active	WDR	82-064	5D1521 48001	6/25/1982
87	Kern Oil & Refining Company	MT VIEW REFINERY	Bakersfield, CA	Petroleum Refinery	WDR, WDRIND IVLRG	Active	WDR	89-217	5D1520 69001	10/27/1989
88	Kern Ridge Growers, LLC	Kern Ridge Growers Arvin Packing Shed	25407 BARBARA, Arvin, CA 93203	Food Processor	WDRIND FP	Active	WDR	00-249	5D1520 78001	10/27/2000
89	Kern Sanitation Authority	Kern Sanitation Authority WWTF	HWY 58 & QUANTICO, Bakersfield, CA	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	91-155	5D1501 05001	6/28/1991
90	Kern Valley Hospital District	Kern Valley Hospital WWTF	6412 LAUREL, Mountain Mesa, CA 93240	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	R5-00-037	5D1511 63001	3/17/2000
91	LAMONT PUD	LAMONT WWTF	6525 East Bear Mountain Road, Lamont, CA 93241	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	R5-2012-0043	5D1501 08001	6/8/2012

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
92	LOST HILLS UTILITY DISTRICT	LOST HILLS WWTF	21331 HWY 46, Lost Hills, CA 93249	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	87-113	5D150114001	6/26/1987
93	Lake Isabella Water Facility, LLC	ECSSCO Lake Isabella WWTF	Erskine Creek and Lake Isabella Boulevard, Lake Isabella, CA 93240	Wastewater Treatment Facility	WDRMUNIOTH	Active	WDR	84-149	5D151091001	11/28/1984
94	Los Angeles City	BAKERSFIELD GREEN ACRES	I-5 & TAFT HWY, Kern County, CA	Recycled Water Use Area	REC	Active	Reclamation Requirements	88-172	5D152105001	9/23/1988
95	MACKLIN PACKING COMPANY	MACKLIN PACKING COMPANY	25453 BARBARA Street, Arvin, CA 93203	Food Processor	WDRINDFP	Active	WDR	95-210	5D151207001	8/17/1995
96	MACPHERSON OIL CO	Macpherson Drilling Mud Discharges, Rd Mtn Oil Field, Main Area	CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00163	12/13/2013
97	MACPHERSON OIL CO	Macpherson Drilling Fluid Discharges, Rd Mtn Oil Field, Coffee Canyon Area	Oildale, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00174	1/10/2014
98	MACPHERSON OIL CO	Macpherson Drilling Mud Discharges, Rd Mtn Oil Field, Pyramid Area	CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00164	12/13/2013

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
99	MELLENIUM PACIFIC ASSET	Hi-Ho Lodge & MHP	11901 Sierra, Kernville, CA 93238	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	00-018	5D1510 32001	1/28/2000
100	MINTER FIELD AIRPORT DISTRICT	Shafter Airport WWTF	201 Aviation Street, Shafter, CA 93263	Wastewater Treatment Facility	REC, WDR, WDRMU NILRG	Active	WDR	86-159	5D1501 04001	8/8/1986
101	MONARCH NUT COMPANY, LLC	MONARCH NUT COMPANY	786 ROAD 188, Delano, CA 93215	Food Processor	WDRIND IVLRG	Active	WDR	92-190	5D5410 70001	9/25/1992
102	Maricopa City	Maricopa Wastewater Disposal Facility	SECT 7,T11N,R23W,SB M, Maricopa, CA	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	00-153	5D1501 23001	6/16/2000
103	McFarland City	McFarland WWTF	MELCHER & ELMO, Mcfarland, CA 93250	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	R5-2008-0072	5D1501 09001	4/25/2008
104	Mil Potero Mutual Water Company	FRAZIER PARK WATER TREATMENT PLANT	Frazier Park, CA 93225	Water Treatment Plant	WDRIND IVLRG	Active	WDR	73-091	5D1520 46001	10/27/1973
105	Molica Farms	DELANO MOLICA FARMS RECYCLING PROJECT	PO BOX 700, Delano, CA 93216	Recycled Water Use Area	REC	Active	Reclamation Requirements	86-078	5D1550 50001	3/28/1986
106	NAFTEX OPERATING CO.	EDISON, CLAFLIN	SEC 26, T29S, R29E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDRMIN ING	Active	Enrollee	92-110	5D1590 56001	5/29/1992

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
107	North of River SD #1	NORSD SILLS RECLAMATION PROJECT	SEVENTH STANDARD, Bakersfield, CA	Recycled Water Use Area	WDRMUNILRG	Active	WDR	R5-2009-0088	5C15NC00090	8/13/2009
108	North of River SD #1	NORSD Biosolids Land	28970 7th Standard Road, Shafter, CA 93263	Waste Pile	WDRMUNIENROTH	Active	Enrollee	2004-0012-DWQ	5C15NC00146	8/13/2013
109	North of River SD #1	North of River WWTF	28970 7th Standard Road, Shafter, CA 93264	Wastewater Treatment Facility	WDRMUNIENROTH, WDRMUNILRG	Active	Enrollee	2004-0012-DWQ	5C15NC00146	8/13/2013
110	Occidental of Elk Hills, Inc	OEHI Drilling Mud Discharges, Asphalto Oil Field	Asphalto Oil Field, Mckittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00150	12/4/2013
111	Occidental of Elk Hills, Inc	OEHI Drilling Mud Discharges, Elk Hills Oil Field	Elk Hills Oil Field, Tupman, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00153	12/4/2013
112	Occidental of Elk Hills, Inc	OEHI Drilling Mud Discharges, North Midway-Sunset Oil Field	North Midway-Sunset Oil Field, Mckittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00152	12/4/2013
113	Occidental of Elk Hills, Inc	OEHI Drilling Mud Discharges, Railroad Gap Oil Field	Railroad Gap Oil Field, Mckittrick, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00151	12/4/2013

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
114	PYRAMID OIL COMPANY	MIDWAY-SUNSET, PIKE LEASE	SW1/4,SEC 28,T32S, R24E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	R5-2002-0197	5D153062002	10/18/2002
115	PYRAMID OIL COMPANY	MIDWAY-SUNSET, SEC 28	NW1/4, SEC28, T32S, R24E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	R5-2002-0196	5C15NC00053	10/18/2002
116	Pacific Gas & Electric Company San Ramon	Line 300A Bear Valley Springs Pipeline Project	5 miles west of Tehachapi, Tehachapi, CA	Recycled Water Use Area	WDR, WDRNONMUNIPRCS	Active	Enrollee	R5-2008-0182	5C15NC00123	8/17/2010
117	Pacific Gas & Electric Company Walnut Creek	Tillema	1129 East Shafter Road, Bakersfield, CA 93307	Recycled Water Use Area	WDRNONMUNIPRCS	Active	Enrollee	2003-0003-DWQ	5C15NC00139	10/26/2011
118	Pacific Gas & Electric Company Walnut Creek	PG&E Hydrostatic Test T-288-13	Tehachapi, CA	Recycled Water Use Area	WDRNONMUNIPRCS	Active	Enrollee	2003-0003-DWQ	5C15NC00149	10/10/2013
119	Pacific Gas & Electric Company Walnut Creek	PG&E Hydrostatic Test T-355-14	Bakersfield, CA	Recycled Water Use Area	WDRNONMUNIPRCS	Active	Enrollee	2003-0003-DWQ	5C15NC00148	10/24/2013
120	Paramount Farms Inc	Paramount Farms King Facility	10429 KING, Lost Hills, CA 93249	Food Processor	WDRINDIVLRG	Active	WDR	96-121	5D151170001	5/3/1996
121	Paramount Farms Inc	Paramount Farms Lost Hills Facility	13646 HWY 33, Lost Hills, CA 93249	Food Processor	WDRINDIVLRG	Active	WDR	99-075	5D152207001	6/11/1999

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
122	Petro Resources Inc	MIDWAY-SUNSET, SP SEC 33	SE1/4,SEC33,T32S,R24E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	R5-2002-0195	5C15NC00054	10/18/2002
123	Petro Resources Inc	MIDWAY-SUNSET, SP SEC 29	NE1/4,SECS 29,T32S, R24E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	R5-2002-0194	5D153019002	10/18/2002
124	Pilot Travel Centers LLC	FLYING J TRAVEL PLAZA-KERN	17047 ZACHARY, Bakersfield, CA 93308	Wastewater Treatment Facility	WDRMUNIOTH	Active	WDR	89-162	5D151178001	9/22/1989
125	R&R RESOURCES, LLC	EDISON, BERRY / B & K	SW 1/4 of Section 33, T29S, R29E, MDB&M, Edison, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	92-110	5D159003001	5/29/1992
126	R&R RESOURCES, LLC	EDISON, LEHR	NW ¼ of Section 33, T29S, R29E, MDB&M, Edison, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	92-110	5D159002001	5/29/1992
127	Responsible Biosolids Mgmt	GREEN ACRES BIOSOLIDS 2	531 CALIFORNIA, Bakersfield, CA 93304	Composting Facility	WDRMUNIENROTH	Active	Enrollee	95-140	5D150200301	6/23/1995
128	Responsible Biosolids Mgmt	GREEN ACRES BIOSOLIDS 1	I-5 & TAFT HWY, Kern County, CA	Composting Facility	WDRMUNIENROTH	Active	WDR	94-286	5D152105002	9/16/1994

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
129	Rio Bravo Jasmin	JASMIN, CANTLEBERRY	NE1/4,SE1/4, SEC22, T25S, R27E, Kern County, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	R5-2002-0065	5D151020001	4/26/2002
130	SOC RESOURCES, INC	MT POSO JONES	E1/2 SE1/4 SEC29 T26S R28E MDB&M, Kern County, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	R5-2006-0050	5C15NC00067	5/5/2006
131	SOC RESOURCES, INC	MT POSO VEDDER-USL	NE1/4 NW1/4 SEC28 T26S R28E, Kern County, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	R5-2006-0051	5C15NC00066	5/5/2006
132	SUN PACIFIC SHIPPERS, L.P.	SUN PACIFIC BAKERSFIELD PACKINGHOUSE	33374 LERDO HWY, Bakersfield, CA 93308	Food Processor	WDRINDFP	Active	WDR	96-169	5D151197001	6/21/1996
133	SUN WORLD, INTERNATIONAL	SUN WORLD COMMODITY CENTER FACILITY	16350 DRIVER, Bakersfield, CA 93309	Food Processor	WDRINDIVLRG	Active	WDR	75-281	5D155000001	12/19/1975
134	SUNNYGEM, LLC	Spicer City Juice Processing Plant	23145 Lerdo Highway, Buttonwillow, CA 93206	Food Processor	WDRINDFP	Active	WDR	R5-2012-0099	5C15NC00136	10/4/2012
135	San Joaquin Refining Company Inc	FRUITVALE REFINERY	STANDARD & SHELL, Bakersfield, CA 93309	Petroleum Refinery	WDR, WDRINDIVLRG	Active	WDR	90-087	5D152019001	3/23/1990

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
136	San Joaquin Refining Company Inc	FRUITVALE REFINERY INJECTION WELL	STANDARD & SHELL, Bakersfield, CA 93309	Petroleum Refinery	WDRINDIVLRG	Active	WDR	91-132	5D152019002	6/28/1991
137	Sandridge Partners, LP	Spicer City Juice Processing Plant	23145 Lerdo Highway, Buttonwillow, CA 93206	Food Processor	WDRINDFP	Active	WDR	R5-2012-0099	5C15NC00136	10/4/2012
138	Schaffer, Jim & Peggy	SAN JOAQUIN RESERVOIRS - SCHAEFER	T26S R27E MDB&M, Kern County, CA	Oil/Gas Extraction	WDRINDIVLRG	Active	WDR	R5-2006-0049	5C15NC00068	5/5/2006
139	Seneca Resources Corporation	Seneca Resources Drilling Mud Discharges, Lost Hills Oil Field	Lost Hills Oil Field, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00161	12/13/2013
140	Seneca Resources Corporation	Seneca Drilling Fluid Discharges, Midway-Sunset	Taft, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00173	12/27/2013
141	Singh, Lexander	Lebec Holiday Inn Express	Wainright Court, Lebec, CA 93243	Wastewater Treatment Facility	WDRMUNIENROTH	Active	Enrollee	97-010-DWQ	5C15NC00077	12/28/2009
142	Stoco Mutual Water & Sewer Company	Stoco WWTF	Kern County, CA	Wastewater Treatment Facility	WDRMUNIOTH	Active	WDR	R5-2007-0153	5D152000001	10/26/2007

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
143	Stonybrook Corporation	Stonybrook WWTF	Keene, CA 93531	Wastewater Treatment Facility	WDRMUNIOTH	Active	WDR	86-032	5D151049001	1/24/1986
144	TEJON GRAPEVINE	TEJON HEADQUARTERS WWTF	R-5, 33 S OF BAKERSFIELD, Kern County, CA	Wastewater Treatment Facility	WDRMUNIENROTH, WDRMUNIOTH	Active	Enrollee	97-010-DWQ	5D151014001	9/11/1998
145	TEJON RANCH COMPANY	Tejon Ranch - Grapevine	GRAPEVINE INTERCHANGE ON I-5, Kern County, CA	Wastewater Treatment Facility	WDRMUNIOTH	Active	WDR	94-224	5D151014002	8/5/1994
146	Taft City	Taft WWTF	AIRPORT, Taft, CA 93268	Wastewater Treatment Facility	NPDESWW, NPDMUNIOTH, WDRMUNILRG	Active	WDR	5-00-080 (N15)	5C15NC00095	4/29/2005
147	Taft City	Taft Federal Prison WWTF	1510 CADET, Taft, CA 93268	Wastewater Treatment Facility	NPDMUNIOTH, WDRMUNILRG	Active	WDR	R5-2009-0054	5C15NC00101	4/24/2009
148	Tehachapi City	Tehachapi WWTF	750 ENTERPRISE WAY, Tehachapi, CA 93561	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	92-047	5D150116001	3/27/1992
149	Tehachapi-Cummings Cnty Water District	Tehachapi-Cummings County Water District	22901 Banducci Road, Tehachapi, CA 93561	Recycled Water Use Area	REC	Active	WDR	R5-2011-0027	5C15WR00002	4/8/2011

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
150	Tejon Castac Water District	Tejon Industrial Complex West WWTF	I-5 AT WHEELER RIDGE, Lebec, CA 93243	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	R5-2008-0004	5D151014003	1/25/2008
151	Tejon Castac Water District	Tejon Industrial Complex East WWTF	Near Wheeler Ridge road and 1st Street, Lebec, CA 93243	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	R5-2011-0066	5C15NC00128	10/13/2011
152	Tejon Ranchcorp	Tejon Industrial Complex West WWTF	I-5 AT WHEELER RIDGE, Lebec, CA 93243	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	R5-2008-0004	5D151014003	1/25/2008
153	Tejon Ranchcorp	Tejon Industrial Complex East WWTF	Near Wheeler Ridge road and 1st Street, Lebec, CA 93243	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	R5-2011-0066	5C15NC00128	10/13/2011
154	The Garlic Storage Company, LLC	THE GARLIC COMPANY LTU	18602 ZERKER, Bakersfield, CA 93314	Food Processor	WDRINDFP	Active	WDR	R5-2013-0150	5D152217001	12/6/2013
155	Travel Centers of America	Truckstops Corp of America	5800 WHEELER RIDGE, Arvin, CA 93203	Wastewater Treatment Facility	WDRMU NIOTH	Active	WDR	01-002	5D151054001	1/26/2001
156	USDI Bureau of Land Management Bakersfield	Maricopa Wastewater Disposal Facility	SECT 7,T11N,R23W,SBM, Maricopa, CA	Wastewater Treatment Facility	WDRMU NILRG	Active	WDR	00-153	5D150123001	6/16/2000

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
157	Valley Water Disposal Company	CAWELO RESERVOIR B	Oildale, CA	Recycled Water Use Area	NPDES WW, NPDINDLRG, WDRNONMUNIPRCS	Active	WDR	R5-2012-0059	5D152013001	6/8/2012
158	Valley Water Disposal Company	Midway-Sunset, (BC1)	SEC 29, T31S, R23E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	01-024	5D152013010	1/26/2001
159	Valley Water Disposal Company	Midway-Sunset, (BC2)	SEC 2, T32S, R23E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	R5-2002-0223	5D152013011	12/5/2002
160	Valley Water Disposal Company	Midway-Sunset, (BV1)	SEC 19,T31S,R23E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	01-026	5D152013006	1/26/2001
161	Valley Water Disposal Company	Midway-Sunset, (BV2)	SEC13&18,T31S, R22&23E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	01-027	5D152013007	1/26/2001
162	Valley Water Disposal Company	Midway-Sunset, Quality	SEC 15, T32S, R23E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	01-028	5D152013005	1/26/2001
163	Valley Water Disposal Company	Midway-Sunset, SE Taft	SECS 17&18,T32S,R24E,MDB&M, Kern County, CA	Oil/Gas Extraction	WDR, WDRMINING	Active	WDR	01-029	5D152013002	1/26/2001

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
164	Vaughn Water Company	Willow Pond Treatment Facility	2358 Willow Pond Street, Bakersfield, CA 93314	Water Treatment Plant	WDRNONMUNIPRCS	Active	Enrollee	R5-2008-0182	5C15NC00129	2/10/2011
165	Vaughn Water Company	Hageman #2 Treatment Facility	15648 Hageman Road, Bakersfield, CA 93314	Water Treatment Plant	WDRNONMUNIPRCS	Active	Enrollee	R5-2008-0182	5C15NC00130	2/16/2011
166	Vintage Production California LLC	KERN FRONT, PRODUCED WATER DITCH	NW 1/4 of Section 23, T28S, R28E, MDB&M Road, Bakersfield, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	R5-2007-0155	5D152031013	10/26/2007
167	Vintage Production California LLC	Vintage Drilling Fluid Discharges, Buena Vista Oil Field	Taft, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00180	2/27/2014
168	Vintage Production California LLC	Vintage Production CA Drilling Fluid Discharges, N. Antelope Hills Oil Field	Lost Hills, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00175	2/4/2014
169	Vintage Production California LLC	Vintage Drilling Mud Discharges, Pleito Ranch Oil Field	Pleito Ranch Oil Field, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00162	12/6/2013

Table B-2: List of WDRs in Kern County

No.	Discharger	Facility Name	Facility Address	Place/ Project Type	Program	Status	Type	Order No.	WDID	Effective Date
170	Vintage Production California LLC	Vintage Drilling Mud Discharges, Kern Front Oil Field	Kern Front Oil Field, Bakersfield, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00155	12/5/2013
171	Vintage Production California LLC	Vintage Drilling Mud Discharges, Lost Hills Oil Field	Lost Hills Oil Field, Lost Hills, CA	Oil/Gas Extraction	WDRMINING	Active	Enrollee	2003-0003-DWQ	5C15NC00154	12/5/2013
172	Vintage Production California LLC	KERN FRONT, SECTION 23	S1/2, SEC23, T28S, R27E, MDB&M, Kern County, CA	Oil/Gas Extraction	WDRMINING	Active	WDR	74-234	5D152014001	3/22/1974
173	WEST KERN WATER DISTRICT	West Kern Water District North Well Field	Buttonwillow, CA	Recycled Water Use Area	WDRNONMUNIPRCS	Active	Enrollee	R5-2008-0182	5C15NC00127	2/2/2011
174	Wasco City	Wasco WWTF	746 8th Street, Wasco, CA 93280	Wastewater Treatment Facility	WDRMUNILRG	Active	WDR	R5-2002-0198	5D150117001	10/18/2002
175	Wells, Gerald	Hart Creek Estates WTP	Carlyle Springs Road near Valley Oak Road, Keene, CA	Water Treatment Plant	WDRNONMUNIPRCS	Active	Enrollee	R5-2008-0182	5C15NC00121	11/10/2010

Notes: Source – California SWRCB (CA SWRCB 2012b)

Appendix C

USEPA STORET Legacy Data Center,
Project Area Surface Water Quality Data

Table C-1: Summary of Surface Water Quality Data for the Project Area from USEPA STORET Legacy Data Center, 1951-1991

Water Quality Parameters	Units	Station Name: BITTERCREEK AT HIGHWAY 33						Station Name: BITTERWATER C 3.5 MI E BITTERWATR						Station Name: CALIENTE CREEK AT NEUMAKEL ROAD						Station Name: CARSON RIVER 200 METERS UPSTREAM FROM MONITOR CR					
		Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range
General Water Quality																									
Alkalinity, Total	mg/L as $CaCO_3$	305				1	02/14/73	232				1	02/14/73	289				1	02/14/73						
Alkalinity, Filter Sample	mg/L as $CaCO_3$																								
Ammonia	mg/L as N																			0.051	0.0026	0.0	0.23	15	03/17/90 - 03/23/91
Calcium	mg/L	467				1	02/14/73	591				1	02/14/73	86				1	02/14/73						
Chloride	mg/L	105				1	02/14/73	235				1	02/14/73	41				1	02/14/73						
Hardness, Calcium	mg/L as $CaCO_3$	3592				1	02/14/73	1809				1	02/14/73	277				1	02/14/73						
Hardness, Total	mg/L as $CaCO_3$	3590				1	02/14/73	1810				1	02/14/73	276				1	02/14/73						
Magnesium, Total	mg/L as Mg	589				1	02/14/73	81				1	02/14/73	15				1	02/14/73						
Nitrate Nitrogen, Dissolved	mg/L as N	5.0				1	02/14/73	0.20				1	02/14/73	0.045				1	02/14/73						
Nitrate Nitrogen, Total	mg/L as N																			0.0090	0.0	0.0	0.031	15	03/17/90 - 03/23/91
Nitrite Nitrogen, Dissolved	mg/L as N																								
Nitrate + Nitrite, Total	mg/L as N																								
Nitrogen, Total Kjeldahl	mg/L as N																			0.18	0.16	0.10	0.32	10	03/17/90 - 10/20/90
Nitrogen,Total Organic Kjeldahl	mg/L as N																								
Nitrogen, Ammonia & Org, Total	mg/L																								
Nitrogen, Ammonia, Dissolved	mg/L																								
Nitrogen, Ammonia, Total	mg/L																			0.71	0.035	0.014	3.1	15	03/17/90 - 03/23/91
OrthoPhosphate, Dissolved	mg/L as P																			0.007	0.005	0.002	0.013	15	03/17/90 - 03/23/91
Oxygen, Dissolved, Total (by Probe)	mg/L																			10	10	8.6	12	14	03/17/90 - 03/23/91
Oxygen, Dissolved, Total	mg/L																								
Oxygen, Dissolved, Percent of Saturation	%																			81	81	77	87	14	03/17/90 - 03/23/91
pH	SU	7.7				1	02/14/73	6.8				1	02/14/73	7.0				1	02/14/73						
Phosphorus, Dissolved Hydrolyzable	mg/L as P																								
Phosphorus, Total	mg/L as P																			5.7	0.071	0.0	22	15	03/17/90 - 03/23/91
Potassium, Dissolved	mg/L as K																								
Sodium	mg/L as N	1120				1	02/14/73	547				1	02/14/73	69				1	02/14/73						
Specific Conductivity, Total	umhos/cm	8320				1	02/14/73	4250				1	02/14/73	939				1	02/14/73						
Specific Conductivity, Field	umhos/cm																								
Specific Conductivity, Non-Temperature	umhos/cm																			60	62	30	92	15	03/17/90 - 03/23/91
Sulfate, Dissolved	mg/L as SO_4																								
Sulfate, Total	mg/L as SO_4																			11	9.0	2.0	31	14	03/17/90 - 03/23/91
Temperature	^{o}C																			6.0	6.3	-0.58	12	15	03/17/90 - 03/23/91
Total Dissolved Solids (TDS)	mg/L																			44	40	10	90	14	03/17/90 - 03/23/91
Total Organic Carbon (TOC)	mg/L																								
Turbidity, Total	NTU																			6.0	2.5	1.0	22	13	04/20/90 - 03/23/91
Metals																									
Arsenic, Dissolved	ug/L																								
Arsenic, Total	ug/L																			3.5	2.5	2.0	6.3	4	03/17/90 - 03/23/91
Barium, Dissolved	ug/L																								
Cadmium, Dissolved	ug/L																								
Cadmium, Total	ug/L																			0.39	0.39	0.34	0.44	2	03/17/90 - 07/19/90
Chromium, Dissolved	ug/L																								
Chromium, Total	ug/L																			0.45	0.21	0.15	0.93	3	03/17/90 - 03/23/91
Copper, Dissolved	ug/L																								
Copper, Total	ug/L																			1.9	0.90	0.29	4.7	4	03/17/90 - 03/23/91
Iron, Biologically Reactive	ug/L																			400	300	60	981	15	03/17/90 - 03/23/91
Iron, Dissolved	ug/L																								
Iron, Total	ug/L																			188	160	142	272	4	03/17/90 - 03/23/91
Lead, Dissolved	ug/L																								
Lead, Total	ug/L																			0.39	0.39	0.34	0.44	2	03/17/90 - 07/19/90
Manganese, Dissolved	ug/L																								
Mercury, Total	ug/L																								
Selenium, Total	ug/L																								
Silver, Total	ug/L																			0.36				1	03/23/91
Zinc, Dissolved	ug/L																								
Zinc, Total	ug/L																								
Other Water Quality Parameters																									
BOD, 5 Day	mg/L																								
Boron, Total	ug/L	400				1	02/14/73	2200				1	02/14/73	600				1	02/14/73						
Cobalt, Total	ug/L																			0.0				1	03/23/91
COD, .025N	mg/L																								
COD,.25N	mg/L																								
Fluoride	mg/L																								
Residue, Settleable	mL/L																								
Residue, Total Nonfiltrable	mg/L																			8.5	2.3	0.26	33	14	03/17/90 - 03/23/91
Residue, Volatile Non filtrable	mg/L																								
Residue, Total Filtrable	mg/L																								
Silica, Dissolved	mg/L																								
Pesticides																									
DDT(p,p'), Total	ug/L																								
Phorate	ug/L																								
S, S, S-Tributyl Phosphorotrithioate	ug/L																								
Unknowns as Parathion	ug/L																								

Table C-1: Summary of Surface Water Quality Data for the Project Area from USEPA STORET Legacy Data Center, 1951-1991

Water Quality Parameters	Units	Station Name: CARSON RIVER 250 METERS UPSTREAM FROM MONITOR CR						Station Name: EL PASO CREEK AT RANCHO ROAD						Station Name: KERN RIVER ABOVE CALLOWAY WEIR						Station Name: KERN RIVER AT HART PARK					
		Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range
General Water Quality																									
Alkalinity, Total	mg/L as $CaCO_3$							139				1	02/14/73	44				1	10/05/71	46	46	37	54	4	10/02/74 - 11/19/75
Alkalinity, Filter Sample	mg/L as $CaCO_3$																								
Ammonia	mg/L as N	0.19	0.0062	0.00021	0.99	15	03/17/90 - 03/23/91																		
Calcium	mg/L							48				1	02/14/73							11	11	10	12	2	10/02/74 - 03/05/75
Chloride	mg/L							6.3				1	02/14/73							4.5	4.5	3.3	5.6	2	10/02/74 - 03/05/75
Hardness, Calcium	mg/L as $CaCO_3$							178				1	02/14/73							37	37	31	42	2	10/02/74 - 03/05/75
Hardness, Total	mg/L as $CaCO_3$							176				1	02/14/73							37	37	31	42	2	10/02/74 - 03/05/75
Magnesium, Total	mg/L as Mg							14				1	02/14/73							2.4	2.4	1.7	3.1	2	10/02/74 - 03/05/75
Nitrate Nitrogen, Dissolved	mg/L as N							3.6				1	02/14/73							0.16	0.17	0.063	0.27	6	04/04/73 - 11/19/75
Nitrate Nitrogen, Total	mg/L as N	0.0074	0.0	0.0	0.027	15	03/17/90 - 03/23/91																		
Nitrite Nitrogen, Dissolved	mg/L as N																			0.0080	0.0	0.0	0.026	5	04/04/73 - 11/19/75
Nitrate + Nitrite, Total	mg/L as N																			0.19	0.20	0.08	0.29	4	04/04/73 - 07/23/75
Nitrogen, Total Kjeldahl	mg/L as N	0.20	0.18	0.11	0.38	13	03/17/90 - 03/23/91																		
Nitrogen,Total Organic Kjeldahl	mg/L as N																								
Nitrogen, Ammonia & Org, Total	mg/L																			0.28	0.25	0.20	0.40	6	04/04/73 - 11/19/75
Nitrogen, Ammonia, Dissolved	mg/L																								
Nitrogen, Ammonia, Total	mg/L	2.036	0.044	0.021	10	15	03/17/90 - 03/23/91																		
OrthoPhosphate, Dissolved	mg/L as P	0.007	0.005	0.002	0.018	15	03/17/90 - 03/23/91													0.025	0.025	0.020	0.030	4	04/04/73 - 10/02/74
Oxygen, Dissolved, Total (by Probe)	mg/L	10	10	8.5	12	15	03/17/90 - 03/23/91																		
Oxygen, Dissolved, Total	mg/L													9.0				1	10/05/71	11	11	8.7	12	7	04/04/73 - 11/19/75
Oxygen, Dissolved, Percent of Saturation	%	82	80	77	89	14	03/17/90 - 03/23/91							94				1	10/05/71	108	104	98	124	6	04/04/73 - 11/19/75
pH	SU							7.6				1	02/14/73	7.5	7.5	7.4	7.5	2	10/05/71 - 10/05/71	7.7	7.7	7.3	8.4	11	04/04/73 - 11/19/75
Phosphorus, Dissolved Hydrolyzable	mg/L as P																								
Phosphorus, Total	mg/L as P	5.2	0.050	0.0094	20	15	03/17/90 - 03/23/91													0.058	0.050	0.025	0.11	6	04/04/73 - 11/19/75
Potassium, Dissolved	mg/L as K																								
Sodium	mg/L as N							15				1	02/14/73							12	12	10	14	2	10/02/74 - 03/05/75
Specific Conductivity, Total	umhos/cm							429				1	02/14/73	148				1	10/05/71	125	124	99	152	4	10/02/74 - 11/19/75
Specific Conductivity, Field	umhos/cm													180				1	10/05/71	124	122	99	149	5	04/04/73 - 11/19/75
Specific Conductivity, Non-Temperature	umhos/cm	73	69	48	110	15	03/17/90 - 03/23/91																		
Sulfate, Dissolved	mg/L as SO_4																			12	12	6.8	17	2	10/02/74 - 03/05/75
Sulfate, Total	mg/L as SO_4	15	12	2.3	32	15	03/17/90 - 03/23/91																		
Temperature	°C	6.1	6.0	-0.30	13	15	03/17/90 - 03/23/91							17	17	17	17	2	10/05/71 - 10/05/71	15	13	10	24	9	04/04/73 - 11/19/75
Total Dissolved Solids (TDS)	mg/L	53	46	27	108	15	03/17/90 - 03/23/91																		
Total Organic Carbon (TOC)	mg/L																								
Turbidity, Total	NTU	4.4	2.6	1.1	13	13	04/20/90 - 03/23/91																		
Metals																									
Arsenic, Dissolved	ug/L																								
Arsenic, Total	ug/L	5.2	5.4	3.3	6.8	4	03/17/90 - 03/23/91																		
Barium, Dissolved	ug/L																								
Cadmium, Dissolved	ug/L																								
Cadmium, Total	ug/L	0.59	0.59	0.45	0.73	2	03/17/90 - 07/19/90																		
Chromium, Dissolved	ug/L																								
Chromium, Total	ug/L	0.34	0.070	0.0070	0.85	3	03/17/90 - 03/23/91																		
Copper, Dissolved	ug/L																								
Copper, Total	ug/L	0.88	0.80	0.33	1.5	4	03/17/90 - 03/23/91																		
Iron, Biologically Reactive	ug/L	369	240	100	777	15	03/17/90 - 03/23/91																		
Iron, Dissolved	ug/L																								
Iron, Total	ug/L	190	165	142	274	4	03/17/90 - 03/23/91																		
Lead, Dissolved	ug/L																								
Lead, Total	ug/L	0.59	0.59	0.45	0.73	2	03/17/90 - 07/19/90																		
Manganese, Dissolved	ug/L																								
Mercury, Total	ug/L																								
Selenium, Total	ug/L																								
Silver, Total	ug/L	0.33				1	03/23/91																		
Zinc, Dissolved	ug/L																								
Zinc, Total	ug/L																								
Other Water Quality Parameters																									
BOD, 5 Day	mg/L																			1.1	0.80	0.62	1.7	3	10/02/74 - 11/19/75
Boron, Total	ug/L							100				1	02/14/73							150	150	105	195	2	10/02/74 - 03/05/75
Cobalt, Total	ug/L	0.0				1	03/23/91																		
COD, .025N	mg/L																			3.0	3.0	3.0	3.0	2	07/23/75 - 11/19/75
COD,.25N	mg/L																								
Fluoride	mg/L																								
Residue, Settleable	mL/L																								
Residue, Total Nonfiltrable	mg/L	10	3.6	0.0	36	15	03/17/90 - 03/23/91													7.7	5.0	2.3	15	3	09/12/73 - 10/02/74
Residue, Volatile Non filtrable	mg/L																			4.0	4.0	4.0	4.0	2	04/11/74 - 10/02/74
Residue, Total Filtrable	mg/L																			71	73	58	80	4	10/02/74 - 11/19/75
Silica, Dissolved	mg/L																								
Pesticides																									
DDT(p,p'), Total	ug/L																								
Phorate	ug/L																								
S, S, S-Tributyl Phosphorotrithioate	ug/L																								
Unknowns as Parathion	ug/L																								

Table C-1: Summary of Surface Water Quality Data for the Project Area from USEPA STORET Legacy Data Center, 1951-1991

		Station Name: KERN RIVER AT RANCHERIA BRIDGE						Station Name: KERN RIVER NR BAKERSFIELD						Station Name: LITTLE CREEK AT HIGHWAY 65 BRIDGE						Station Name: MEDIA AGUA CREEK AT HIGHWAY 33					
Water Quality Parameters	**Units**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**
General Water Quality																									
Alkalinity, Total	mg/L as $CaCO_3$	54	52	37	82	5	10/02/74 - 09/28/77	63	59	29	87	228	04/15/51 - 11/20/78	162	162	143	180	2	03/17/70 - 02/14/73	171				1	02/14/73
Alkalinity, Filter Sample	mg/L as $CaCO_3$	45	45	40	49	2	10/20/86 - 05/13/87	45	43	31	65	27	01/24/79 - 10/13/88												
Ammonia	mg/L as N	0.0010				1	09/28/77	0.000075	0.0	0.0	0.00045	18	01/25/77 - 05/16/84												
Calcium	mg/L	12	12	9.0	18	5	10/02/74 - 05/13/87	14	13	7.3	22	138	05/11/51 - 10/13/88	21	21	20	22	2	03/17/70 - 02/14/73	34				1	02/14/73
Chloride	mg/L	7.4	5.3	3.2	13	3	10/02/74 - 09/28/77	6.9	6.0	2.0	14	244	04/15/51 - 05/16/84	276	276	169	382	2	03/17/70 - 02/14/73	38				1	02/14/73
Hardness, Calcium	mg/L as $CaCO_3$	42	41	30	60	5	10/02/74 - 05/13/87	47	44	24	72	138	05/11/51 - 10/13/88	62	62	60	64	2	03/17/70 - 02/14/73	103				1	02/14/73
Hardness, Total	mg/L as $CaCO_3$	42	41	30	60	5	10/02/74 - 05/13/87	47	46	24	72	254	04/15/51 - 04/12/88	63	63	60	65	2	03/17/70 - 02/14/73	103				1	02/14/73
Magnesium, Total	mg/L as Mg	2.7	2.7	1.8	3.9	5	10/02/74 - 05/13/87	2.8	2.3	1.0	4.1	138	05/11/51 - 10/13/88	2.3	2.3	1.2	3.4	2	03/17/70 - 02/14/73	4.4				1	02/14/73
Nitrate Nitrogen, Dissolved	mg/L as N	0.19	0.20	0.068	0.29	7	04/04/73 - 09/28/77	0.16	0.10	0.0	0.51	64	05/11/51 - 06/24/81	0.26	0.26	0.067	0.45	2	03/17/70 - 02/14/73	0.93				1	02/14/73
Nitrate Nitrogen, Total	mg/L as N																								
Nitrite Nitrogen, Dissolved	mg/L as N	0.0080	0.0	0.0	0.026	5	04/04/73 - 11/19/75	0.0036	0.0	0.0	0.015	12	01/25/77 - 01/24/79												
Nitrate + Nitrite, Total	mg/L as N	0.19	0.22	0.050	0.29	6	04/04/73 - 05/13/87	0.054	0.040	0.013	0.13	27	03/07/79 - 10/13/88												
Nitrogen, Total Kjeldahl	mg/L as N																								
Nitrogen,Total Organic Kjeldahl	mg/L as N	0.30				1	09/28/77	0.25	0.25	0.21	0.30	2	01/25/77 - 09/28/77												
Nitrogen, Ammonia & Org, Total	mg/L	0.29	0.30	0.20	0.38	7	04/04/73 - 09/28/77	0.30	0.30	0.14	0.46	29	07/24/73 - 05/16/84												
Nitrogen, Ammonia, Dissolved	mg/L							0.0025	0.0	0.0	0.013	16	03/07/79 - 05/16/84												
Nitrogen, Ammonia, Total	mg/L	0.020				1	09/28/77	0.035	0.035	0.013	0.06	2	01/25/77 - 09/28/77												
OrthoPhosphate, Dissolved	mg/L as P	0.019	0.020	0.010	0.027	7	04/04/73 - 05/13/87	0.021	0.020	0.0	0.051	40	07/24/73 - 10/13/88												
Oxygen, Dissolved, Total (by Probe)	mg/L																								
Oxygen, Dissolved, Total	mg/L	10	10	8.6	12	10	04/04/73 - 05/13/87	10	10	7.7	12	207	04/15/51 - 10/13/88												
Oxygen, Dissolved, Percent of Saturation	%	105	105	96	115	9	04/04/73 - 05/13/87	99	98	85	116	206	04/15/51 - 10/13/88												
pH	SU	7.8	7.7	7.5	8.2	17	04/04/73 - 05/13/87	7.7	7.7	7.1	8.2	463	04/15/51 - 10/13/88	8.1	8.1	7.7	8.4	2	03/17/70 - 02/14/73	7.4				1	02/14/73
Phosphorus, Dissolved Hydrolyzable	mg/L as P							0.33	0.33	0.14	0.51	2	05/10/67 - 09/26/67												
Phosphorus, Total	mg/L as P	0.044	0.040	0.024	0.090	9	04/04/73 - 05/13/87	0.065	0.040	0.020	0.14	40	07/24/73 - 10/13/88												
Potassium, Dissolved	mg/L as K							2.0	1.8	1.1	2.7	101	05/11/51 - 05/16/84	6.6				1	03/17/70						
Sodium	mg/L as N	11	11	8.3	14	4	10/02/74 - 05/13/87	15	14	6.3	26	242	04/15/51 - 10/13/88	293	293	221	365	2	03/17/70 - 02/14/73	96				1	02/14/73
Specific Conductivity, Total	umhos/cm	145	136	98	247	7	10/02/74 - 05/13/87	160	156	77	252	254	04/15/51 - 10/13/88	1530	1530	1233	1827	2	03/17/70 - 02/14/73	628				1	02/14/73
Specific Conductivity, Field	umhos/cm	134	125	95	209	8	04/04/73 - 05/13/87	144	132	81	258	60	11/15/51 - 10/13/88												
Specific Conductivity, Non-Temperature	umhos/cm																								
Sulfate, Dissolved	mg/L as SO_4	16	12	6.0	30	3	10/02/74 - 09/28/77	11	8.7	3.0	25	81	05/11/51 - 05/16/84	136				1	03/17/70						
Sulfate, Total	mg/L as SO_4																								
Temperature	°C	16	14	10	23	12	04/04/73 - 05/13/87	16	16	6.1	24	476	04/15/51 - 10/13/88												
Total Dissolved Solids (TDS)	mg/L																								
Total Organic Carbon (TOC)	mg/L	3.9				1	09/28/77	3.1	3.2	1.9	4.2	12	09/28/77 - 05/16/84												
Turbidity, Total	NTU																								
Metals																									
Arsenic, Dissolved	ug/L							5.0	0.0	0.0	16	10	09/18/78 - 05/16/84												
Arsenic, Total	ug/L																								
Barium, Dissolved	ug/L							0.0	0.0	0.0	0.0	9	11/28/79 - 05/16/84												
Cadmium, Dissolved	ug/L							0.0	0.0	0.0	0.0	9	11/28/79 - 05/16/84												
Cadmium, Total	ug/L																								
Chromium, Dissolved	ug/L							0.0	0.0	0.0	0.0	11	09/28/77 - 05/16/84												
Chromium, Total	ug/L							0.0				1	12/17/74												
Copper, Dissolved	ug/L							0.91	0.0	0.0	5.0	11	09/28/77 - 05/16/84												
Copper, Total	ug/L							0.0				1	12/17/74												
Iron, Biologically Reactive	ug/L																								
Iron, Dissolved	ug/L							34	20	0.0	90	17	09/03/58 - 05/16/84												
Iron, Total	ug/L							335	335	331	340	2	09/05/61 - 12/17/74												
Lead, Dissolved	ug/L							0.0	0.0	0.0	0.0	9	11/28/79 - 05/16/84												
Lead, Total	ug/L																								
Manganese, Dissolved	ug/L							6.0	5.0	0.0	16	10	09/18/78 - 05/16/84												
Mercury, Total	ug/L							0.017	0.0	0.0	0.090	12	12/17/74 - 05/16/84												
Selenium, Total	ug/L							6.0	0.0	0.0	20	10	09/18/78 - 05/16/84												
Silver, Total	ug/L																								
Zinc, Dissolved	ug/L							3.3	0.0	0.0	15	6	09/28/77 - 05/16/84												
Zinc, Total	ug/L							10				1	12/17/74												
Other Water Quality Parameters																									
BOD, 5 Day	mg/L	1.2	1.1	0.90	1.5	4	10/02/74 - 09/28/77	1.1	1.0	0.60	2	26	05/24/77 - 05/13/87												
Boron, Total	ug/L	200	200	110	290	3	10/02/74 - 09/28/77	141	100	0.0	300	221	05/11/51 - 05/16/84	1200	1200	840	1560	2	03/17/70 - 02/14/73	600				1	02/14/73
Cobalt, Total	ug/L																								
COD, .025N	mg/L	4.0	4.0	2.2	5.8	3	07/23/75 - 09/28/77	8.6	7.5	2.0	13	20	05/24/77 - 05/16/84												
COD,.25N	mg/L																								
Fluoride	mg/L							0.26	0.30	0.0	0.40	27	09/10/51 - 05/04/64												
Residue, Settleable	mL/L	ND				1	09/28/77	0.0				1	09/28/77												
Residue, Total Nonfiltrable	mg/L	9.0	5.0	2.2	21	4	09/12/73 - 09/28/77	8.2	6.5	2.7	17	14	07/24/73 - 05/16/84												
Residue, Volatile Non filtrable	mg/L	2.7	3.0	1.2	3.9	3	04/11/74 - 09/28/77	1.0				1	09/28/77												
Residue, Total Filtrable	mg/L	85	74	57	143	7	10/02/74 - 05/13/87	87	83	52	146	67	09/05/62 - 10/13/88	1110				1	03/17/70						
Silica, Dissolved	mg/L							13	13	4.5	20	33	05/11/51 - 05/05/66												
Pesticides																									
DDT(p,p'), Total	ug/L							0.020				1	08/27/80												
Phorate	ug/L							0.010				1	08/22/79												
S, S, S-Tributyl Phosphorotrithioate	ug/L							0.0	0.0	0.0	0.0	4	05/27/75 - 08/22/79												
Unknowns as Parathion	ug/L							0.10	0.10	0.03	0.16	2	05/27/75 - 08/27/80												

Table C-1: Summary of Surface Water Quality Data for the Project Area from USEPA STORET Legacy Data Center, 1951-1991

Water Quality Parameters	Units	Station Name: PLEITITO C 3.6 MI S OF HWY 166						Station Name: POSO C A HD OF DIV CH						Station Name: POSO C NR OILDALE						Station Name: POSO CREEK AT HWY 65 NR OILDALE					
		Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range
General Water Quality																									
Alkalinity, Total	mg/L as $CaCO_3$	200				1	02/14/73	120	120	92	148	2	03/17/70 - 02/14/73	125	125	108	142	2	04/21/76 - 01/24/78	32				1	03/21/78
Alkalinity, Filter Sample	mg/L as $CaCO_3$													100	100	78	120	8	11/22/82 - 04/12/88	99	99	79	114	10	03/19/79 - 05/29/86
Ammonia	mg/L as N													0.00023				1	04/21/76						
Calcium	mg/L	523				1	02/14/73	35	35	28	42	2	03/17/70 - 02/14/73	28	26	21	40	10	04/21/76 - 04/12/88	29	27	22	43	11	03/21/78 - 05/29/86
Chloride	mg/L	922				1	02/14/73	136	136	58	214	2	03/17/70 - 02/14/73	47	47	32	61	2	04/21/76 - 01/24/78	22	21	15	29	4	03/21/78 - 03/24/81
Hardness, Calcium	mg/L as $CaCO_3$	2179				1	02/14/73	110	110	87	132	2	03/17/70 - 02/14/73	98	88	73	136	10	04/21/76 - 04/12/88	97	92	76	137	11	03/21/78 - 05/29/86
Hardness, Total	mg/L as $CaCO_3$	2180				1	02/14/73	111	111	88	133	2	03/17/70 - 02/14/73	98	89	73	137	10	04/21/76 - 04/12/88	97	92	75	138	11	03/21/78 - 05/29/86
Magnesium, Total	mg/L as Mg	212				1	02/14/73	5.4	5.4	4.3	6.5	2	03/17/70 - 02/14/73	6.7	6.0	4.9	8.9	10	04/21/76 - 04/12/88	5.9	6.0	5.0	7.2	11	03/21/78 - 05/29/86
Nitrate Nitrogen, Dissolved	mg/L as N	3.2				1	02/14/73	0.61	0.61	0.18	1.0	2	03/17/70 - 02/14/73	0.74	0.74	0.092	1.4	2	04/21/76 - 01/24/78	0.48	0.43	0.36	0.65	5	03/21/78 - 03/09/82
Nitrate Nitrogen, Total	mg/L as N																								
Nitrite Nitrogen, Dissolved	mg/L as N													0.010				1	04/21/76						
Nitrate + Nitrite, Total	mg/L as N													0.15	0.13	0.030	0.31	8	11/22/82 - 04/12/88	0.22	0.17	0.060	0.47	6	11/22/82 - 05/29/86
Nitrogen, Total Kjeldahl	mg/L as N																								
Nitrogen,Total Organic Kjeldahl	mg/L as N													0.60				1	04/21/76						
Nitrogen, Ammonia & Org, Total	mg/L													0.63				1	04/21/76						
Nitrogen, Ammonia, Dissolved	mg/L																								
Nitrogen, Ammonia, Total	mg/L													0.030				1	04/21/76						
OrthoPhosphate, Dissolved	mg/L as P													0.049	0.040	0.028	0.082	9	04/21/76 - 04/12/88	0.082	0.070	0.060	0.13	6	11/22/82 - 05/29/86
Oxygen, Dissolved, Total (by Probe)	mg/L																								
Oxygen, Dissolved, Total	mg/L							5.3				1	05/11/71	9.1	9.1	7.8	10	10	04/21/76 - 04/12/88	9.1	10	7.5	10	11	03/21/78 - 05/29/86
Oxygen, Dissolved, Percent of Saturation	%							59				1	05/11/71	93	94	86	98	10	04/21/76 - 04/12/88	93	95	81	100	11	03/21/78 - 05/29/86
pH	SU	7.3				1	02/14/73	7.6	7.4	7.4	8.0	3	03/17/70 - 02/14/73	7.9	7.9	7.4	8.4	20	04/21/76 - 04/12/88	7.9	8.0	7.7	8.2	22	03/21/78 - 05/29/86
Phosphorus, Dissolved Hydrolyzable	mg/L as P																								
Phosphorus, Total	mg/L as P													0.11	0.10	0.077	0.16	8	11/22/82 - 04/12/88	0.20	0.20	0.15	0.27	6	11/22/82 - 05/29/86
Potassium, Dissolved	mg/L as K							4.0				1	03/17/70	2.9	2.4	2.2	3.9	3	01/24/78 - 04/25/83	3.0	2.7	2.3	4.5	7	03/21/78 - 04/25/83
Sodium	mg/L as N	1170				1	02/14/73	102	102	48	155	2	03/17/70 - 02/14/73	25	19	15	53	10	04/21/76 - 04/12/88	32	28	19	51	11	03/21/78 - 05/29/86
Specific Conductivity, Total	umhos/cm	7760				1	02/14/73	716	716	433	999	2	03/17/70 - 02/14/73	307	255	212	520	10	04/21/76 - 04/12/88	351	328	236	571	11	03/21/78 - 05/29/86
Specific Conductivity, Field	umhos/cm							920				1	05/11/71	272	259	107	440	10	04/21/76 - 04/12/88	349	306	217	571	11	03/21/78 - 05/29/86
Specific Conductivity, Non-Temperature	umhos/cm																								
Sulfate, Dissolved	mg/L as SO_4							23				1	03/17/70	51	51	45	57	2	04/21/76 - 01/24/78	64	25	18	166	4	03/21/78 - 03/24/81
Sulfate, Total	mg/L as SO_4																								
Temperature	°C							20	20	20	20	2	05/11/71 - 05/11/71	17	16	9.5	24	10	04/21/76 - 04/12/88	16	16	10	24	12	03/21/78 - 05/29/86
Total Dissolved Solids (TDS)	mg/L																								
Total Organic Carbon (TOC)	mg/L																								
Turbidity, Total	NTU																								
Metals																									
Arsenic, Dissolved	ug/L																								
Arsenic, Total	ug/L																								
Barium, Dissolved	ug/L																								
Cadmium, Dissolved	ug/L																								
Cadmium, Total	ug/L																								
Chromium, Dissolved	ug/L																								
Chromium, Total	ug/L																								
Copper, Dissolved	ug/L																								
Copper, Total	ug/L																								
Iron, Biologically Reactive	ug/L																								
Iron, Dissolved	ug/L																								
Iron, Total	ug/L																								
Lead, Dissolved	ug/L																								
Lead, Total	ug/L																								
Manganese, Dissolved	ug/L																								
Mercury, Total	ug/L																								
Selenium, Total	ug/L																								
Silver, Total	ug/L																								
Zinc, Dissolved	ug/L																								
Zinc, Total	ug/L																								
Other Water Quality Parameters																									
BOD, 5 Day	mg/L													5.9				1	04/21/76						
Boron, Total	ug/L	3200				1	02/14/73	550	550	235	865	2	03/17/70 - 02/14/73	100				1	01/24/78	100	100	100	100	4	03/21/78 - 03/24/81
Cobalt, Total	ug/L																								
COD, .025N	mg/L													28				1	04/21/76						
COD,.25N	mg/L																								
Fluoride	mg/L																								
Residue, Settleable	mL/L																								
Residue, Total Nonfiltrable	mg/L																								
Residue, Volatile Non filtrable	mg/L																								
Residue, Total Filtrable	mg/L							554				1	03/17/70	202	176	141	324	10	04/21/76 - 04/12/88	233	214	156	361	11	03/21/78 - 05/29/86
Silica, Dissolved	mg/L																								
Pesticides																									
DDT(p,p'), Total	ug/L																								
Phorate	ug/L																								
S, S, S-Tributyl Phosphorotrithioate	ug/L							0.0				1	05/11/71												
Unknowns as Parathion	ug/L																								

Table C-1: Summary of Surface Water Quality Data for the Project Area from USEPA STORET Legacy Data Center, 1951-1991

		Station Name: POSO CREEK AT ZERKER ROAD						Station Name: SAN SIMEON CREEK						Station Name: SANDY CREEK AT GARDNER FIELD ROAD						Station Name: SANTIAGO CREEK AT HIGHWAY 33					
Water Quality Parameters	**Units**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**	**Average**	**Median**	**Min[a]**	**Max[b]**	**N**	**Date Range**
General Water Quality																									
Alkalinity, Total	mg/L as $CaCO_3$	139				1	03/17/70							107				1	06/07/71	184				1	02/14/73
Alkalinity, Filter Sample	mg/L as $CaCO_3$																								
Ammonia	mg/L as N																								
Calcium	mg/L	45				1	03/17/70							14				1	06/07/71	470				1	02/14/73
Chloride	mg/L	229				1	03/17/70							73				1	06/07/71	98				1	02/14/73
Hardness, Calcium	mg/L as $CaCO_3$	136				1	03/17/70							59				1	06/07/71	1618				1	02/14/73
Hardness, Total	mg/L as $CaCO_3$	135				1	03/17/70	282				1	04/23/86	59				1	06/07/71	1620				1	02/14/73
Magnesium, Total	mg/L as Mg	5.7				1	03/17/70							5.8				1	06/07/71	108				1	02/14/73
Nitrate Nitrogen, Dissolved	mg/L as N	0.068				1	03/17/70							21				1	06/07/71	0.29				1	02/14/73
Nitrate Nitrogen, Total	mg/L as N																								
Nitrite Nitrogen, Dissolved	mg/L as N																								
Nitrate + Nitrite, Total	mg/L as N																								
Nitrogen, Total Kjeldahl	mg/L as N																								
Nitrogen,Total Organic Kjeldahl	mg/L as N																								
Nitrogen, Ammonia & Org, Total	mg/L																								
Nitrogen, Ammonia, Dissolved	mg/L																								
Nitrogen, Ammonia, Total	mg/L																								
OrthoPhosphate, Dissolved	mg/L as P																								
Oxygen, Dissolved, Total (by Probe)	mg/L																								
Oxygen, Dissolved, Total	mg/L																								
Oxygen, Dissolved, Percent of Saturation	%																								
pH	SU	8.3				1	03/17/70	7.8				1	04/23/86	7.1				1	06/07/71	7.1				1	02/14/73
Phosphorus, Dissolved Hydrolyzable	mg/L as P																								
Phosphorus, Total	mg/L as P																								
Potassium, Dissolved	mg/L as K	4.6				1	03/17/70							13				1	06/07/71						
Sodium	mg/L as N	161				1	03/17/70							134				1	06/07/71	629				1	02/14/73
Specific Conductivity, Total	umhos/cm	1050				1	03/17/70							802				1	06/07/71	4780				1	02/14/73
Specific Conductivity, Field	umhos/cm																								
Specific Conductivity, Non-Temperature	umhos/cm																								
Sulfate, Dissolved	mg/L as SO_4	23				1	03/17/70							57				1	06/07/71						
Sulfate, Total	mg/L as SO_4							45				1	04/23/86												
Temperature	°C																								
Total Dissolved Solids (TDS)	mg/L																								
Total Organic Carbon (TOC)	mg/L																								
Turbidity, Total	NTU																								
Metals																									
Arsenic, Dissolved	ug/L																								
Arsenic, Total	ug/L							0.0				1	04/23/86												
Barium, Dissolved	ug/L																								
Cadmium, Dissolved	ug/L																								
Cadmium, Total	ug/L																								
Chromium, Dissolved	ug/L																								
Chromium, Total	ug/L																								
Copper, Dissolved	ug/L																								
Copper, Total	ug/L																								
Iron, Biologically Reactive	ug/L																								
Iron, Dissolved	ug/L																								
Iron, Total	ug/L							0.00032				1	04/23/86												
Lead, Dissolved	ug/L																								
Lead, Total	ug/L							0.000020				1	04/23/86												
Manganese, Dissolved	ug/L																								
Mercury, Total	ug/L							0.0				1	04/23/86												
Selenium, Total	ug/L																								
Silver, Total	ug/L																								
Zinc, Dissolved	ug/L																								
Zinc, Total	ug/L																								
Other Water Quality Parameters																									
BOD, 5 Day	mg/L																								
Boron, Total	ug/L	900				1	03/17/70							1600				1	06/07/71	2000				1	02/14/73
Cobalt, Total	ug/L																								
COD, .025N	mg/L																								
COD,.25N	mg/L							24				1	04/23/86												
Fluoride	mg/L																								
Residue, Settleable	mL/L																								
Residue, Total Nonfiltrable	mg/L																								
Residue, Volatile Non filtrable	mg/L																								
Residue, Total Filtrable	mg/L	581				1	03/17/70							566				1	06/07/71						
Silica, Dissolved	mg/L																								
Pesticides																									
DDT(p,p'), Total	ug/L																								
Phorate	ug/L																								
S, S, S-Tributyl Phosphorotrithioate	ug/L																								
Unknowns as Parathion	ug/L																								

Table C-1: Summary of Surface Water Quality Data for the Project Area from USEPA STORET Legacy Data Center, 1951-1991

Water Quality Parameters	Units	Station Name: TEHACHAPI C NR TEHACHAPI CA						Station Name: TEJON C A COMANCHE PT OIL FD						Station Name: UNKNOWN C A HWY 33 1.2 MI S LERDO						Station Name: UNKNOWN C A HWY 33 NR TEMBLOR PUP					
		Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range	Average	Median	Min[a]	Max[b]	N	Date Range
General Water Quality																									
Alkalinity, Total	mg/L as $CaCO_3$	312	331	244	346	7	12/17/74 - 09/19/78	433	433	343	523	2	01/08/70 - 12/17/74	99				1	02/14/73	220				1	02/15/73
Alkalinity, Filter Sample	mg/L as $CaCO_3$	285	304	237	312	5	03/20/79 - 03/25/81																		
Ammonia	mg/L as N																								
Calcium	mg/L	190	182	104	288	12	12/17/74 - 03/25/81	76	76	47	105	2	01/08/70 - 12/17/74	94				1	02/14/73	519				1	02/15/73
Chloride	mg/L	192	193	86	304	12	12/17/74 - 03/25/81	96	96	78	113	2	01/08/70 - 12/17/74	226				1	02/14/73	110				1	02/15/73
Hardness, Calcium	mg/L as $CaCO_3$	731	673	493	1104	12	12/17/74 - 03/25/81	501	501	378	624	2	01/08/70 - 12/17/74	270				1	02/14/73	1621				1	02/15/73
Hardness, Total	mg/L as $CaCO_3$	731	672	493	1102	12	12/17/74 - 03/25/81	501	501	378	623	2	01/08/70 - 12/17/74	270				1	02/14/73	1620				1	02/15/73
Magnesium, Total	mg/L as Mg	63	56	35	115	12	12/17/74 - 03/25/81	76	76	63	88	2	01/08/70 - 12/17/74	8.5				1	02/14/73	79				1	02/15/73
Nitrate Nitrogen, Dissolved	mg/L as N	0.36	0.090	0.0	1.6	10	12/17/74 - 03/25/81	0.23	0.23	0.023	0.43	2	01/08/70 - 12/17/74	1.6				1	02/14/73	0.65				1	02/15/73
Nitrate Nitrogen, Total	mg/L as N																								
Nitrite Nitrogen, Dissolved	mg/L as N																								
Nitrate + Nitrite, Total	mg/L as N																								
Nitrogen, Total Kjeldahl	mg/L as N																								
Nitrogen,Total Organic Kjeldahl	mg/L as N																								
Nitrogen, Ammonia & Org, Total	mg/L																								
Nitrogen, Ammonia, Dissolved	mg/L																								
Nitrogen, Ammonia, Total	mg/L																								
OrthoPhosphate, Dissolved	mg/L as P																								
Oxygen, Dissolved, Total (by Probe)	mg/L																								
Oxygen, Dissolved, Total	mg/L	12	12	9.3	14	12	12/17/74 - 03/25/81	9.0				1	12/17/74												
Oxygen, Dissolved, Percent of Saturation	%	130	127	104	168	12	12/17/74 - 03/25/81	88				1	12/17/74												
pH	SU	8.1	8.2	7.8	8.4	24	12/17/74 - 03/25/81	8.0	8.1	7.9	8.1	3	01/08/70 - 12/17/74	7.1				1	02/14/73	6.7				1	02/15/73
Phosphorus, Dissolved Hydrolyzable	mg/L as P																								
Phosphorus, Total	mg/L as P																								
Potassium, Dissolved	mg/L as K	4.6	5.1	3.1	6.0	9.0	03/22/77 - 03/25/81																		
Sodium	mg/L as N	167	170	82	260	12	12/17/74 - 03/25/81	184	184	151	217	2	01/08/70 - 12/17/74	158				1	02/14/73	296				1	02/15/73
Specific Conductivity, Total	umhos/cm	1959	1905	1223	2846	12	12/17/74 - 03/25/81	1635	1635	1289	1982	2	01/08/70 - 12/17/74	1340				1	02/14/73	3500				1	02/15/73
Specific Conductivity, Field	umhos/cm	1704	1675	861	2652	12	12/17/74 - 03/25/81	1461	1461	1335	1586	2	01/08/70 - 12/17/74												
Specific Conductivity, Non-Temperature	umhos/cm																								
Sulfate, Dissolved	mg/L as SO_4	510	441	283	891	12	12/17/74 - 03/25/81	458				1	12/17/74												
Sulfate, Total	mg/L as SO_4																								
Temperature	°C	14	13	3.0	26	12	12/17/74 - 03/25/81	13				1	12/17/74												
Total Dissolved Solids (TDS)	mg/L																								
Total Organic Carbon (TOC)	mg/L																								
Turbidity, Total	NTU																								
Metals																									
Arsenic, Dissolved	ug/L																								
Arsenic, Total	ug/L																								
Barium, Dissolved	ug/L																								
Cadmium, Dissolved	ug/L																								
Cadmium, Total	ug/L																								
Chromium, Dissolved	ug/L																								
Chromium, Total	ug/L																								
Copper, Dissolved	ug/L																								
Copper, Total	ug/L																								
Iron, Biologically Reactive	ug/L																								
Iron, Dissolved	ug/L																								
Iron, Total	ug/L																								
Lead, Dissolved	ug/L																								
Lead, Total	ug/L																								
Manganese, Dissolved	ug/L																								
Mercury, Total	ug/L																								
Selenium, Total	ug/L																								
Silver, Total	ug/L																								
Zinc, Dissolved	ug/L																								
Zinc, Total	ug/L																								
Other Water Quality Parameters																									
BOD, 5 Day	mg/L																								
Boron, Total	ug/L	500	500	400	655	10	12/17/74 - 03/25/81	800				1	12/17/74	400				1	02/14/73	1600				1	02/15/73
Cobalt, Total	ug/L																								
COD, .025N	mg/L																								
COD,.25N	mg/L																								
Fluoride	mg/L																								
Residue, Settleable	mL/L																								
Residue, Total Nonfiltrable	mg/L																								
Residue, Volatile Non filtrable	mg/L																								
Residue, Total Filtrable	mg/L	1397	1330	837	2168	12	12/17/74 - 03/25/81	1370				1	12/17/74												
Silica, Dissolved	mg/L																								
Pesticides																									
DDT(p,p'), Total	ug/L																								
Phorate	ug/L																								
S, S, S-Tributyl Phosphorotrithioate	ug/L																								
Unknowns as Parathion	ug/L																								

Appendix D

Well Field Production and Injection Data

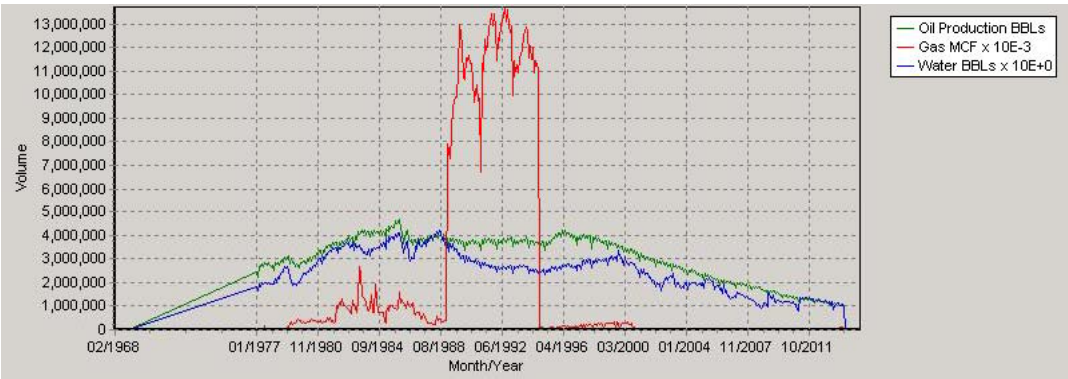
Midway-Sunset Oilfield Production (029)



Midway-Sunset Oilfield Production (030)



Kern River Oilfield Production (029)



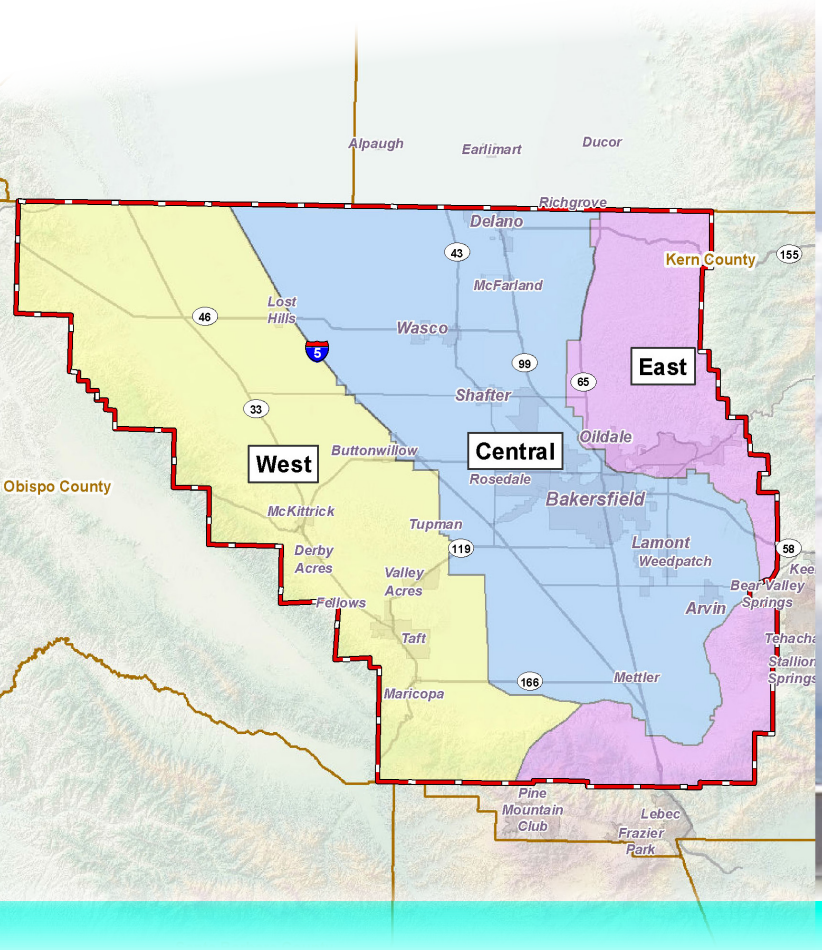
Kern River Oilfield Production (030)



Appendix T-1

Revised Water Supply Assessment Report

This page intentionally left blank.





Source: Bommer, P. 2008. A Primer of Oilwell Drilling. Seventh Edition. University of Texas.

Prepared For:

Western States Petroleum Association

Water Supply Assessment to Support Draft EIR for Kern County 19.98 Zoning Ordinance Amendment

Revised - 18 September 2015

Table of Contents

List of Tables ..... *iii*

List of Figures ..... *iv*

List of Acronyms ..... *v*

Section 1: Introduction and Summary 1

1.1 Purpose 1
1.2 Major Findings 1

Section 2: Project Area Description 5

2.1 Climate 5
2.2 Land Use 5
2.3 Population 6
2.4 Agencies in the Project Area 6

Section 3: Data Sources 13

3.1 Water Supply Data Sources 13
3.1.1 Tulare Lake Basin Portion of Kern County IRWMP 13
3.1.2 Poso Creek IRWMP 13
3.1.3 State Water Project Draft Delivery Reliability Report 13
3.1.4 Department of Water Resources California's Groundwater – Bulletin 118 14
3.1.5 2010 Urban Water Management Plans 14
3.1.6 Oilfield Produced Water 14
3.2 Water Demand Data Sources 14

Section 4: Water Supplies 17

4.1 Kern County Groundwater Subbasin 17
4.1.1 Subsurface Hydrogeology 17
4.1.2 Water Bearing Formations 17
4.1.3 Recharge 19
4.1.4 Groundwater Levels 19
4.1.5 Groundwater Storage 21
4.2 Imported and Local Surface Water Sources 21
4.3 Current and Future Water Supplies 23
4.3.1 Imported Water Supply from State Water Project 23
4.3.1.1 State Water Project Future Supply Reliability 25
4.3.2 Imported Water Supply from the Central Valley Project 28
4.3.2.1 Central Valley Project Future Supply Reliability 31
4.3.3 Local Surface Water 34
4.3.3.1 Kern River 34

4.3.3.2 Minor Streams 36
4.3.3.3 Local Surface Water Supply Available in Project Area and Sub-Areas 37
4.3.4 Groundwater 37
4.3.4.1 Groundwater Extractions 38
4.3.4.2 Groundwater Banking and Recharge 39
4.3.4.3 Groundwater Supply Available in Project Area and Sub-Areas 40
4.3.5 Recycled Water 41
4.3.6 Oilfield-Produced Water 42
4.3.6.1 Produced Water Use by Oil and Gas 42
4.3.6.2 Agricultural Use of Produced Water 43
4.3.6.3 Oilfield Produced Water as Water Supply 43
4.3.7 Other Water Supply Opportunities 43
4.3.7.1 Agricultural Processing Wastewater 43
4.3.7.2 Transfers and Exchanges 44
4.4 Estimated Current and Future Water Supply 45
4.5 Water Supply Data Gaps and Limitations 50

Section 5: Oil and Gas Water Demand 51

5.1 Data Sources 51
5.2 Data Evaluation Procedures 51
5.3 Oilfields and Types of Oil Production Operations 52
5.3.1 Oilfields in Project Sub-Areas 52
5.3.2 Types of Enhanced Oil Recovery Operations 52
5.4 Historic Water Injection for Oil Production 53
5.5 Water Use for Well Drilling, Stimulation, and Abandonment 57
5.6 Produced Water Generation 58
5.7 Estimates of Produced Water Disposal as Waste by Deep Well Injection 59
5.8 Kern County Oil and Gas Water Balance in 2012 60
5.8.1 2012 Produced Water Balance in Kern County 65
5.8.2 2012 M&I Water Balance in Kern County 69
5.9 Oil and Gas Water Demand 73
5.10 Future Oil and Gas Water Demand 73

Section 6: Project Area Water Demand 77

6.1 Overview of Water Demand 77
6.1.1 Current and Future Water Demand 77
6.1.1.1 Urban Demand 78
6.1.1.2 Urban Demand for Project Area 78
6.1.2 Urban Demand by Sub-Areas 85
6.1.3 Agricultural Demand 86

Table of Contents (cont'd)

6.1.3.1 Agricultural Demand for Project Area 87
6.1.3.2 Agricultural Demand by Sub-Areas 87
6.2 Estimated Current and Future Water Demand 88
6.3 Water Demand Data Gaps and Limitations 91

Section 7: Comparison of Supplies and Demands 93

7.1 Normal/Average Water Year 93
7.2 Single-Dry Water Year 94
7.3 Multiple-Dry Water Year 95

Section 8: Findings 97

8.1 California Water Plan Update 2013 97
8.2 Groundwater Basin Prioritization 99
8.3 IRWM Plans 100
8.4 NASA Mapping 102

Section 9: References 103

List of Tables

1. Climate on the San Joaquin Valley Floor in the Kern Region
2. Entities Located in the Project Area
3. Agencies in the Project Area with Urban Water Management Plans and Agricultural Water Management Plans with information on Oil and Gas Sector Water Use
4. Projected Oil and Gas Demands (AF)
5. Kern County Water Agency Member Unit SWP Contract Amounts
6. Historical Total SWP Deliveries to KCWA M&I Purveyors and Agricultural Member Units
7. KCWA Wholesaler Supply Reliability (AF)
8. KCWA Wholesaler Supply Reliability By Sub-Areas (AF)
9. Central Valley Project Deliveries To Project Area (AF)
10. Tentative Interim Flow Release Schedule for Friant Dam
11. Projected Central Valley Project Supply Deliveries (AF)
12. Projected Central Valley Project Deliveries by Sub-Areas (AF)
13. Historic Kern River Flows (AF)
14. Historical Minor Stream Runoff (AF)
15. Estimated Local Surface Water Supply 2015 to 2030 Based on Historic Use

Table of Contents (cont'd)

16. Historical Total Groundwater Extractions by Purveyors
17. Estimated Groundwater Supply for 2015 to 2035 Based on Historic Extractions
18. Historical Recycled Water Use
19. Current and Projected Oilfield-Produced Water Deliveries
20. Summary of Water Supplies 2015 to 2035 for Project Area
21. Summary of Water Supplies 2015 to 2035 for Sub-Areas
22. Approach to Data Limitations and Uncertainty
23. Oil-Fields by Project Sub-Areas
24. Number of Oilfields Involved in Various Types of Oil Production Activities in Project Sub-Areas During 2012 and 2013
25. Waste Disposal Wells and Volume Disposed in 2013 by Deep Well Injection
26. Impact Factor for M&I Water for the Three Sub-Areas (WZI 2014)
27. Impact Factor for Oilfield Produced Water for the Three Sub-Areas (WZI 2014)
28. Water Balance Estimates (WZI 2014)
29. Projections for Future Well Operation, Construction, and Abandonments
30. Oil And Gas Sector M&I Water Demand Projection Plus 10% Contingency
31. Urban Water Demand Projections – Normal Water Year (AFY)
32. Urban Water Demand Projections – Single Dry Year (AFY)
33. Urban Water Demand Projections – Multiple Dry Year (AFY)
34. Urban Water Demand Projections by Sub-Areas – Normal Water Year (AFY)
35. Urban Water Demand Projections by Sub-Areas – Single Dry Year (AFY)
36. Urban Water Demand Projections by Sub-Areas – Multiple Dry Year (AFY)
37. Summary of Agricultural Water Demand (AFY)
38. Summary of Agricultural Water Demand By Sub-Areas (AFY)
39. Summary of Water Demand 2015 Through 2035 For Project Area
40. Approach to Data Limitations and Uncertainty
41. Comparison of Supplies and Demands Normal Year 2015 to 2035 (AF)
42. Comparison of Supplies and Demands Single-Dry Year 2015 to 2035 (AF)
43. Comparison of Supplies and Demands Multiple-Dry Year 2015 to 2035 (AF)

List of Figures

1. Project Area and Three Sub-Areas
2. Communities in the Project Area
3. Crop Patterns Based on DWR Land Use Survey
4. Water District Boundaries
5. Groundwater Basins in the Project Area
6. Groundwater Levels
7. Major Surface Water Features and Water Infrastructure in Project Area

Table of Contents (cont'd)

8. Current and Future Water Supplies in the Project Area
9. Historic Injection Volume for Oil and Gas Production in Kern County
10. Historic Injection Volume for Oil and Gas Production in West Sub-Area
11. Historic Injection Volume for Oil and Gas Production in Central Sub-Area
12. Historic Injection Volume for Oil and Gas Production in East Sub-Area
13. Number of Wells Drilled in the Project Area
14. Historic Produced Water Production in the Project Area
15. Historic Disposal Volume by Injection in the Project Area
16. Estimate of Produced Water Generated in the Project Area in 2012
17. Estimated Produced Water Use and Disposal in Project Area in 2012
18. Estimated Produced Water Use and Disposal in West Sub-Area in 2012
19. Estimated Produced Water Use and Disposal in Central Sub-Area in 2012
20. Estimated Produced Water Use and Disposal in East Sub-Area in 2012
21. Estimated M&I Water Use in the Project Area in 2012
22. Estimated M&I Water Use in the West Sub-Area in 2012
23. Estimated M&I Water Use in the Central Sub-Area in 2012
24. Estimated M&I Water Use in the East Sub-Area in 2012
25. Projected Beneficial Produced Water Use in the Project Area from 2015 to 2035
26. Projected M&I Water Demand for Oil and Gas Activities
27. Central Valley Groundwater Storage Change
28. Selected Hydrographs – Tulare Lake Hydrologic Region

List of Acronyms

AF	Acre-feet
AFY	Acre-feet per year
AWMP	Agricultural Water Management Plan
BBL	Barrels
CalTrans	California Department of Transportation
CASGEM	California Statewide Groundwater Elevation Monitoring
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFS	cubic feet per second
COE	Corps of Engineers
CVC	Cross Valley Canal
CVP	Central Valley Project

CWP	California Water Plan
DRR	Delivery Reliability Report
DOGGR	Division of Oil and Gas and Geothermal Resources
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EOR	enhanced oil recovery
GRACE	Gravity Recovery and Climate Experiment
GPM	Gallons Per Minute
GWMP	Groundwater Management Plan
ID	irrigation district
ID4	KCWA Improvement District No. 4
IRWMP	Integrated Regional Water Management Plan
JPA	Joint Powers Authority
KCWA	Kern County Water Agency
KNWR	Kern National Wildlife Refuge
KWBA	Kern Water Bank Authority
MAF	Million Acre Feet
M & I	Municipal and Industrial
MGD	million gallons per day
Mg/l	milligrams per liter
ml	milliliters
MPN	Most Probable Number
MWC	Mutual Water Company
MWD	Municipal Water District
RCD	Resource Conservation District
RWMG	Regional Water Management Group
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAF	Thousand Acre Feet
USBR	US Bureau of Reclamation
UWMP	Urban Water Management Plan
WC	Water Company
WD	Water District
WSA	Water Supply Assessment
WSD	Water Storage District
WSPA	Western States Petroleum Association
WWTP	Wastewater Treatment Plant

Section 1: Introduction and Summary

This water supply assessment (WSA) has been prepared in support of the proposed Project that consists of an amendment to the Title 19 Kern County Zoning Ordinance focused on Chapter 19.98 (Oil and Gas Production) related to oil and gas regulations (exploration, extraction, operations, and production activities etc.) in unincorporated Kern County. The amendment of Chapter 19.98 of the Kern County Zoning Ordinance requires environmental review under the California Environmental Quality Act (CEQA). Kern County Planning and Community Development Department (Kern County) is the lead agency for the Environmental Impact Report (EIR).

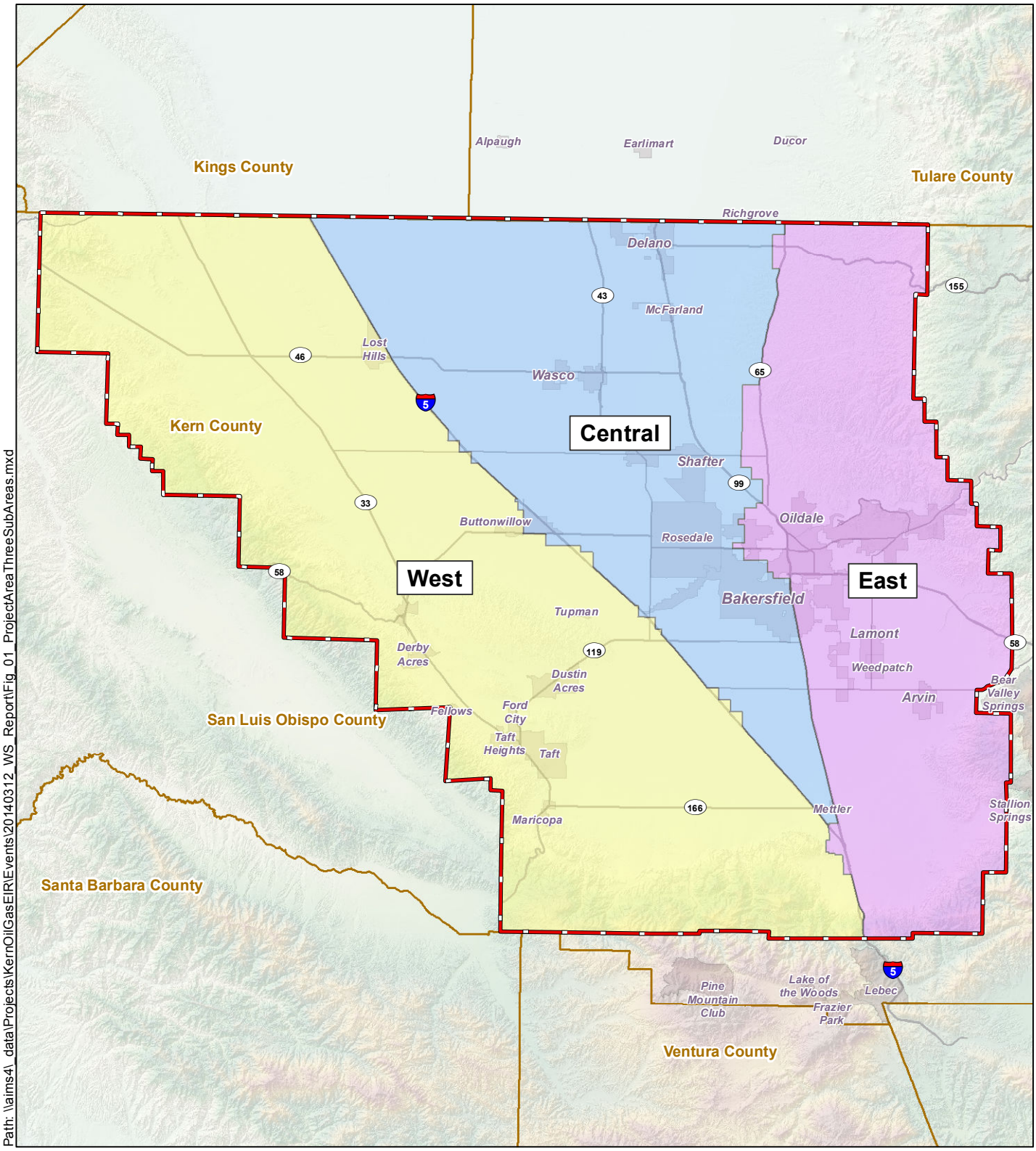
1.1 Purpose

The purpose of this WSA is to describe current and future water supplies as well as water demands in the Project Area. This WSA presents the water supplies in the Project Area, including imported water, surface water, groundwater, and recycled water. Water supply sources are described in normal, single-dry, and multiple-dry years, in five-year increments from 2015 to 2035, based on existing, publicly available data. Future projections of water supplies are evaluated both for the Project Area and for the three designated oil and gas Sub-Areas, namely West, Central, and East (see Figure 1). As a counterpoint to evaluating supplies this WSA also evaluates current and future demands. Water demands are evaluated in the Project Area and the three designated Sub-Areas in normal, single-dry, and multiple-dry years, in five-year increments from 2010 to 2035, based on existing, publicly available data.

1.2 Major Findings

This WSA uses the best available information. However, many aspects of both the water supply and the water demand involve some level of uncertainty. Among the issues identified, the major data gap is related to groundwater supply and groundwater extraction. It is estimated that groundwater makes up over one-third of total water supplies for Kern County. It is not possible to track extractions as the majority of groundwater extractions are not reported. Groundwater extractions and supply in the Project Area were estimated based on calculations available in published reports. Given the uncertainty with pumping levels, groundwater pumping projections were based on the historical mean of the available records. However, annual groundwater pumping may vary widely from year to year depending on hydrologic year types.

Water supply projections from both the State Water Project (run by the Department of Water Resources) and Central Valley Project (run by the Bureau of Reclamation) also have a great deal of uncertainty. Projections used in this WSA use the most current modeling and data available. However, because 2014 was a historically dry year it is likely projections of supply from these sources will be revised by the Department of Water Resources and Reclamation. Availability of supplies may also be affected by the recently enacted Groundwater Sustainability Act. California Proposition 1, a $7.5 billion general obligation bond measure approved by California voters on November 4, 2014, will further affect supplies in the long-term by funding investments in water projects and programs as part of a statewide, comprehensive water plan for California. On-going litigation over Kern River water may also affect overall supply and/or what part of the Project Area receives the supply.



Path: \\aims4_data\Projects\KernOilGasEIR\Events\20140312_WS_Report\Fig_01_ProjectAreaThreeSubAreas.mxd

Legend

- Project Boundary

Three Sub-Areas

- West
- Central
- East

N

0 6 12

Miles

Kennedy/Jenks Consultants

Oil & Gas EIR
Kern County, CA
Water Supply Assessment

Project Area and Three Sub-Areas

K/J 1370028.01
March 2014

Figure 1

Water demands are assumed to follow historic trends. However, Governor Jerry Brown's Drought Declaration and new State Water Resources Control Board (SWRCB) regulations may reduce urban demands. New technologies may reduce the oil and gas sector's use of potable water. Changes in crop values and cropping patterns may reduce agricultural demand.

This WSA finds that surplus water is not available in the Project Area. Essentially, any new use of water is taking water away from some other user or results in groundwater overdraft. The Central Sub-Area has the greatest potential shortage. Even in an average year supplies are insufficient to meet demands both currently (2015) and into the future (2035). The Central Sub-Area also has projected shortages in a very dry year as well as a multiple-year drought. The West Sub-Area could experience shortages in a very dry year. The East Sub-Area generally has sufficient supply, but this supply cannot compensate for shortages in the other two subareas.

For the Project Area as a whole, and within each Sub-Area, agriculture represents the greatest demand, followed by urban uses, and then the oil and gas sector. The oil and gas sector reuses water that is a byproduct of hydrocarbon extraction. The use of this "produced water" significantly reduces the oil and gas sector's demand for fresh water.

There are opportunities to enhance supply or reduce demand in the Project Area, including:

- Use of agricultural processing water
- Increased use of recycled water
- Water transfers and exchanges with other regions
- Increased use of produced water in both the oil and gas sector and agricultural sector
- Conservation in all water use sectors

THIS PAGE INTENTIONALLY LEFT BLANK

Section 2: Project Area Description

The Project Area encompasses about 3,700 square miles and generally includes the San Joaquin Valley Floor portion of Kern County up to an elevation of 2,000 feet. Figure 1 shows the boundaries of the Project Area and the three oil and gas Sub-Areas (West, Central, and East) that were considered for the purpose of the WSA, based on the boundaries defined by Kern County for the EIR. For the purpose of this WSA, these two boundaries will be referred to as the Project Area and the three Sub-Areas. The Project Area boundary and Sub-Area boundaries were defined by Kern County based on generally available information regarding areas with potential or confirmed oil and gas resources.

2.1 Climate

Climate in the Project Area is characterized as an "inland Mediterranean climate" with hot and dry summers and cool winters. The climate around the San Joaquin Valley floor is prone to large diurnal fluxes due to its inland location, and is dominated by dry, hot weather throughout the summer months. The Project Area is characterized by low rainfall. The Valley floor receives average precipitation of less than 10 inches per year, most of which falls between November and April. Average temperatures are relatively high, and total evaporation exceeds total precipitation. Winter is generally mild, but an occasional freeze does occur and may cause substantial agricultural damage. Table 1 summarizes the historical range in temperatures and precipitation for the Project Area.

TABLE 1
CLIMATE ON THE SAN JOAQUIN VALLEY FLOOR IN THE KERN REGION

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Monthly Avg. ET (inches)	1.45	2.24	3.90	5.48	7.55	8.60	9.11	8.55	6.17	4.08	2.02	1.41	5.04
Avg. Rainfall (inches)	1.25	1.88	1.04	0.97	0.43	0.04	0.03	0.01	0.11	0.35	0.71	1.50	8.32
Avg. Max Temp. (°F)	57.78	63.09	68.63	72.97	81.81	89.27	96.3	95.17	90.33	78.81	66.51	58.98	76.62
Avg. Min Temp. (°F)	38.34	41.23	44.89	48.07	55.03	61.06	66.52	64.57	59.54	49.98	42.1	36.89	50.69

Source: CIMIS data for Arvin-Edison Station 125 for the time period from March 1995 to February 2013 (http://wwwcimis.water.ca.gov/cimis/data.jsp).

2.2 Land Use

Land use in the Project Area is divided among urban and rural areas. Much of the rural area is considered agricultural. Most of the Project Area's population lives within or near the incorporated areas. The largest city in the Project Area is Bakersfield (with a population of over 300,000), followed by the City of Delano (with a population of over 50,000); Shafter, and Wasco; all other cities and communities in the Project Area have populations of less than 10,000 persons. Figure 2 shows a map of the cities and communities within the Project Area.

Land uses within the unincorporated areas are governed by Kern County, and the Kern County General Plan lays out the policies and regulations governing the physical development of the lands under County jurisdiction. Agriculture is an important land use in Kern County and is vital to the local economy. Kern County is the third largest agricultural county in the state in economic value, and produces over 250 different crops, including over 30 types of fruits and

nuts, over 40 types of vegetables, over 20 field crops, lumber, nursery stock, livestock, poultry and dairy products. The total value of these agricultural products annually exceeds $3.5 billion. The average size of farms in Kern County is 1,272 acres and over 98 percent of agricultural lands are irrigated (City-data.com 2009). Figure 3 shows the crop coverage within the Project Area based on the California Department of Water Resources (DWR) land use survey of Kern County (DWR 2014a).

The County has been ranked among California's leading counties in total urbanization and loss of farmland. From 1990 to 2006, the amount of "important" farmland in Kern County decreased by 88,338 acres. Approximately one-third (approximately 29,000 acres) of this decrease was due to urban-related changes (County of Kern 2009). Increasing population raises many land use issues, including urban-rural conflicts and increased competition for resources such as water. Long-term water supply planning is important to ensuring that rural and urban economic growth can be accommodated.

In addition to agriculture, mineral and petroleum resources are fundamental parts of Kern County's economy. In fact, oil and gas properties make up close to 35 percent of the Kern County tax assessment roll (Kern County Assessor Recorder 2014).

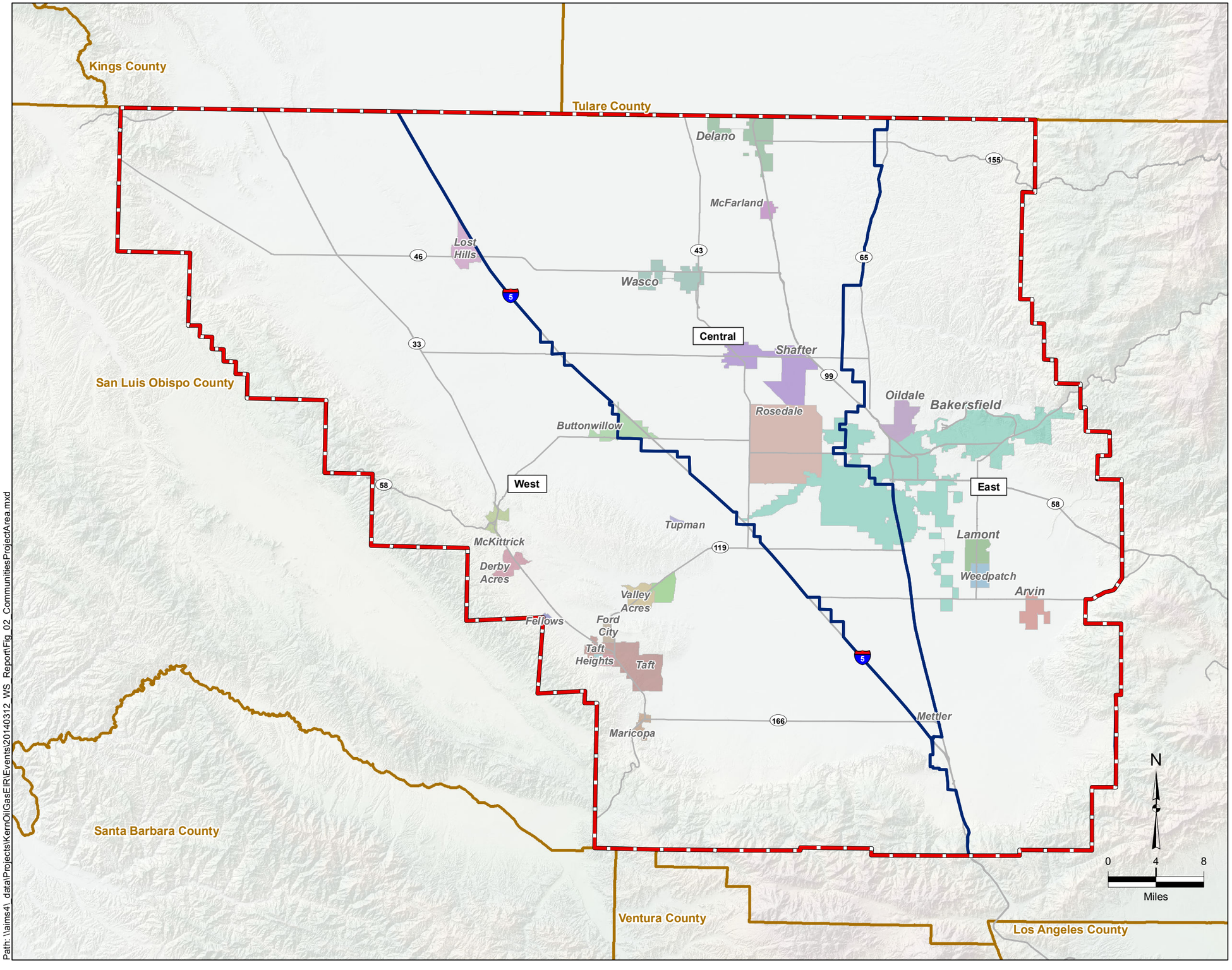
2.3 Population

Kern County has a population of over 870,000 and is one of the fastest growing counties in California. As of 2014, Kern County was the 11th most populated county in the state and among the top 15 counties in growth by number (California Department of Finance 2014). Among the areas experiencing the greatest amount of growth within the Project Area is metropolitan Bakersfield. Recent prison construction and corresponding job openings have increased growth rates in the communities of Delano, McFarland, Taft, and Wasco. Population projections indicate that over one million people will reside in Kern County by 2030. If Highway 178 into the Kern Valley is expanded into a four-lane highway (from Bakersfield through Lake Isabella), which according to the California Department of Transportation (CalTrans), may occur in the 2015 to 2020 timeframe, population numbers could be larger than estimated (Kern Integrated Regional Water Management Plan [IRWMP] 2011).

2.4 Agencies in the Project Area

Table 2 lists the wholesale and retail water purveyors and the cities located within the Project Area. The locations of these entities are grouped by the three Sub-Areas.

Figure 2 shows the cities and communities located within the Project Area. Figure 4 shows the boundaries of the water and irrigation districts located within the Project Area and the three Sub-Areas. Water supply conditions associated with the wholesale and retail water purveyors are further described in later sections.



Legend

Communities in the Project Area

- Arvin
- Bakersfield
- Buttonwillow
- Delano
- Derby Acres
- Dustin Acres
- Fellows
- Ford City
- Lamont
- Lost Hills
- Maricopa
- McFarland
- McKittrick
- Mettler
- Oildale
- Rosedale
- Shafter
- South Taft
- Taft
- Taft Heights
- Tupman
- Valley Acres
- Wasco
- Weedpatch
- Project Boundary
- Three Sub-Areas
- County Boundaries

Kennedy/Jenks Consultants

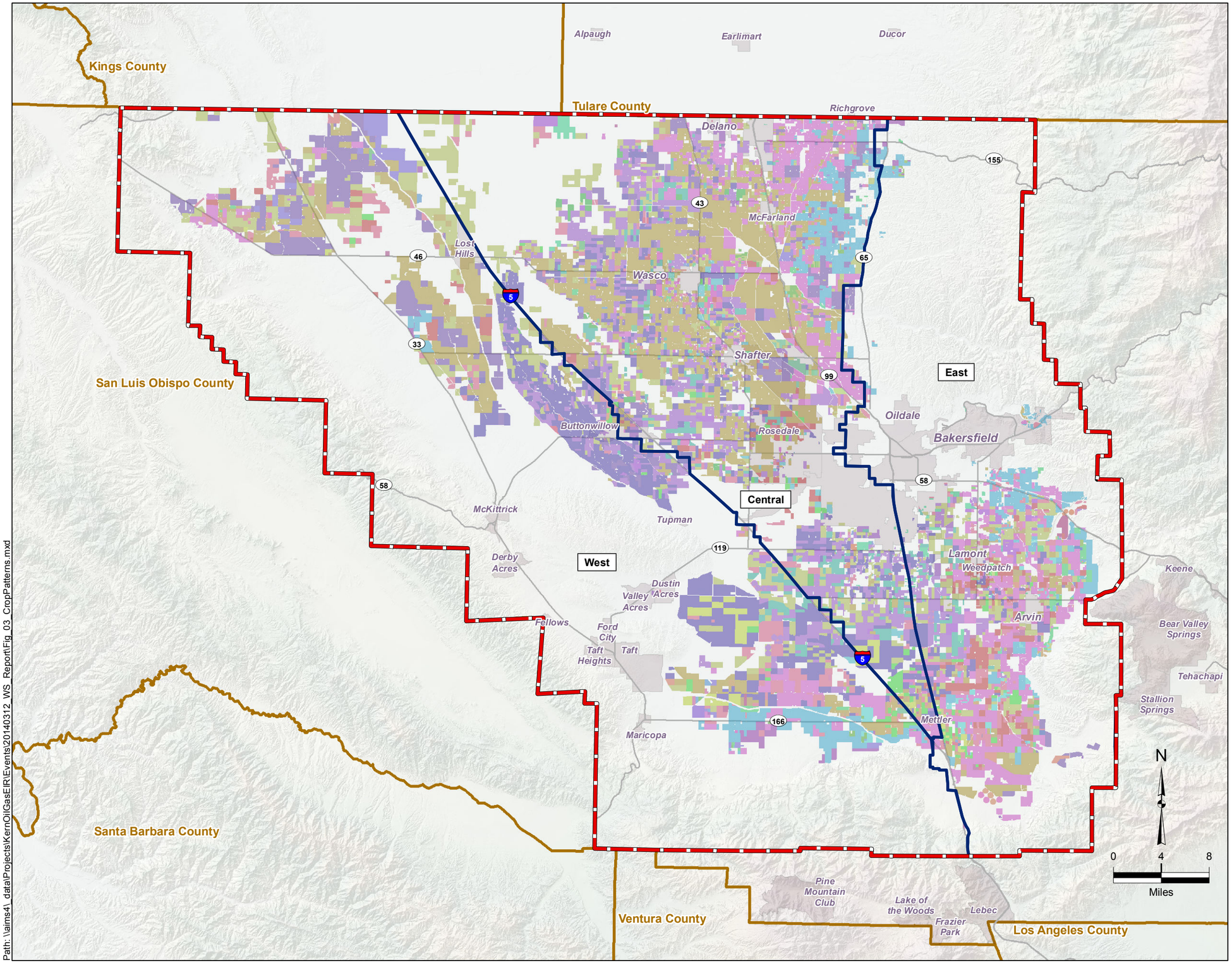
Oil & Gas EIR
Kern County, CA
Water Supply Assessment

Communities in the Project Area

K/J 1370028.01
March 2014

Figure 2

Path: \\aims4_data\Projects\KernOilGasEIR\Events\20140312_WS_Report\Fig_02_CommunitiesProjectArea.mxd



Legend

- Project Boundary
- Three Sub-Areas
- County Boundaries

Crops Patterns

- Alfalfa & alfalfa mixtures
- Almonds
- Apples
- Apricots
- Asparagus
- Barley
- Beans (dry)
- Beans (green)
- Broccoli
- Bush berries
- Carrots
- Cauliflower
- Cherries
- Citrus and Subtropical
- Corn (field & sweet)
- Cotton
- Deciduous Fruits and Nuts
- Eucalyptus
- Field Crops
- Figs
- Flowers, nursery & Christmas tree farms
- Grain and Hay Crops
- Grain sorghum
- Grapefruit
- Jojoba
- Kiwis
- Lemons
- Lettuce (all types)
- Melons, squash, and cucumbers (all types)
- Miscellaneous deciduous
- Miscellaneous subtropical fruits
- Miscellaneous truck
- Mixed (four or more)
- Mixed pasture
- Native pasture
- Olives
- Onions and garlic
- Oranges
- Peaches and nectarines
- Peppers (chili, bell, etc.)
- Pistachios
- Plums
- Potatoes
- Safflower
- Strawberries
- Sudan
- Sugar beets
- Sweet potatoes
- Tomatoes
- Truck, Nursery and Berry Crops
- Turf farms
- Vineyards
- Walnuts

Kennedy/Jenks Consultants

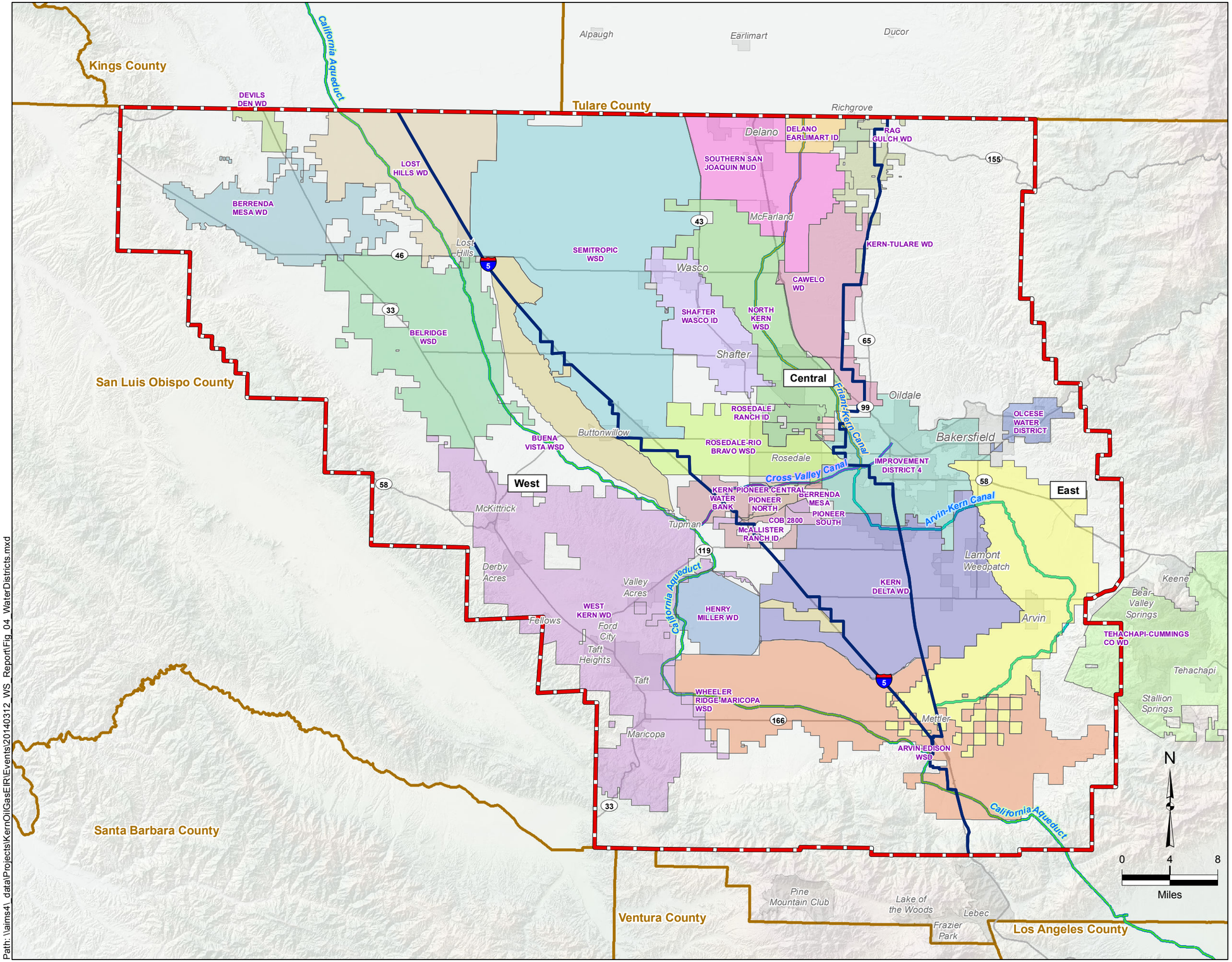
Oil & Gas EIR
Kern County, CA
Water Supply Assessment

Crop Patterns Based on DWR Land Use Survey

K/J 1370028.01
March 2014

Figure 3

Path: \\aims41_data\Projects\KernOilGasEIR\Events\20140312_WS_Report\Fig_03_CropPatterns.mxd



Legend

Water Districts

- ARVIN-EDISON WSD
- BELRIDGE WSD
- BERRENDA MESA
- BERRENDA MESA WD
- BUENA VISTA WSD
- CAWELO WD
- COB 2800
- DELANO EARLIMART ID
- DEVILS DEN WD
- HENRY MILLER WD
- IMPROVEMENT DISTRICT 4
- KERN DELTA WD
- KERN WATER BANK
- KERN-TULARE WD
- LOST HILLS WD
- McALLISTER RANCH ID
- NORTH KERN WSD
- OLCESE WATER DISTRICT
- PIONEER CENTRAL
- PIONEER NORTH
- PIONEER SOUTH
- RAG GULCH WD
- ROSEDALE RANCH ID
- ROSEDALE-RIO BRAVO WSD
- SEMITROPIC WSD
- SHAFTER WASCO ID
- SOUTHERN SAN JOAQUIN MUD
- TEHACHAPI-CUMMINGS CO WD
- WEST KERN WD
- WHEELER RIDGE-MARICOPA WSD
- California Aqueduct
- Friant-Kern Canal
- Arvin-Edison Canal
- Cross Valley Canal
- Project Boundary
- Three Sub-Areas
- County Boundaries

Kennedy/Jenks Consultants

Oil & Gas EIR
Kern County, CA
Water Supply Assessment

Water District Boundaries

K/J 1370028.01
March 2014

Figure 4

Path: \\alms4_data\Projects\KernOilGasEIR\Events\20140312_WS_Report\Fig_04_WaterDistricts.mxd

TABLE 2
ENTITIES LOCATED IN THE PROJECT AREA

Organization	Sub-Areas
Wholesale and Retail Water Purveyors	
Alpaugh Irrigation District [a]	Central
Arvin Community Services District [a]	East
Arvin-Edison Water Storage District [a]	Central, East, and West
Belridge Water Storage District [a]	West
Berrenda Mesa Water District [a]	West
Buena Vista Water Storage District [a]	West
Buttonwillow County Water District [a]	Central and West
California Water Service, Bakersfield District [a]	Central and East
California Water Service, Kern River Valley District [a]	Central and East
Casa Loma Water Company [a]	Central
Cawelo Water District [b]	Central and East
Delano-Earlimart Irrigation District [b]	Central
East Niles Community Services District [a]	East
Greenfield County Water District [a]	East
Henry Miller Water District [a]	West
KCWA Improvement District No. 4 [a]	Central and East
Kern County Water Agency [a]	Central
Kern Delta Water District [a]	Central, East, and West
Kern-Tulare Water District [b]	Central and East
Kern Water Bank Authority [a]	Central and West
Lamont Public Utility District [a]	East
Lamont Stormwater Utility District [a]	East
Long Canyon Water Company [a]	Central
Lost Hills Utility District [a]	Central and West
Lost Hills Water District [a]	Central and West
McAllister Ranch Irrigation District	Central
Mettler County Water District [a]	Central
North Kern Water Storage District [b]	Central and East
North of the River Municipal Water District [a]	Central and East
North West Kern Resource Conservation District [a], [b]	Central
Oildale Mutual Water Company [a]	Central and East
Olcese Water District	East
Plainview Public Utility District	East
Pond Poso Improvement District	Central
Rag Gulch Water District	Central
Rosedale-Rio Bravo Water Storage District [a]	Central, East, and West
Semitropic Water Storage District [b]	Central and West
Shafter-Wasco Irrigation District [b]	Central
Southern San Joaquin Municipal Utility District	Central
Vaughn Water Company [a]	Central and East
West Kern Water District [a]	Central and West
Westside Mutual Water Company [a]	Central
Wheeler Ridge-Maricopa Water Storage District [a]	Central, East, and West

Organization	Sub-Areas
Municipal Governments	
County of Kern	Central, East, and West
City of Arvin [(a)]	East
City of Bakersfield [(a)]	Central
City of Delano [(a)]	Central
City of Maricopa [(a)]	West
City of McFarland [(a)]	Central
City of Shafter [(a)]	Central
City of Taft [(a)]	West
City of Wasco [(a)]	Central

Notes: (a) Tulare Lake Portion of Kern County IRWMP participants.
(b) Poso Creek IRWMP participants.

Section 3: Data Sources

This section briefly describes the key data sources that were used as part of the current and future projections of water supply and water demand in the Project Area.

3.1 Water Supply Data Sources

3.1.1 Tulare Lake Basin Portion of Kern County IRWMP

The Tulare Lake Basin Portion of Kern County Region (Kern Region) Integrated Regional Water Management Plan (IRWMP, Kern County IRWMP) covers the entire Project Area and consists of the portion of the Tulare Lake Basin hydrologic region that is within Kern County (Kern Integrated Regional Water Management Plan 2011). The Kern County IRWMP was developed through a collaborative process of many agencies and organizations to manage region-wide water resources and related issues. A wide-range of entities were involved in the development of the IRWMP, including wholesale and retail water purveyors, wastewater agencies, municipalities, special districts, regulatory agencies, and recreational and environmental entities.

The Kern County IRWMP provides relevant information on water resources management and issues in the Project Area that was used in support of the water supply analyses presented in this WSA.

3.1.2 Poso Creek IRWMP

The Poso Creek IRWMP was prepared for the northerly portion of the Kern County and southerly portion of Tulare County (Poso Creek Integrated Regional Water Management Plan 2007; updated in 2014). The Poso Creek IRWMP includes Semitropic Water Storage District (WSD), Cawelo Water District (WD), Delano-Earlimart Irrigation District (ID), Kern-Tulare WD, North Kern WSD, Shafter-Wasco ID, and North West Kern Resource Conservation District (RCD). The purpose of this IRWMP is to provide a framework for coordinating groundwater and surface water management activities and implementing mitigation measures necessary to meet the objectives.

The Kern County IRWMP overlaps the Poso Creek IRWMP. Several entities involved in the development of the Poso Creek IRWMP were also involved in the Kern IRWMP, as presented in Table 2.

3.1.3 State Water Project Draft Delivery Reliability Report

The DWR State Water Project (SWP) Final 2013 Delivery Reliability Report (Final DRR), released in December 2014, includes the most recent published information available by DWR for SWP supply delivery reliability (DWR 2014d); the next update is expected to be released in late spring 2015. Future projections of SWP water supply within the Project Area were estimated based on DWR's projected SWP deliveries as reported in the 2013 Final DRR. This Final DRR updates estimated water delivery by the SWP for current and future conditions through 2035 for a range of hydrologic years. The 2013 Final DRR is the most recent update, and identifies several factors that have the potential to affect the availability and reliability of SWP supplies. It is considered applicable for forecasting SWP supply reliability from future

anticipated SWP operations for the purpose of this water supply assessment as it is deemed per a legal settlement agreement to be the best available information concerning SWP deliveries.

3.1.4 Department of Water Resources California's Groundwater – Bulletin 118

DWR Bulletin 118 (DWR 2003) was used as a source to characterize groundwater conditions in the Project Area, including the subsurface hydrogeology, water bearing formations, and groundwater recharge. The next update to this document is expected to be available in 2015.

3.1.5 2010 Urban Water Management Plans

Current and future projections of water supply were obtained from publicly-available 2010 Urban Water Management Plans (UWMPs). Available 2010 UWMPs include the following: California Water Service Company, East Niles Community Services District, Kern County Water Agency (KCWA) Improvement District No.4 (ID4), North of the River Municipal Water District (MWD), Oildale Mutual Water Company (MWC), Vaughn Water Company (WC), West Kern Water District, City of Bakersfield, City of Delano, City of Shafter, and City of Wasco.

3.1.6 Oilfield Produced Water

Projections of oilfield produced water were based on data from Cawelo Water District. Cawelo Water District has agreements with Chevron USA, Schaefer Oil, and Valley Waste Disposal to receive oilfield produced water. Oilfield produced water received by Cawelo Water District must be in conformance with the Central Valley Regional Water Quality Control Board waste discharge permits. In 2012 Cawelo Water District reports receiving 37,107 AF of oilfield produced water (Cawelo Water District 2014). Hathaway LLC reports delivering 1,551 AFY to agriculture (personal communication Chad Hathaway, Hathaway LLC provided to Jonathan Lilien, Chevron Inc. August 18, 2015). As described further in section 5, year 2012 is considered a representative year for oil and gas operations.

3.2 Water Demand Data Sources

The main data sources that were used as part of the current and future projections of water demands in the Project Area are listed below. Some of these data sources are the same as used for water supply projections described earlier. Below is a brief description these sources:

- Division of Oil, Gas, and Geothermal Resources (DOGGR) database information was compiled and analyzed to estimate the historical and current water use by oil and gas activities in the Project Area. Data also included records of produced water production and wastewater injected during oil and gas operations.

- Kern Council of Governments 2011 Regional Transportation Plan Draft EIR was used to estimate population growth and water demand growth for areas that did not have 2035 water demand projections.

- Tulare Lake Basin Portion of Kern County IRWMP and Poso Creek IRWMP supplemented data in support of the current and future water supply projections in the Project Area.

- Oil and gas water demand projections developed in Section 5 of this WSA.

In addition to the above sources, water management planning documents including Urban Water Management Plans (UWMPs), Agricultural Water Management Plans (AWMPs), and Groundwater Management Plans (GWMPs) were collected and reviewed for 52 different water agencies in the Project Area. The purpose of the review was to identify which agencies accounted for oil and gas sector water use in their planning. The results of the review are summarized in Tables 3 and 4 below.

TABLE 3
AGENCIES IN THE PROJECT AREA WITH URBAN WATER MANAGEMENT PLANS AND AGRICULTURAL WATER MANAGEMENT PLANS WITH INFORMATION ON OIL AND GAS SECTOR WATER USE

UWMP/AWMP	Discuss Water Provided to Oil & Gas?	Quantity (AFY)
Alpaugh Irrigation District UWMP (according to DWR, filed for bankruptcy in 2005)	No UWMP or AWMP identified	
Arvin Community Services District [(a)]	No UWMP or AWMP identified	
Arvin-Edison Water Storage District 2005 AWMP	No discussion in AWMP	
Belridge Water Storage District AWMP	Yes	See Table 4.
Berrenda Mesa Water District AWMP	No	
Buena Vista Water Storage District	AWMP in progress	
Buttonwillow County Water District [(a)]	No UWMP or AWMP identified	
California Water Service, Bakersfield District [(a)] 2010 UWMP	No discussion in UWMP	
California Water Service, Kern River Valley District [(a)] 2010 UWMP	No discussion in UWMP	
Casa Loma Water Company [(a)]	No UWMP or AWMP identified	
Cawelo Water District 2012 AMWP	Discussion on oil and gas *demand* not included. Separate section discusses *supply* from oil industry.	
Delano-Earlimart Irrigation District 2009 AWMP	No discussion in AWMP	
East Niles Community Services District [(a)] 2010 UWMP	No discussion in UWMP	
Greenfield County Water District [(a)]	No UWMP or AWMP identified	
Henry Miller Water District [(a)]	No UWMP or AWMP identified	
KCWA Improvement District No. 4 [(a)] 2010 UWMP	No discussion in UWMP	
Kern County Water Agency	No UWMP or AWMP identified	
Kern Delta Water District AWMP	No UWMP or AWMP identified	
Kern-Tulare Water District 2008 AWMP (includes Rag-Gulch AWMP in report)	No discussion in AWMP	
Kern Water Bank Authority [(a)]	No UWMP or AWMP identified	
Lamont Public Utility	No UWMP or AWMP identified	
Lamont Stormwater Utility District [(a)]	No UWMP or AWMP identified	
Long Canyon Water Company [(a)]	No UWMP or AWMP identified	
Lost Hills Utility District [(a)]	No UWMP or AWMP identified	
Lost Hills Water District 2012 AWMP	Yes, included in Industrial Users	See Table 4.
McAllister Ranch Irrigation District	No UWMP or AWMP identified	
Mettler County Water District [(a)]	No UWMP or AWMP identified	

UWMP/AWMP	Discuss Water Provided to Oil & Gas?	Quantity (AFY)
North Kern Water Storage District 2014 AWMP	No discussion in AWMP	
North of the River Municipal Water District [(a)] 2010 UWMP	No discussion in UWMP	
North West Kern Resource Conservation District [(a), (b)]	No UWMP or AWMP identified	
Oildale Mutual Water Company [(a)] 2010 UWMP	Oil and Gas use lumped in with industrial use	
Olcese Water District	No UWMP or AWMP identified	
Plainview Public Utility District	No UWMP or AWMP identified	
Pond Poso Improvement District	No UWMP or AWMP identified	
Rag Gulch Water District 2008 AWMP (See Kern-Tulare 2008 AWMP)	See Kern-Tulare 2008 AWMP	
Rosedale-Rio Bravo Water Storage District GWMP	No discussion in GWMP	
Semitropic Water Storage District 2013 AWMP	No discussion in AWMP	
Shafter-Wasco Irrigation District [(b)] 2010 UWMP	No discussion in UWMP	
Southern San Joaquin Municipal Utility	AWMP in progress	
Vaughn Water Company [(a)] 2010 UWMP	Oil and Gas use lumped in with industrial use	
West Kern Water District [(a)] 2010 UWMP	Oil and Gas use lumped in with industrial use	
Westside Mutual Water Company [(a)]	No UWMP or AWMP identified	
Wheeler Ridge-Maricopa Water Storage District	AWMP in progress	
County of Kern	No UWMP or AWMP identified	
City of Arvin [(a)]	No UWMP or AWMP identified	
City of Bakersfield [(a)] draft 2010 UWMP	No discussion in UWMP	
City of Delano [(a)] 2010 UWMP	No discussion in UWMP	
City of Maricopa [(a)]	No UWMP or AWMP identified	
City of McFarland [(a)]	No UWMP or AWMP identified	
City of Shafter [(a)] 2010 UWMP	No discussion in UWMP	
City of Taft [(a)]	No UWMP or AWMP identified	
City of Wasco [(a)] 2010 UWMP	No discussion in UWMP	

Notes: (a) Kern County IRWMP participants.
(b) Poso Creek IRWMP participants.

For agencies that quantified their oil and gas demand projections from the various documents listed in Table 3, those demand projections are summarized in Table 4.

TABLE 4
PROJECTED OIL AND GAS DEMANDS (AF)

	2010	2015	2020	2025	2030	2035
Belridge 2012 AWMP[(1)]	1,600	1,600	1,600	1,600	1,600	1,600
Lost Hills Water District 2012 AWMP	708	708	708	708	708	708
Total	**2,308**	**2,308**	**2,308**	**2,308**	**2,308**	**2,308**

Notes: 1.Contract amount is 5,578 AFY but only use 1,600 AFY.

Section 4: Water Supplies

The paragraphs below describe the major water supply sources available in the Project Area. In the Project Area supply sources are used conjunctively to meet demands.

4.1 Kern County Groundwater Subbasin

The Kern County Subbasin (5-22.14) of the San Joaquin Valley Groundwater Basin, covering approximately 1,945,000 acres (3,040 square miles), is the one large basin located within the Project Area. Figure 5 shows the boundary of the Kern County Subbasin and other groundwater basins in the vicinity of the Project Area, including the Walker Basin Creek Valley to the east; Cummings Valley and Brite Valley to the southeast; Cuddy Ranch Area, Cuddy Valley, Mil Potrero Area, and Castac Valley to the south; Cuyama Valley to the southwest; and Carrizo Plain to the west (DWR 2003). Principal rivers and streams in the Kern County Subbasin include the Kern River and Poso Creek.

4.1.1 Subsurface Hydrogeology

The aquifers are generally thick in the San Joaquin Valley subbasins, with groundwater wells commonly exceeding 1,000 feet in depth (DWR 2003). The maximum thickness of freshwater-bearing deposits (4,400 feet) occurs at the southern end of the San Joaquin Valley. Typical well yields in the San Joaquin Valley range from 300 gallons per minute (gpm) to 2,000 gpm with yields of 4,000 gpm possible.

Active faults that affect groundwater movement include the Edison, Pond-Poso, and White Wolf faults. Other barriers to groundwater movement include fold structures such as the Elk Hills and Buena Vista Hills, angular unconformities, and contacts with crystalline and consolidated sedimentary rocks at the subbasin margins (DWR 1977). The Corcoran Clay, a Pleistocene lacustrine deposit, significantly impedes vertical groundwater movement where present (DWR 2003).

4.1.2 Water Bearing Formations

Sediments that comprise shallow to intermediate depth water-bearing deposits in the groundwater subbasin are primarily continental deposits of Tertiary and Quaternary age. From oldest to youngest the deposits include the Olcese and Santa Margarita Formations; the Tulare Formation (western subbasin) and its eastern subbasin equivalent, the Kern River Formation; older alluvium/stream deposits; and younger alluvium and flood basin deposits.

Specific yield values for the unconfined aquifer (Tulare and Kern River Formations and overlying alluvium) range from 5.3 to 19.6 percent and average 11.8 percent for the interval from surface to 300 feet below grade and average 12.4 percent representing an interval thickness of 175 to 2,900 feet. The greatest thickness of unconfined aquifer occurs along the eastern subbasin margin. The highest specific yield values are associated with sediments of the Kern River Fan west of Bakersfield.

Kings County
Tulare County
San Luis Obispo County
Santa Barbara County
Ventura County
Alpaugh
Earlimart
Ducor
Richgrove
Delano
McFarland
Lost Hills
Wasco
Shafter
Buttonwillow
Rosedale
Oildale
Bakersfield
Lamont
Weedpatch
Arvin
Keene
Bear Valley Springs
Tehachapi
Stallion Springs
Mettler
McKittrick
Tupman
Derby Acres
Dustin Acres
Valley Acres
Fellows
Ford City
Taft Heights
Taft
Maricopa
Pine Mountain Club
Lake of the Woods
Frazier Park
Lebec
SAN JOAQUIN VALLEY GROUNDWATER BASIN (Kern County Subbasin)
WALKER BASIN CREEK VALLEY GROUNDWATER BASIN
CARRIZO PLAIN GROUNDWATER BASIN
CUYAMA VALLEY GROUNDWATER BASIN
MIL POTRERO AREA GROUNDWATER BASIN
CUDDY VALLEY GROUNDWATER BASIN
CASTAC LAKE VALLEY GROUNDWATER BASIN
CUDDY CANYON VALLEY GROUNDWATER BASIN
ANTELOPE VALLEY GROUNDWATER BASIN
CUDDY RANCH AREA GROUNDWATER BASIN
BRITE VALLEY GROUNDWATER BAS
CUMMINGS VALLEY GROUNDWATER BASIN
5
43
46
33
58
119
166
155
65
99

Legend

Groundwater Basins

- ANTELOPE VALLEY
- BRITE VALLEY
- CARRIZO PLAIN
- CASTAC LAKE VALLEY
- CUDDY CANYON VALLEY
- CUDDY RANCH AREA
- CUDDY VALLEY
- CUMMINGS VALLEY
- CUYAMA VALLEY
- MIL POTRERO AREA
- SAN JOAQUIN VALLEY
- WALKER BASIN CREEK VALLEY
- Project Boundary
- County Boundaries

N

0 4 8

Miles

Kennedy/Jenks Consultants

Oil & Gas EIR
Kern County, CA
Water Supply Assessment

Groundwater Basins in the Project Area

K/J 1370028.01
March 2014

Figure 5

Path: \\aims4_data\Projects\KernOilGasEIR\Events\20140312_WS_Report\Fig_05_GroundwaterBasins.mxd

The Tulare Formation includes the Corcoran Clay Member, which is present in the subsurface from the Kern River channel outlet in the west through the Central and much of the East Sub-Area at depths of 300 to 650 feet (Croft 1972). Groundwater beneath the Corcoran Clay is confined. The Kern River Formation includes from 500 to 2,000 feet of poorly sorted, lenticular deposits of clay, silt, sand, and gravel derived from the Sierra Nevada. Both units are moderately to highly permeable and yield moderate to large quantities of water to wells (Hilton and others 1963).

Older alluvium/stream deposits are moderately to highly permeable and yield large quantities of water to wells (Hilton and others 1963; Wood and Davis 1959; Wood and Dale 1964). This sedimentary unit is often indistinguishable from the Tulare and Kern Formations below and together with these underlying formations, forms the principal aquifer body in the Kern County Subbasin. Younger alluvium/flood basin deposits are difficult to distinguish from underlying fine-grained older alluvium and the total thickness of both units may be as much as 1,000 feet (Wood and Dale 1964).

4.1.3 Recharge

Natural recharge occurs primarily in the East and Central Sub-Area and is from stream seepage along the eastern Kern County Subbasin and the Kern River. Average precipitation values range from 5 inches at the subbasin interior to 9 to 13 inches at the subbasin margins to the east, south, and west. Recharge of applied irrigation water, however, is the largest contributor (DWR 1995).

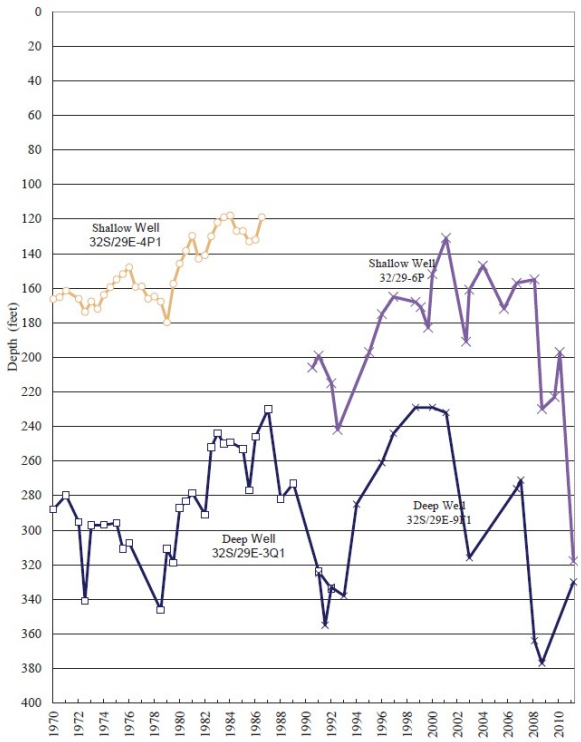
Extensive groundwater recharge and conjunctive use programs are in place in the subbasin, where water districts have recharged several million acre-feet (MAF) for future use. Groundwater recharge programs are intended to ensure that groundwater will continue to be a viable water supply in the future. However, they are highly dependent on the availability of local and imported surface supplies, which serve as sources of recharge water.

4.1.4 Groundwater Levels

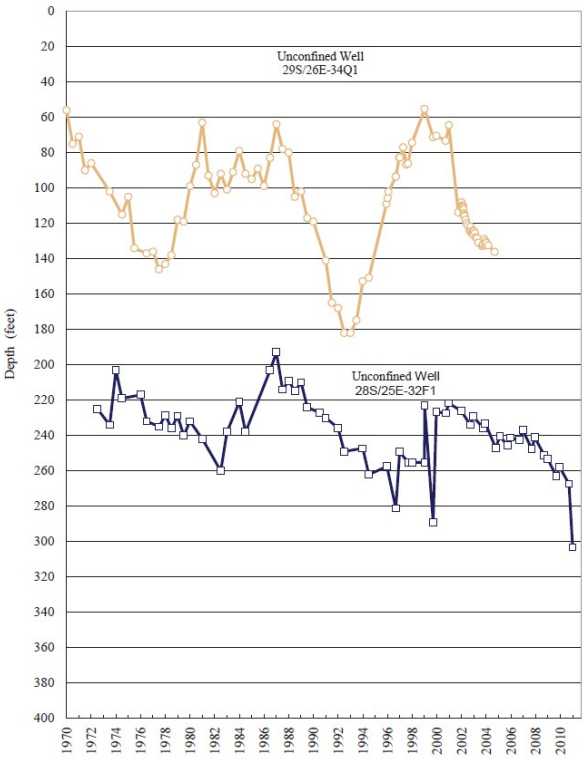
Groundwater levels in different portions of the Kern County Subbasin are quite variable. Figure 6 displays historical water level hydrographs for four key areas, based on the data available from KCWA (KCWA 2011a): in the Central Sub-Area the Pond-Poso area and City of Shafter/Rosedale-Rio Bravo WSD area; in the East Sub-Area southwest Bakersfield and the Arvin-Edison WSD area. Each hydrograph represents water levels for a pair of wells – one well is used to monitor shallow groundwater levels, while the other is used to monitor deep groundwater levels (KCWA 2011a).

Overall, the hydrographs demonstrate the variability of groundwater levels in response to hydrologic conditions, with levels declining during dry periods and rebounding during wet periods. In the Pond-Poso area (Central Sub-Area) the unconfined well reflects an upward trend since the 1976-1977 drought, attributed to Central Valley Project (CVP) surface water deliveries via the Friant-Kern Canal. During the 1990-1992 drought there was an increased dependence on groundwater, which is reflected by the decline in water levels during that period. The hydrograph for the confined well shows a variable pattern of water levels from year to year (KCWA 2011a).

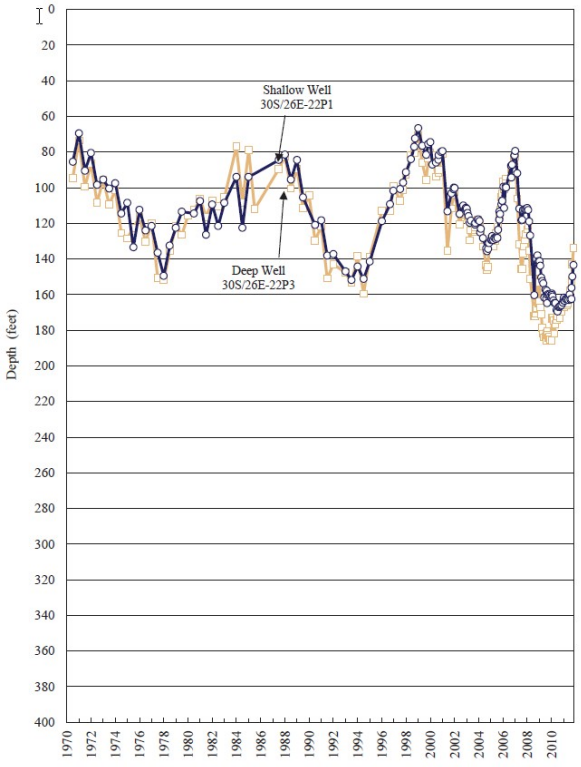
Pond-Poso Area



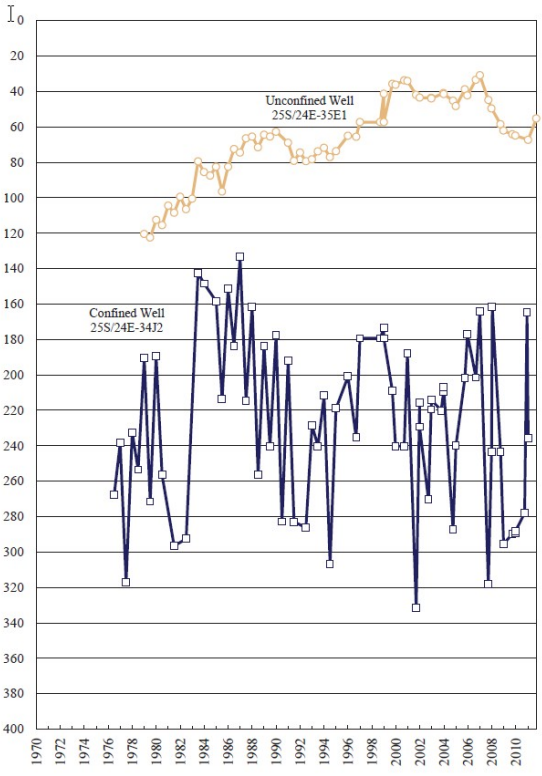
Shafter-Rosedale Area



Southwest Bakersfield Area



Arvin-Edison Area



Source: Kern County Water Agency Water Supply Report 2011

Kennedy/Jenks Consultants

Oil & Gas EIR
Kern County, CA
Water Supply Assessment

Groundwater Levels

K/J 1370028.01
March 2014

Figure 6

The hydrographs for the City of Shafter/Rosedale-Rio Bravo WSD (Central Sub-Area) area show a long-term decline in water levels. These wells are situated close to the Kern River and Rosedale-Rio WSD recharge facilities; thus, the hydrographs show rapid rises in water levels during wet periods (e.g., 1978-1886 and 1993-1998) and declines during drought (e.g., 1987-1992). Recent groundwater level data suggests that no confined aquifer exists east and south of this location, as reflected with annual groundwater levels and fluctuations that are consistent between deep and shallow wells (KCWA 2011a).

The southwest Bakersfield hydrographs (East Sub-Area) show continual declines until 1978. The wet period of 1978-1986 appears as a rise in groundwater levels. The 1987-1992 drought shows another period of decline. Water levels have declined since the beginning of 1999. Similar groundwater levels in both the shallow and deep wells over a long period of time suggest that a confined aquifer may not exist in this area (KCWA 2011a).

The delivery of CVP water to Arvin-Edison WSD (East Sub-Area) in the mid-1970s caused groundwater levels to rise, as seen in the shallow well hydrograph. During the 1976-1977 and 1987-1992 droughts, groundwater levels declined and during recent wet years, water levels rose. The deep well may be in a confined aquifer, since it has shown annual variability in groundwater levels more consistent with the behavior of a confined aquifer. The deep well shows a slight downward trend from 1998 until 2005 when wet conditions returned. With the recurrence of dry hydrologic conditions in 2007, water levels began to drop again. The large difference in groundwater levels between the two wells also suggests that two or more aquifers may exist in this area (KCWA 2011a).

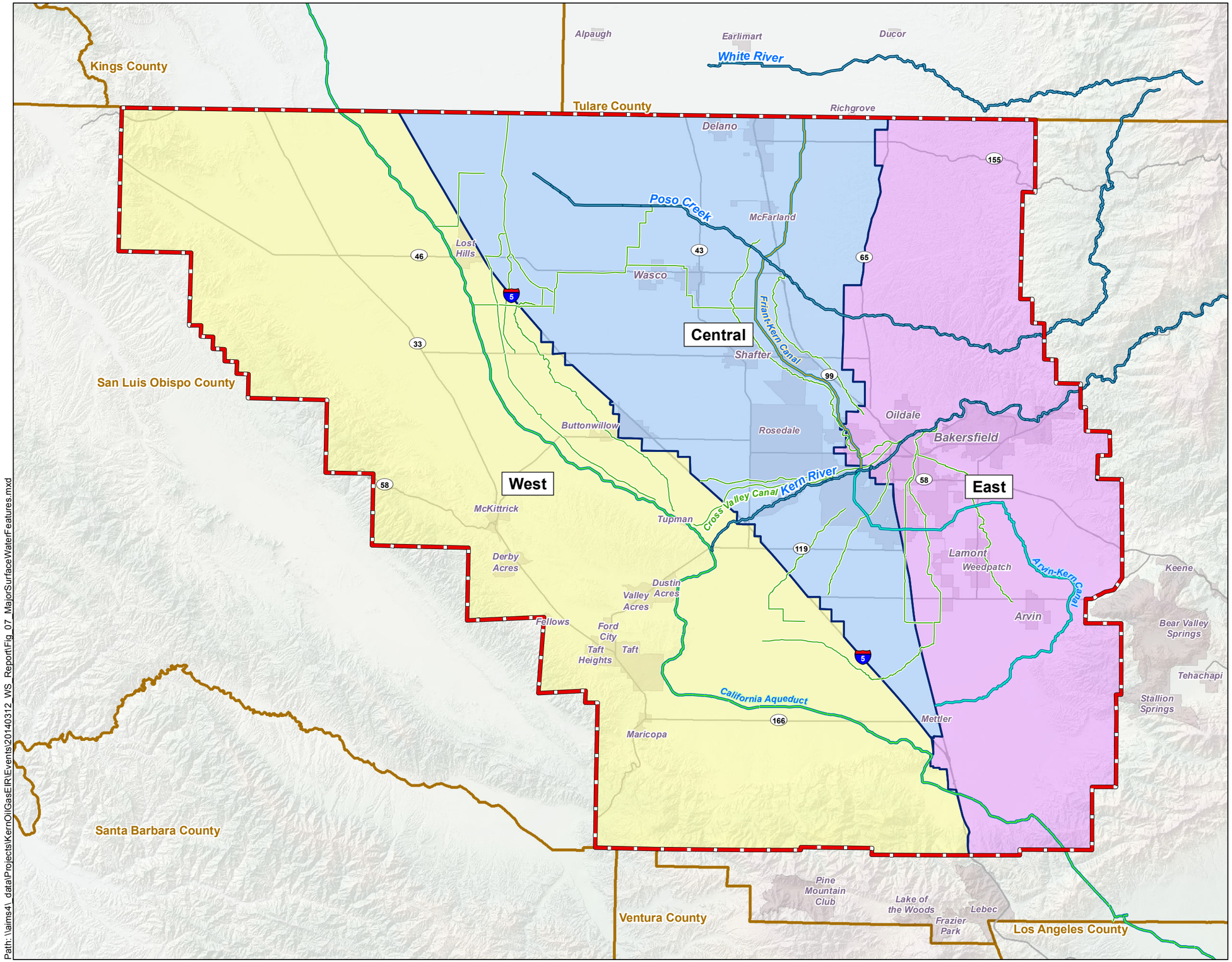
4.1.5 Groundwater Storage

Total water in storage of the subbasin is estimated to be 40 to 50 MAF and dewatered aquifer storage to be 10,000,000 AF (Fryer 2002). It appears that these calculations consider areas of the subbasin that are known to overlie useable groundwater, which are reported to be about 1,000,000 acres (DWR 2003).

4.2 Imported and Local Surface Water Sources

Surface water sources include both imported supplies and local supplies. Sources of imported supplies include the CVP and SWP. CVP water from the Friant Division is conveyed to the Project Area through the Friant-Kern Canal, and SWP water is conveyed through the California Aqueduct. Figure 7 schematically shows the major surface water features and infrastructure system. The Kern River is the primary source of local supply; however, Poso Creek and other minor streams contribute to the locally-available supplies from time to time.

On a long-term average, local surface water supplies (Kern River and other local water) have comprised a little less than one-third of the total water supplies in the Project Area, with the remainder made up of SWP and CVP imported water and groundwater pumping. Kern River water is entirely allocated among parties with long-standing water rights and additional water beyond these allocations is not anticipated.



Legend

- Friant-Kern Canal
- Arvin-Edison Canal
- California Aqueduct
- Local Canals

Three Sub-Areas

- West
- Central
- East
- Project Boundary
- County Boundaries

N

0 4 8

Miles

Kennedy/Jenks Consultants

Oil & Gas EIR
Kern County, CA
Water Supply Assessment

Major Surface Water Features and Water Infrastructure in Project Area

K/J 1370028.01
March 2014

Figure 7

Path: \\aims4_data\Projects\KernOilGasEIR\Events\20140312_WS_Report\Fig_07_MajorSurfaceWaterFeatures.mxd

SWP and CVP supplies have provided variable amounts of supplies to the Project Area. However, over time, regulatory decisions and court decisions have impacted the availability of imported water supplies in the Project Area. In recent years, environmental and water quality issues surrounding the Sacramento-San Joaquin River Delta (Delta) and the San Joaquin River have limited the ability to export water south of the Delta and into the Friant Division, which has reduced the reliability of SWP and CVP-supplies available to the Project Area.

Based on historical records for the San Joaquin Valley portion of the Kern County, on average groundwater accounts for 37 percent of the total water supply. However, during dry years, it is estimated to be about 60 percent. During the dry years of 2007 and 2008, groundwater pumping made up approximately 69 percent of total supply while it declined to less than 10 percent during the recent wet year of 2011 (KCWA 2011a). During the drought years of 2012-2014 it has transpired that portions of the Project Area have not received any imported water and thus are totally dependent on groundwater. This has negatively impacted groundwater levels in the Project Area.

In the Project Area, irrigated lands rely on the conjunctive use of surface water and groundwater to satisfy irrigation water requirements. While the total irrigated acreage has remained fairly stable over the last 25 years, when surface water supplies are limited, groundwater is used to meet irrigation demand in lands that are largely overlying the usable groundwater basin. Those areas that do not overlie groundwater (mainly in the West Subarea), are almost completely reliant on imported water supplies.

As the main sources of surface water supplies (SWP, CVP, and Kern River) are anticipated to experience reduced reliability, reliance on groundwater pumping in the Project Area will increase over time, with negative impacts to the aquifers. Reduction in water supply reliability is the major water resources management issue for the Project Area.

4.3 Current and Future Water Supplies

This section describes current and future water supplies for the Project Area including imported water, local surface water, groundwater, and recycled water. Water supplies are described both by the Project Area and the three Sub-Areas. Water supplies utilized in the Project Area are the SWP via the California Aqueduct, the CVP via the Friant-Kern Canal, local surface supplies from the Kern River and other local streams, the Kern County Subbasin of the San Joaquin Valley Groundwater Basin and recycled water.

4.3.1 Imported Water Supply from State Water Project

The SWP is the largest state-built, multi-purpose water project in the country. Today, the SWP includes 33 storage facilities, 21 reservoirs and lakes, 24 pumping and generating plants, four hydroelectric power plants, and approximately 660 miles of aqueducts. SWP facilities and deliveries are maintained and operated by DWR. The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Storage released from Oroville Dam on the Feather River flows down natural river channels to the Delta. While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct (Figure 7).

Many of the agencies in the Project Area receive SWP water from turnouts located on the California Aqueduct, and a few also receive SWP water from the Coastal Branch of the California Aqueduct. Several centrally located water districts in the Project Area lie to the east of the California Aqueduct and receive shares of SWP water through the Cross Valley Canal

(CVC), which is also used for many operational exchanges and groundwater banking (Figure 7). Arvin-Edison WSD has a bidirectional intertie to the California Aqueduct at the end of its canal system to facilitate various water management programs.

In the early 1960s, DWR began entering into individual SWP Water Supply Contracts with urban and agricultural water supply agencies located throughout northern, central, and southern California for SWP water supplies. Within the Project Area, KCWA is one of 29 water agencies (commonly referred to as "contractors") that have a Water Supply Contract with DWR for the importation of SWP water (in this case, to Kern County). Individual agencies within Kern County then contracted with KCWA for an imported water supply. Each SWP contractor's SWP Water Supply Contract contains a "Table A," which lists the maximum amount of water an agency may request each year throughout the life of the contract. Table A is used in determining each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year. The total planned annual delivery capability of the SWP and the sum of all contractors' maximum Table A amounts was originally 4.23 million AFY. The initial SWP facilities were designed to meet contractors' water demands in the early years of the SWP, with the construction of additional diversions of coastal rivers, a Peripheral Canal and storage facilities planned as demands increased. However, the Wild and Scenic Rivers Act blocked diversions from coastal rivers, the Peripheral Canal was not authorized by voters, and essentially no additional SWP storage facilities have been constructed since the early 1970s. SWP conveyance facilities were generally designed and have been constructed to deliver maximum Table A amounts to all contractors. After the permanent retirement of some Table A amount by two agricultural contractors in 1996, the maximum Table A amounts of all SWP contractors now total about 4.17 MAF. Currently, KCWA's Table A amount is 982,730 AFY. Table 5 presents the maximum Table A amounts for the individual agencies who have contracts with KWCA to receive SWP water (DWR 2014d). As presented in Table 5, contract amounts are specifically designated for agricultural and municipal and industrial (M&I) use.

TABLE 5
KERN COUNTY WATER AGENCY AND MEMBER UNIT SWP CONTRACT AMOUNTS

District/Agency	Agricultural Contract Amount (AF)	M&I Contract Amount (AF)	Total (AF)
Belridge WSD	121,508		121,508
Berrenda Mesa WD	92,600		92,600
Buena Vista WSD	21,300		21,300
Cawelo WD	38,200		38,200
Henry Miller WD	35,500		35,500
KCWA ID4	5,946	77,000	82,946
KCWA	8,000		8,000
Kern Delta WD	25,500		25,500
Lost Hills WD	119,110		119,110
Rosedale-Rio Bravo WSD	29,900		29,900
Semitropic WSD	155,000		155,000
Tehachapi-Cummings County WD[(a)]	4,300	15,000	19,300
Tejon-Castac WD [(b)]	3,278	2,000	5,278
West Kern WD	6,500	25,000	31,500
Wheeler Ridge-Maricopa WSD	197,088		197,088
Total	**863,730**	**119,000**	**982,730**

Note: (a) Partially outside of Project Area
(b) Outside of Project Area.

Dudley Ridge WD, located in southernmost Kings County just north of the Project Area, also has a SWP contract. Dudley Ridge WD is a small agricultural water district and lands within the Dudley Ridge WD's service area are mainly agricultural. While some of the landowners within the Dudley Ridge WD transfer or exchange their water with neighboring agricultural growers in Kern County, since the Dudley Ridge WD does not regularly deliver water outside of its service area, its SWP water supply was not considered as a firm water supply for the future SWP water supply projections to the Project Area. It is also noteworthy to mention that any long-term water exchanges with Dudley Ridge WD and agencies within the Project Area would be captured as part of water supplies projected for those agencies within the Project Area.

4.3.1.1 State Water Project Future Supply Reliability

While SWP Table A identifies the maximum annual amount of water an SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each year is dependent on a number of factors and can vary significantly from year to year. The primary factors affecting SWP supply availability include hydrology, the amount of water in SWP storage at the beginning of the year, regulatory/biological and operational constraints, and the total amount of water requested by SWP contractors. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time, which increases the competition for limited SWP dry-year supplies. Table 6 presents historical total SWP deliveries to KCWA member units and M&I purveyors.

TABLE 6
HISTORICAL TOTAL SWP DELIVERIES TO KCWA M&I PURVEYORS AND AGRICULTURAL MEMBER UNITS

Year	KCWA Deliveries (AF)
2003	919,424
2004	771,898
2005	1,377,899
2006	1,242,631
2007	716,612
2008	279,334
2009	380,337
2010	469,319
2011	1,083,667
2012	584,589

Sources: DWR 2013 Final Delivery Reliability Report Draft (December 2014d). Data includes deliveries of Table A Amount, Article 21, carryover, and turn back pools.

DWR issued its latest SWP Delivery Reliability Report in December 2014. The report assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. DWR released the first report in 2003 and updated this report most recently in December 2014 (DWR 2014d). In these updates, DWR provides a recommended set of analyses for SWP contractors to use in water supply planning. Recent regulatory and judicial decisions related to endangered species in the Delta have further impacted the reliability of the SWP, due to increased restrictions on pumping from the south Delta. These impacts on the SWP were described in several of the recent Reliability Reports (DWR 2009, 2011a, 2013). It should be noted that the 2013 Delivery Reliability Report represents the best available data as of this Technical Memorandum.

The SWP delivery percentages identified by DWR (2014d) were used as the basis for estimating the SWP supplies projected to be available for delivery to the Project Area. The projected allocation of Table A water for each year was estimated for the 1922-2003 hydrologic period. To determine the projected availability of this supply to the Project Area, these allocations, expressed as percentage, were applied to the maximum Table A amount for KCWA. For the purpose of the WSA, the existing (2013) conditions are assumed to be representative of 2015 and the future (2033) conditions were assumed to be representative of 2020 through 2035 conditions.

Table 7 shows SWP supplies projected to be available to KCWA in average/normal years (based on the average delivery over the study's historical hydrologic period from 1921-2003). Table 7 also summarizes estimated SWP supply availability in a single-dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple dry year period (based on a repeat of the worst-case historic four-year drought of 1931-1934). The 2013 analyses indicate that the SWP could deliver 58 to 62 percent of the KCWA Table A amount on a long-term average basis. The 2013 analyses also projected that SWP deliveries during multiple-dry year periods could average about 31 percent of the KCWA Table A amount and could possibly be as low as 11 to 12 percent during an unusually single-dry year.

TABLE 7
KCWA WHOLESALE SUPPLY RELIABILITY (AF)

Wholesaler (Supply Source)	2015	2020	2025	2030	2035[b]
Average Water Year					
DWR (SWP)					
KCWA Table A Supply	594,700	556,300	556,300	556,300	556,300
% of Table A Amount[a]	62%	58%	58%	58%	58%
Single Dry Year					
DWR (SWP)					
KCWA Table A Supply	115,000	105,500	105,500	105,500	105,500
% of Table A Amount[a]	12%	11%	11%	11%	11%
Multiple Dry Year					
DWR (SWP)					
KCWA Table A Supply	293,700	293,700	293,700	293,700	293,700
% of Table A Amount[a]	31%	31%	31%	31%	31%

Note: (a) Percentages of Table A amount based on DWR 2013 SWP Final Delivery Reliability Report. Assumes Table A contract amount of 982,730 AFY. The majority of Tejon-Castac WD is located outside of the Project Area; thus their contract amount of 5,278 AF was excluded from future projections. A small portion of Tehachapi-Cummings County Water District (about 5%) is within the Project Area; thus, 5% of its contract amount (equivalent to 1,035 AFY) was included for future projections.

(b) The SWP Final Delivery Reliability Report contains projections through 2033. For the purposes of this WSA 2035 is assumed to be the same as 2033.

Table 8 presents the SWP supply projections breakdown by the three Sub-Areas in average/normal years, a single-dry year, and multiple dry years. The future projections of the SWP supplies by the Sub-Areas were based on the assumption that the percent of Table A amount (both Agricultural and M&I) of the individual districts that have contracts with KCWA is

distributed by each Sub-Area proportional to each district's service area within each Sub-Area[1]. This should be considered only an approximation, to represent how future SWP supply projections might vary between the three Sub-Areas, which are not subdivisions of the KCWA service area.

TABLE 8
KCWA WHOLESALE SUPPLY RELIABILITY BY SUB-AREAS (AF)

Year Types/ Sub-Areas	2015	2020	2025	2030	2035[(b)]
Average Water Year					
Central	183,100	171,300	171,300	171,300	171,300
East	93,100	87,100	87,100	87,100	87,100
West	318,500	297,900	297,900	297,900	297,900
Total	***594,700***	***556,300***	***556,300***	***556,300***	***556,300***
% of Table A Amount	62%	58%	58%	58%	58%
Single Dry Year					
Central	35,400	32,500	32,500	32,500	32,500
East	18,000	16,500	16,500	16,500	16,500
West	61,600	56,500	56,500	56,500	56,500
Total	***115,000***	***105,500***	***105,500***	***105,500***	***105,500***
% of Table A Amount	12%	11%	11%	11%	11%
Multiple Dry Year					
Central	90,400	90,400	90,400	90,400	90,400
East	46,000	46,000	46,000	46,000	46,000
West	157,300	157,300	157,300	157,300	157,300
Total	***293,700***	***293,700***	***293,700***	***293,700***	***293,700***
% of Table A Amount	31%	31%	31%	31%	31%

Note: (a) The majority of Tejon Castac WD is located outside of the Project Area; thus its contract amount of 5,278 AF was excluded from future projections. A small portion of Tehachapi-Cummings County Water District (about 5%) is within the Project Area; thus, 5% of its contract amount (equivalent to 1,035 AFY) was included for future projections.

(b) The SWP Final Delivery Reliability Report only has projections through 2033. For the purposes of this WSA 2035 and 2040 are assumed to be the same as 2033.

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water are periodically available, including "Article 21" water, Turnback Pool water, and DWR dry-year purchases. However, the availability of these sources is uncertain and dependent on hydrology; therefore, these sources are not included as a firm supply as part of the overall WSA. They are briefly described but not evaluated quantitatively in this WSA.

Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and

[1] The geographic location and the purposes for which water from the SWP can be used are prescribed by water contracts with the California Department of Water Resources. To use water outside the place of use specified by a water supply contract requires approval by the water supply entity (DWR) as well as the State Water Resources Control Board. The water supply contracts also have some provisions as to the purpose of the types of use. This water supply assessment describes all supplies available in the Project Area but the reader should be aware that these water supplies are not available throughout the Project Area or subarea and that not all water supplies can be used for all purposes. The terms of the contracts can be modified, but only after appropriate review by the water supply entity following completion of contractually-required administrative protocols and necessary environmental documentation.

interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. However, recent regulatory and judicial decisions will have significant impacts on the future availability of Article 21 water, since excess flows that normally make up the bulk of this supply may now be used to meet new flow requirements for Delta fish species.

The Turnback Pool is a program wherein contractors with allocated Table A supplies in excess of their service area needs in a given year may turn back that excess supply for purchase by other contractors that need additional supplies that year. The Turnback Pool can make water available in all types of hydrologic conditions, although generally less excess water is turned back in dry years. As urban contractor demands have increased through time, the amount of water turned back and available for purchase has diminished.

In critically dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies.

4.3.2 Imported Water Supply from the Central Valley Project

The CVP is a set of federal facilities that extend generally from north of Redding to areas near Bakersfield, as well as the South Bay Area. The CVP encompasses two of California's largest river systems, the Sacramento River, which flows southward toward the Delta and the San Joaquin River, which flows north into the Delta. Friant Dam stores San Joaquin River flows in Millerton Lake and diverts this water southward through the Friant-Kern Canal (and north in the Madera Canal, though that facility does not serve the Project Area). The Friant-Kern Canal is 151.8 miles long and carries water south from Millerton Lake just northeast of Fresno and terminates into the Kern River infrastructure complex in southwest Bakersfield (Figure 7). The Friant-Kern Canal has a maximum capacity of 5,000 cubic feet per second (cfs), which decreases to 2,000 cfs at its terminus. Deliveries are dependent upon Class 1 (firm) and Class 2 (non-firm, hydrology dependent) contract percent allocations determined by the U.S. Bureau of Reclamation (USBR), however the USBR may also provide surplus water (Section 215 contracts) to non-long term contractors. An average of 318,877 AF of CVP water is delivered through the Friant-Kern Canal annually to the Project Area for agricultural and municipal and irrigation uses. Table 9 provides a summary of the historical deliveries to the Project Area.

The CVP contractors in the Project Area include Arvin-Edison WSD, Delano-Earlimart ID, Kern-Tulare WD, Shafter-Wasco ID, and Southern San Joaquin WSD. Exchanges have allowed non-CVP contractors (KCWA, Kern Delta WD, North Kern WSD, Rosedale-Rio Bravo WSD, and Semitropic WSD) to receive water from the CVP, as presented in Table 9. Since 2003, deliveries of CVP water to the districts within the Project Area have ranged from 260,000 AF (2007) to 800,000 (2005), as presented in Table 9.

Through various agreements, at times the California Aqueduct can deliver CVP supplies from the Delta, which are typically sold to districts with California Aqueduct access or exchanged with Friant districts such as Arvin-Edison WSD. For example, Arvin-Edison WSD's Friant water can be delivered to upstream Friant reaches while Arvin-Edison WSD takes delivery of SWP supplies delivered via the California Aqueduct and/or the Cross Valley Canal.

Dudley Ridge WD, located to the north of the Project Area, also has a CVP contract. Landowners within the Dudley Ridge WD can transfer or exchange their water with neighboring agricultural growers in the Kern County. However, since the Dudley Ridge WD does not

regularly deliver water outside of its service area, its CVP water supply was not considered as a firm water supply as part of the future CVP water supply projections to the Project Area. It is also noteworthy to mention that any long-term water exchanges with Dudley Ridge WD and agencies within the Project Area would be captured as part of water supplies projected for those agencies.

TABLE 9
CENTRAL VALLEY PROJECT DELIVERIES TO PROJECT AREA (AF)

	Arvin-Edison WSD [a]	Delano-Earlimart ID [a]	Kern-Tulare WD [a], [b]	Shafter Wasco ID [a]	Southern San Joaquin MUD [a]	KCWA [c]	Kern-Delta WD [c]	North Kern WSD [c]	Rosedale Rio Bravo WSD [c]	Semitropic WSD [c]	Total
2003	116,102	121,342	25,284	62,151	111,417	0	0	0	25,257	0	461,553
2004	33,795	128,219	53,574	53,761	101,178	0	0	0	0	0	370,527
2005	213,757	116,280	45,486	65,505	115,604	96,623	1,890	56,337	88,786	0	800,268
2006	178,484	121,275	24,846	69,703	118,151	42,736	1,829	59,023	0	883	616,047
2007	19,787	73,916	49,846	34,311	70,112	0	0	12,252	0	19,819	260,224
2008	54,173	112,531	46,047	49,366	92,458	9,412	0	5,019	0	0	369,006
2009	110,898	121,435	44,925	50,723	121,259	0	0	4,563	0	0	453,803
2010	207,275	178,123	78,164	64,670	117,714	0	0	0	0	0	645,949
2011	193,835	152,217	45,299	75,526	125,889	63,158	0	1,949	6,448	0	664,321
2012	23,572	106,598	57,637	34,140	75,961	0	0	0	0	0	297,908

Notes: (a) CVP contractors.
(b) Combined deliveries from Friant-Kern Canal and Cross Valley Canal.
(c) Non-CVP contractors.
Source: Central Valley Operations Office Monthly Reports.

4.3.2.1 Central Valley Project Future Supply Reliability

Future CVP supplies in the Project Area are subject to an ongoing restoration effort on the San Joaquin River. The restoration effort is a direct result of a Settlement reached in September 2006 (after an 18-year lawsuit) by the U.S. Departments of the Interior and Commerce, the Natural Resources Defense Council, and the Friant Water Users Authority (now Friant Water Authority), to provide sufficient fish habitat in the San Joaquin River below Friant Dam. The Settlement received Federal court approval in October 2006 and required specific legislation, which passed in 2009. With the 2006 Settlement, some of the flows that historically would have been diverted to CVP Friant contractors will (in the future) be discharged to the river channel below Friant Dam (Poso Creek IRWMP 2014).

Table 10 presents the tentative release schedule through February 2014. As of February 1, 2014, flows released from Friant Dam were decreased to 360 cfs to begin ceasing restoration flows due to the critical low water year beginning March 1, 2014. Unless conditions improve, the Program will not receive any restoration flows until March 2015.

TABLE 10
TENTATIVE INTERIM FLOW RELEASE SCHEDULE FOR FRIANT DAM

Interim Flow Start Date / Duration	Estimated Riparian Release (cfs)	Estimated Interim Flow Release (cfs)	Total Release from Friant Dam (cfs)
June 10 – June 30	190	160	350
July 1 – August 31	230	120	350
September 1 – September 30	210	140	350
October 1 – October 31	160	190	350
November 1 – November 10	130	570	700
November 11 – December 31	120	230	350
January 1 – February 28, 2014	100	250	350

Note: This represents the release schedule at the time of this WSA preparation. The table is subject to change and the release schedule for flows after February 2014 has not been determined at this time. Future CVP supply forecasts reflect what is currently best known about the flow release schedule from Friant Dam.

Source :USBR San Joaquin River Restoration Program.

Full Restoration Flows starting in 2014 will generally range from 350 cfs to over 4,000 cfs, depending on hydrology and time of year, with reduced flows in critically dry years. Total Restoration Flow releases in excess of current water rights requirements as defined in the Settlement will range from approximately 71,000 AF in critical dry years (except a repeat of 1977 when there would be no Restoration Flow releases) to approximately 556,000 AF (San Joaquin River Restoration Program 2009*).* The Interim and Restoration flows will have a priority over existing contracts.

Interim and Restoration flows will result in reductions to water supply deliveries to CVP Friant Division contractors. Depending on which assumptions are used regarding use of buffer flows and reductions in Section 215 water (surplus flows), modeling results based on historical hydrology indicate that total annual deliveries to the Friant Division water service area during the Interim Flow period would be reduced by approximately 175,000 to over 200,000 AF on average, corresponding to an approximate 13 to 15 percent reduction in average annual deliveries from Friant. These flows, however, could potentially be recaptured and recirculated by CVP Friant Division contractors downstream from Friant

Dam, such as at existing CVP and SWP export facilities, subject to environmental and other regulations and no material adverse water supply impacts to third parties.

These flows could affect the future flows to the Project Area provided in Tables 11 and 12. Arvin-Edison WSD, has estimated that impacts to its CVP supplies will average 30,000 to 40,000 AFY. Additionally, it has been estimated that CVP supplies to Kern County will be further reduced by an average of 30,000 to 40,000 AFY due to reductions in Section 215 water. These averages assume full Restoration flows, which have been temporarily reduced due to capacity restraints and seepage impacts. In the future, this impact could be reduced by proposed mitigation measures.

Future deliveries of the CVP water to the agencies in the Project Area were evaluated based on Class 1 (firm) supplies. As a conservative approach, Class 2 supplies are not accounted for as part of the future supply projections since they are not "firm" supplies. The future reliability of the CVP supplies was based on the analysis conducted during the development of the 2006 San Joaquin River Settlement Agreement.

Hydrologic modeling of the 1922-1994 period was conducted during the development of the settlement to evaluate the terms of the settlement and to help estimate the water supply expected to be available during various hydrologic conditions (Poso Creek IRWMP 2014). This modeling of post-settlement operations was used as the basis for projections of future CVP-Friant supplies of Class 1 water. According to the 2006 San Joaquin River Post-Settlement Conditions, water year types were developed and simulated for the contracts in the Friant Division of the CVP.

To determine the projected availability of Class 1 water supply to the Project Area, the Class 1 percent allocations were simply applied to the Class 1 contract amounts for the CVP-Friant contractors in the Project Area. This results in a projected long-term average availability of 305,600 AFY. Table 11 summarizes the CVP water deliveries allocated to the five agencies that have CVP contracts for agricultural use and illustrates the reduction in reliability of these supplies under the San Joaquin River Settlement. Based on modeling, the CVP could deliver 91 percent of Class 1 water on a long-term average basis. CVP deliveries could average about 23 percent during a single-dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and about 68 percent during multiple-dry year periods (based on a repeat of the worst-case historic four-year drought of 1931-1934).

Overall, future CVP deliveries are anticipated to be below the average historical deliveries. Due to the San Joaquin River Restoration Program (see Table 11 below), Friant Division contractors as well as Section 215 contract water available to Kern Region are expected to experience a reduction in deliveries.

TABLE 11
PROJECTED CENTRAL VALLEY PROJECT SUPPLY DELIVERIES (AF)

CVP Water Supply Reliability	Delano – Earlimart ID	Shafter-Wasco ID	Southern San Joaquin MUD	Arvin-Edison WSD	Kern-Tulare WD	Total
Long-term Average						
Class 1 Amount	99,000	45,500	88,300	36,400	36,400	305,600
% of Class 1 Amount	91%	91%	91%	91%	91%	
Single Dry Year						
Class 1 Amount	25,000	11,500	22,300	9,200	9,200	77,200
% of Class 1 Amount	23%	23%	23%	23%	23%	
Multiple Dry Year						
Class 1 Amount	74,000	34,000	66,000	27,200	27,200	228,400
% of Class 1 Amount	68%	68%	68%	68%	68%	

Source: The percent Class 1 allocations are based on the projected Friant Class 1 allocations under San Joaquin River Post-Settlement Conditions (Poso Creek IRWMP, Table 4-5).

TABLE 12
PROJECTED CENTRAL VALLEY PROJECT DELIVERIES BY SUB-AREAS (AF)

CVP Water Supply Reliability	West [(a)]	Central [(b)]	East [(c)]	Total
Long-Term Average				
Class 1 Amount	900	262,500	42,200	305,600
% of Class 1 Amount	91%	91%	91%	91%
Single Dry Year				
Class 1 Amount	200	66,300	10,700	77,200
% of Class 1 Amount	23%	23%	23%	23%
Multi-Dry Year				
Class 1 Amount	700	196,200	31,500	228,400
% of Class 1 Amount	68%	68%	68%	68%

Notes:
(a) Includes Class 1 allocations from a portion of Arvin-Edison WSD (2%).
(b) Includes Class 1 allocations from the following agencies: Delano-Earlimart ID, Shafter-Wasco ID, Southern San Joaquin MUD, a portion of Arvin-Edison WSD (4%), and a portion of Kern-Tulare WD (77%).
(c) Includes Class 1 allocations from the following agencies: a portion of Arvin-Edison WSD (93%) and a portion of Kern-Tulare WD (23%).

Table 12 presents the CVP future supplies breakdown by the three Sub-Areas in average/normal years, a single-dry year, and multiple-dry years. The future projections of CVP supplies by the Sub-Areas were based on the assumption that the percentage of Class 1 water for an individual agency is distributed by each Sub-Area proportional to the agency's area within each Sub-Area. This is similar to the approach taken for evaluating the SWP supply reliability and considered as an approximation to represent how the future CVP supply projections would vary between the three Sub-Areas[2].

[2] The geographic location and the purposes for which water from the CVP can be used are prescribed by water contracts with the USBR. To use water outside the place of use specified by a water supply contract requires approval by the water supply entity (USBR) as well as the State Water Resources Control Board. The water supply contracts also have some provisions as to the purpose of the types of use. This water supply assessment describes all supplies available in the project area but the reader should be aware that these water supplies are not available throughout the project area and that not all water supplies

4.3.3 Local Surface Water

The most important source of naturally occurring surface water in the Project Area is the Kern River, which is regulated by the Isabella Dam and Reservoir, operated by the U.S. Army Corps of Engineers (COE) and the Kern River Watermaster. Local minor streams, many of which are ephemeral, provide additional local surface water in the Project Area. A very small percentage of minor stream runoff is collected and used as irrigation for agriculture; the majority of these irregularly-occurring flows serve to recharge local groundwater basins. It is estimated that roughly 95 percent of local runoff percolates into the underlying aquifers and contributes to groundwater levels near the Kern Lake Bed, Arvin-Edison WSD/Kern Delta WD boundaries, and the Kern National Wildlife Refuge (KNWR).

4.3.3.1 Kern River

The Kern River is approximately 164 miles long and is fed by annual snowmelt from the southern Sierra Nevada. Figure 7 depicts the Kern River and the other major surface water features in the Project Area. Table 13 provides a summary of the natural and regulated flows for the Kern River.

TABLE 13
HISTORIC KERN RIVER FLOWS (AF)

Year	Natural (AF)	Regulated (AF)	Year	Natural (AF)	Regulated (AF)
1980	1,639,957	1,560,652	1996	1,038,261	968,036
1981	449,263	460,469	1997	1,181,969	1,133,463
1982	1,271,139	1,121,088	1998	1,717,967	1,662,556
1983	2,489,128	2,381,575	1999	433,971	461,621
1984	821,797	834,036	2000	476,819	472,536
1985	1,444,939	668,971	2001	391,451	375,769
1986	375,935	1,331,561	2002	424,696	357,160
1987	294,685	432,309	2003	519,724	460,406
1988	397,038	335,473	2004	407,305	407,272
1989	203,571	348,773	2005	1,156,109	935,439
1990	406,289	219,501	2006	1,071,841	1,027,688
1991	296,829	333,494	2007	252,692	318,050
1992	853,760	272,822	2008	517,997	455,874
1993	1,385,160	642,339	2009	470,166	442,268
1994	336,456	422,361	2010	910,878	752,302
1995	1,385,160	1,197,100	2011	1,374,894	1,404,645

Source: Kern County IRWMP and KCWA Water Supply Report 2011.

The Kern River originates high in the Sierra Nevada near Mt. Whitney and drains approximately 2,100 square miles of watershed area above Isabella Reservoir, another 300 square miles of the foothills below Isabella Reservoir, and about 600 square miles of alluvial fan in the Kern River Canyon (County of Kern 1985). The main branch of the river (also called the North Fork Kern) joins the South Fork Kern River just upstream of Isabella Reservoir. Minor tributaries are Erksine, Bodfish, Clear, and Cottonwood creeks, which join the river downstream of Isabella Reservoir. With the exception of the small valley in which

can be used for all purposes. The terms of the contracts can be modified after appropriate review by the water supply entity following completion of contractually-required administrative protocols and appropriate environmental documentation.

Isabella Reservoir is located, the Kern River and its principal tributaries flow in steep, narrow canyons from their headwaters to the mouth of Kern Canyon, where it enters the Valley floor. Beyond the mouth of the Canyon, the River channel is deeply entrenched in an alluvial fan that extends westward to the main valley trough where the channel is controlled by levees to prevent flood flows from spreading to adjacent lands (City of Bakersfield and County of Kern 2007).

The Kern River had an unregulated flow until 1954, when the Isabella Dam and Reservoir were constructed by the U.S. Army Corps of Engineers (COE). The primary purpose of the dam is flood control. Isabella Reservoir was designed to store approximately 570,000 AF of water; however, since 2006 due to seepage and earthquake concerns, water storage in the Lake has been limited to approximately 60 percent of capacity, 20 feet below the spillway, or 340,860 total AF. The COE is undertaking studies at Isabella Dam with the intent of restoring reservoir capacity (COE 2009).

The Kern River Watermaster represents entities with water rights downstream of Isabella Reservoir. The Watermaster identifies the daily water releases to be made from the reservoir by the COE. The Watermaster also keeps records of Kern River flow. With the exception of very wet years, there is no river flow downstream of Bakersfield due to upstream canal diversions by water rights holders. The River encounters its first diversion into a canal when it first exits the Kern River Canyon and encounters another diversion when it reaches the east side of Bakersfield, near Hart Park. The Beardsley and Rocky Point weirs are the first two of seven diversion weirs in Bakersfield. From there, canal water travels north and south to irrigate farmlands. In total, the River is diverted into seven canals that pass through the City of Bakersfield. During very wet years, the river flows southwest to the Buena Vista Lake Bed and then north toward the Tulare Lake Bed, or into the California Aqueduct Intertie near Tupman (City of Bakersfield and County of Kern 2007), and is delivered to southern California.

Since the late 19th century, Kern River water has been primarily diverted for irrigation and to recharge groundwater. In 1989 the SWRCB declared that the Kern River, from the Buena Vista Lake bed upstream (including all tributaries) was fully appropriated year-round. The "fully appropriated" status of the Kern River means the SWRCB will not accept new applications for diversions from the Kern River. Six petitions have been filed with the SWRCB challenging the fully appropriated status of the Kern River. The entities filing petitions are:

- North Kern WSD and City of Shafter
- City of Bakersfield
- Buena Vista WSD
- Kern Water Bank Authority
- KCWA
- Rosedale Rio Bravo WSD

Along with the petitions to revise the Kern River's fully appropriated status, these entities have filed applications to appropriate water from the Kern River. Depending on the outcome of the fully appropriated streams status and any subsequent water rights decisions, water diversions from the Kern River may be altered.

The City of Bakersfield is planning the Kern River Flow and Municipal Water Program whereby the City will use Kern River water for additional groundwater recharge. This additional recharge may mean less diversion by some entities from the Kern River and less Kern River flow. Aspects of this program are under litigation.

4.3.3.2 Minor Streams

Local minor streams are the second-largest source of local surface water for the Project Area, particularly the Central and East Sub-Areas. Streams with measurable runoff are grouped into four separate watershed areas, based on hydrologic similarity of the watersheds: Poso, Caliente, El Paso, and San Emigdio. Streams with the largest historical flows, including Poso and Tehachapi Creeks, are equipped with flow meters to record actual data while flow rates of smaller streams are estimated by statistical methods based on historical watershed, precipitation, and runoff data. The mean stream flow of these minor streams is 98,900 AF. Historical minor stream runoff is summarized in Table 14.

TABLE 14
HISTORICAL MINOR STREAM RUNOFF (AF)

Year	Annual Stream Flow (AF)	Year	Annual Stream Flow (AF)
1980	70,300	1996	79,500
1981	45,100	1997	103,000
1982	93,600	1998	709,500
1983	503,300	1999	40,100
1984	46,500	2000	27,700
1985	37,800	2001	37,200
1986	52,400	2002	22,800
1987	70,900	2003	55,900
1988	29,900	2004	30,700
1989	27,800	2005	89,900
1990	17,500	2006	54,100
1991	41,900	2007	20,500
1992	87,300	2008	60,300
1993	110,900	2009	40,870
1994	37,400	2010	72,525
1995	426,400	2011	149,722

Source: Kern IRWMP and KCWA Water Supply Report 2011.

Small creeks and streams drain local mountain ranges. The majority are ephemeral and flows quickly infiltrate once reaching the valley floor. However, under certain hydrologic conditions, some of these streams carry very large flows that can be quite damaging. Examples include flooding in the Kelso Creek area, and in the area around the cities of Arvin and Lamont. Regional efforts to address flooding and to better manage such flow events have been initiated among various parties in the Project Area, including County of Kern, KCWA and the affected areas.

A very small percentage of runoff from local minor streams is collected and used as irrigation for agriculture located in the North Kern WSD and the Semitropic WSD. Much of the remaining water percolates into the underlying aquifer. Some of this recharge probably contributes to shallow groundwater in the Kern Lake Bed area and near the KNWR (KCWA 2011a). Because only a small percentage of local minor streams are used, this source is not further considered within this WSA.

4.3.3.3 Local Surface Water Supply Available in Project Area and Sub-Areas

As described earlier, the Kern River is the topic of ongoing litigation. As a simplifying assumption, this WSA assumes future local surface water supply from the Kern River is approximate to past surface water diversions. Allowable diversions from the Kern River have been set by time of year and a particular instant diversion rate (for example, it is allowable to take 10 cfs for 40 days in summer and 20 cfs for 60 days in fall). On average, from 1970 to 2011 the average total diversion from the Kern River has been 764,400 AFY (KCWA 2011a). In 1977, the driest year for which data is available, diversions were only 197,000 AF (KCWA 2011a). During the multi-dry period from 1987 to 1991 the average diversion was 335,500 AF (KCWA 2011a). As a second simplifying assumption, it is assumed that all water of the Kern River is used in the East Sub-Area, though in very wet years the river may flow to the other Sub-Areas.

TABLE 15
ESTIMATED LOCAL SURFACE WATER SUPPLY 2015 T0 2030 BASED ON HISTORIC USE

Water Year Type	Project Area (AF)	West Sub-Area (AF)	Central Sub-Area (AF)	East Sub-Area (AF)
Average Water Year (based on average diversions 1970 to 2011)	764,400	--	--	764,400
Single-Dry Water Year (based on diversions 1977)	197,000	--	--	197,000
Multiple Dry Year (based on average diversions 1987 to 1991)	335,500	--	--	335,500

4.3.4 Groundwater

The San Joaquin Valley Groundwater Basin (DWR Groundwater Basin 5-22.14) covers the majority of the managed resources in the Project Area (Figure 5).

With less than 10 inches per year of average rainfall, groundwater is necessary to maintain a sufficient water supply in the semi-desert climate of the Project Area. It is estimated that on average, groundwater accounts for 37 percent of total water supply to the Project Area; however, it is estimated to be as much as 60 percent during dry years.

The main sources of groundwater recharge in the Project Area are applied irrigation water, surplus SWP/CVP water (Article 21 and Section 215 type as well as large allocations of Table A and Class 2 water) and the Kern River. In the Kern River bed are 500 to 2,000-foot thick poorly sorted deposits of silt, sand, rock, and clay that originated from the Sierra Nevada, and that provide moderate to high permeability through the river bed. This

phenomenon is also seen in some of the unlined canals which branch off from the river. Major water banking and conjunctive use projects also contribute large amounts of recharge to the underlying groundwater basin.

4.3.4.1 Groundwater Extractions

Agriculture, M&I users, and groundwater banking operations all draw upon local groundwater resources. Agriculture is estimated to be the largest user of groundwater. The majority of groundwater extractions in the Project Area are not recorded; thus obtaining an accurate assessment of groundwater extractions is difficult. In the past, agricultural and urban power records were matched with calculations to estimate groundwater production. However, because water agencies are not required to record the amount of groundwater extracted, since 2001 groundwater extractions have been estimated based on trends in groundwater storage (Table 16) and/or assessment of crop water requirements.

TABLE 16
HISTORICAL TOTAL GROUNDWATER EXTRACTIONS BY PURVEYORS

Year	Extractions (AF)	Year	Extractions (AF)
1980	977,000	1996	1,609,600
1981	1,161,000	1997	1,091,400
1982	802,200	1998	1,290,200
1983	762,700	1999	1,471,500
1984	1,252,200	2000	1,360,100
1985	1,293,800	2001	1,953,900
1986	947,600	2002	1,575,000
1987	1,208,700	2003	1,203,900
1988	1,540,000	2004	1,842,300
1989	1,588,500	2005	579,900
1990	1,796,000	2006	716,500
1991	2,002,400	2007	2,212,300
1992	1,673,600	2008	2,306,500
1993	987,700	2009	1,212,400
1994	1,897,700	2010	230,400
1995	1,242,800	2011	419,000
		Mean [(a)]	**1,319,000**

Note: (a) Mean of the historical records is rounded off to the nearest hundred.
Source: Kern IRWMP and KCWA Water Supply Report 2011.

Groundwater management in the Project Area depends on the sustained delivery of surface water from the three major sources described above: SWP, CVP, and Kern River. Any reduction in one supply, unless accompanied by an increase in another, can have a negative impact on groundwater. Surface water supplies to the Project Area have generally stabilized groundwater levels over recent history. It is reasonable to expect that this relatively balanced condition will continue if deliveries of surface water supplies remain the same as recent historical conditions. However, as discussed above, and reported in the recently completed Kern and Poso IRWMPs, the three principal sources of surface water are projected to decrease in the future relative to the historical conditions. As reliability of surface water decreases, it is apparent that entities in the Project Area will make additional use of the groundwater basin. As a result, any reduction in historically available water supplies will translate to a decline in groundwater levels. While future pumping levels could potentially exceed historical conditions, given the uncertainty with groundwater pumping, the

historical mean of 1,319,000 AFY was assumed as a reasonable estimate for future projections of groundwater extractions, as presented in Table 16.

The historical mean extraction value used in this WSA analysis (and specifically in Tables 16 and 17) does not represent the safe or sustainable yield for the Project Area. This assessment does not consider or identify a safe or sustainable yield for the Project Area. The Project Area basins are subject to the most stringent requirements under the new Sustainable Groundwater Management Act, which requires the development of a Groundwater Sustainability Plan (GSP). The GSP will identify the sustainable or safe yield that will avoid unsustainable extraction rates that could yield "undesirable results". The projected groundwater extracted use in this assessment is not intended to represent the safe yield for the Project Area. Rather, it uses an historical mean extraction value for analysis purposes as the best available information prior to the implementation of the GSP for the basin.

4.3.4.2 Groundwater Banking and Recharge

Groundwater banking is the recharge of excess water supplies into aquifer storage during wet periods for later withdrawal/recovery for use during dry periods.

The extensive use of groundwater in the San Joaquin Valley has historically caused subsidence broadly throughout the floor of the San Joaquin Valley (LSCE, Borchers and Carpenter 2014). Between 1926 and 1970, groundwater extraction in the groundwater basin resulted in more than eight feet of subsidence in the north-central portion of the basin, and approximately nine feet in the south-central area (Ireland et al. 1984). Since 2007 there has been up to 1.5 feet of subsidence along the western edge of Kern County, west of Highway 33, south of Highway 46 and north of Highway 58 in the West Sub-Area, as well as approximately 1 foot of subsidence in an area east of the City of Taft (also in the West Sub-Area) (LSCE, Borchers and Carpenter 2014).

Historically, during wet periods, imported water (SWP and CVP) in the Project Area have been substantial enough to satisfy irrigation and urban water needs and excess water has been recharged to groundwater aquifers. CVP water is recharged in spreading ponds operated by Arvin-Edison WSD or in the channels of the Kern River and Poso Creek, as well as in recharge facilities on the Kern River Alluvial Fan. SWP water is recharged by KCWA, KWBA and several water districts in the Kern River channel (via the CVC), in unlined irrigation canals and in various district-operated recharge sites. Kern River water is also recharged by a combination of deliberate spreading in recharge areas, by losses in unlined canals or by percolation in the Kern River channel (KCWA 2011a). The groundwater is then pumped out through the many private and publicly owned wells located throughout the Project Area during dry periods when local or imported surface water supplies are insufficient.

Groundwater banking was initiated in the subbasin in 1978 (DWR 2003). Groundwater banking programs are now widely used in the Project Area. Many notable groundwater storage programs exist, including those operated by Arvin-Edison WSD, Semitropic WSD, North Kern WSD, the City of Bakersfield, Rosedale-Rio Bravo WSD, and various other districts. The Kern Water Bank Authority (KWBA) is responsible for the largest water banking program in the world and has contributed over 2 MAF of water into storage since the program began operations in 1995. It is estimated that there are over 30,000 acres of

groundwater recharge ponds in the Project Area. Groundwater banking programs in the Project Area:

- Arvin-Edison Water Storage District Water Management Program
- Berrenda Mesa Property Joint Water Banking Project
- Buena Vista Water Storage District Water Management Program
- Buena Vista Water Storage District/West Kern Water District Water Supply Project
- Cawelo Water District/Dudley Ridge Water District Conjunctive Use Program
- Cawelo Water District Modified Famoso Water Banking Project
- City of Bakersfield 2800 Acre Groundwater Recharge Facility
- Kern Delta Water District's Groundwater Banking Program
- Kern Water Bank
- North Kern Water District Groundwater Storage Project
- Thomas N. Clark Recharge and Banking Project (KCWA)
- Pioneer Banking Project (KCWA)
- Rosedale-Rio Bravo Water Storage District and Improvement District No. 4 Joint Use Groundwater Recovery Project
- Rosedale-Rio Bravo Water Storage District's Groundwater Banking Program
- Semitropic Groundwater Banking Project
- West Kern Water District Groundwater Banking Program

Among these, the Kern Water Bank is the largest groundwater banking project with a storage capacity of nearly one MAF. KCWA also manages the Pioneer and Berrenda Mesa Banking projects. In total, maximum annual recharge capacity in the Project Area is estimated at 1.5 MAF with maximum annual recovery estimated at 900,000 AF. In January 2008, KCWA estimated that total storage capacity for the Kern Region is approximately 50 MAF. Currently, approximately 10 MAF of that storage has been dewatered and, therefore, is available for conjunctive use and groundwater banking operations. There is approximately 5.4 MAF of water in managed groundwater storage in the Kern Region.

4.3.4.3 Groundwater Supply Available in Project Area and Sub-Areas

As described in the previous paragraphs, groundwater supply and demand is not fully defined in the Project Area. The WSA assumes groundwater supply is approximate to past known groundwater use. In a normal year groundwater supply is assumed to be the historic average groundwater use; in a dry year the groundwater supply is assumed to be the historic use during dry and critical years and the groundwater supply during a multiple dry year period is assumed to be 1987 to 1992. Table 17 describes estimated groundwater supply in the Project area and three Sub-Areas.

TABLE 17
ESTIMATED GROUNDWATER SUPPLY FOR 2015 TO 2035 BASED ON HISTORIC EXTRACTIONS

	Project Area (AF)	West Sub-Area (AF)	Central Sub-Area (AF)	East Sub-Area (AF)
Average Water Year (based on average extractions 1980-2011)	1,319,000	659,500	237,400	422,100
Single-Dry Water Year (based on average of dry and critical years of extractions 1980-2011)	1,673,000	836,500	301,100	535,400
Multiple Dry Year (based on average extractions 1987-1992)	1,635,000	817,450	294,300	523,200

Note: Groundwater extractions by the Sub-Areas were estimated based on the simplifying assumption that groundwater extractions would be proportional to the estimated agricultural demand within the Sub-Areas. This does not imply that groundwater supplies are available for all uses.

4.3.5 Recycled Water

Recycled water is important in the Kern Region due to the fact that the Tulare Lake hydrologic region mainly consists of a "closed basin," that is, supplies entering the basin have no natural outlet. Because there is no natural outflow all effluent must be treated and disposed of within the basin. Agriculture, which accounts for the majority of total water use in Kern County, does not require water treated to potable water standards. The large amount of agriculture in the region has meant that nearly all wastewater effluent produced by the various wastewater treatment facilities located in the Project Area can be applied to salt tolerant non-human consumption crop irrigation and environmental habitat restoration. Recycled water is also used to irrigate and flood certain areas of the KNWR.

Currently, there are 14 active wastewater treatment plants (WWTPs) in the San Joaquin Valley portion of Kern County. These plants provide secondary and tertiary treated effluent. In 2011, approximately 54,000 AF of effluent was recycled. It is estimated that approximately 49,000 AF of this recycled water was used by agriculture (KCWA 2011a). Table 18 provides a summary of the historical volumes of recycled water in the Project Area.

In addition to treatment plant effluent, another source of reusable wastewater results from agricultural tailwater return systems. Many farming operations have installed these systems to intercept water that would normally run off fields during irrigation. This recovered water is either transported back to the main irrigation system or is applied on an adjacent field (from the foot of one field to the head of another). Tailwater return systems are widely used on fields that are furrow or border irrigated. Their efficiency lies in saving the energy required to recover the water from wells or by reducing the need to import additional surface supplies.

TABLE 18
HISTORICAL RECYCLED WATER USE

Year	Deliveries (AF)	Year	Deliveries (AF)
1980	32,800	1996	51,300
1981	34,100	1997	50,800
1982	32,100	1998	48,800
1983	35,300	1999	48,533
1984	35,800	2000	49,970
1985	34,200	2001	51,035
1986	58,000	2002	51,600
1987	39,200	2003	56,600
1988	44,200	2004	54,800
1989	44,000	2005	55,200
1990	42,500	2006	56,800
1991	45,200	2007	59,000
1992	46,100	2008	51,900
1993	47,600	2009	50,800
1994	49,700	2010	53,400
1995	49,700	2011	53,900

Note: Historical record above does not include deliveries from five WWTP's in the Tehachapi area (CCI WWTP, City of Tehachapi WWTP, Golden Hills Sanitation Company WWTP, Bear Valley WWTP, and Stallion Springs WWTP. According to the 2010 Tehachapi Regional Urban Water Management Plan, these five facilities produce approximately 2,000 AF of recycled water annually, but are located outside of the Project Area.

Source: Kern IRWMP and KCWA Water Supply Report 2011.

For future projections of recycled water flows, 77,000 AFY was assumed, based on the estimate provided in the Kern IRWMP (Kern IRWMP 2011). This water supply is available in all water year types. This is a conservative number because multiple entities in the region are examining the possibility of increasing production and use of recycled water. Increased use of recycled water for irrigated agriculture as well as landscape irrigation in the M&I sector could help lower dependence on high quality SWP and CVP water and will provide an additional water source during drought or periods of regulatory restrictions when imported potable water quantities are reduced. In addition, waste discharges will be greatly reduced and the high quality imported water can be applied towards best use. Wastewater effluent is regulated by the California Code of Federal Regulations (CFR) as well as the State Water Resources Control Board Division of Drinking Water. Municipal treatment facilities producing effluent for introduction into irrigation canals must disinfect to a minimum of 23 most probable number (MPN) of coliform per 100 ml of discharge.

4.3.6 Oilfield-Produced Water

Unlike treated municipal effluent or tailwater, oilfield-produced waters are a true addition to the hydrologic system, being drawn from deep, connate waters that are intermixed with oil deposits. From 2003 to 2013 the amount of produced water increased from 180,000 AFY to 232,000 AFY. Of this amount, oil and gas operations reuse a significant portion, some is disposed, and the remainder is sent for beneficial reuse by agriculture.

4.3.6.1 Produced Water Use by Oil and Gas

As described further in section 5, it is estimated that as of year 2015, oil and gas will reuse approximately 93,100 AFY of the produced water generated. Based on projections of future

oil and gas activities (see section 5) oil and gas use of produced water will go up to approximately 121,400 AFY by 2035. This is not including agricultural use of produced water which is discussed in section 4.3.6.2.

4.3.6.2 Agricultural Use of Produced Water

The Kern River Oilfield located just north of the City of Bakersfield is the third largest oilfield in California and the fifth largest field in the country. In the Kern River oilfield, substantial quantities of water are removed with each barrel of oil. With minimal treatment, the chemical quality of this water is generally within acceptable limits for agriculture.

In the past, the water released during oil extraction was discharged into the Kern River, but following implementation of more stringent environmental protection measures, companies began reusing the water in the form of steam to accelerate oil extraction. Beginning in 1980, Cawelo Water District began receiving oilfield-produced water for recharge and irrigation purposes. In 2012 Cawelo Water District reports receiving 37,107 AF of oilfield produced water (Cawelo Water District 2014). Hathaway LLC reports delivering 1,551 AFY to agriculture (personal communication Chad Hathaway, Hathaway LLC provided to Jonathan Lilien, Chevron Inc. August 18, 2015). For future projections of oil-field produced water used by agriculture, 38,658 AFY was assumed for all water year types (average, single-dry, and multiple-dry year).

4.3.6.3 Oilfield Produced Water as Water Supply

Like recycled water, oilfield produced water is only a supply to the extent that it is delivered for beneficial use. Table 19 documents current and future estimates of produced water supply in the Project Area.

4.3.7 Other Water Supply Opportunities

In addition to the available water supplies, other water supplies in the Project Area include agricultural processing wastewater and transfers and exchanges, as explained in the following sections.

4.3.7.1 Agricultural Processing Wastewater

In addition to treated wastewater effluent, effluent from plants processing crops harvested from the field and those preparing processed food potentially provide a source of additional water supply opportunities. Currently, effluent from agricultural processing facilities is being recycled for irrigation use and is being evaluated for use in groundwater recharge programs.

TABLE 19
CURRENT AND PROJECTED OILFIELD-PRODUCED WATER DELIVERIES (AF)

	2015	2020	2025	2030	2035
West Sub-Area					
Average Year	78,302	83,059	87,816	92,573	97,331
Single-Dry Year	78,302	83,059	87,816	92,573	97,331
Multiple-Dry Year	78,302	83,059	87,816	92,573	97,331
Central Sub-Area					
Average Year	993	1,266	1,539	1,812	2,086
Single-Dry Year	993	1,266	1,539	1,812	2,086
Multiple-Dry Year	993	1,266	1,539	1,812	2,086
East Sub-Area					
Average Year	52,469	54,515	56,561	58,607	60,653
Single-Dry Year	52,469	54,515	56,561	58,607	60,653
Multiple-Dry Year	52,469	54,515	56,561	58,607	60,653
Total Project Area					
Average Year	131,764	138,840	145,916	152,992	160,070
Single-Dry Year	131,764	138,840	145,916	152,992	160,070
Multiple-Dry Year	131,764	138,840	145,916	152,992	160,070

4.3.7.2 Transfers and Exchanges

As described above, multiple water sources are available in the Project Area, including the SWP, CVP, groundwater, Kern River, and minor local streams. Because of these multiple sources the Kern Region has developed a complex and interconnected water distribution system. This network of canals and pipelines makes it possible to “wheel” or convey water from one area to another, both regionally and statewide. Local agencies have agreements in place that allow agencies to call on available supplies when another supply source is experiencing shortage, and for other reasons to reduce costs, conserve energy, and/or improve water quality. For example, the KCWA ID4 has transfer and exchange agreements in place with North Kern WSD, Buena Vista WSD and Kern Delta WD that allow KCWA ID4 to increase its use of Kern River water in years when SWP supplies are limited. Arvin-Edison WSD also has assisted districts with transfers and exchanges given its CVP contract and facility infrastructure interconnections with all major conveyance systems (Kern River, CVP/Friant-Kern Canal, SWP/California Aqueduct, CVC, and interconnections with Kern Delta WD).

This distribution network makes it possible to store excess water in a given year or period and then recover and deliver that water in another year or later in a year. Several of the water banks have agreements to store surface water from agencies outside the Kern Region. These agreements allow imported supplies that belong to out-of-region banking participants to be delivered to banking programs within the Kern Region, usually via the California Aqueduct or Friant-Kern Canal. The water is either percolated into the groundwater basin and stored, or utilized by local agencies in-lieu of groundwater pumping, thus allowing water levels in the groundwater basin to be maintained or improved. During water-short periods, the stored water can either be pumped and delivered directly (if the banking participant is physically located south of the Project Area), or arrangements can be

made to use out-of-region banked water locally, in exchange for the use of KCWA's Table A amount or Arvin-Edison WSD's contract amount (if the banking participant is physically located north of the Project Area).

4.4 Estimated Current and Future Water Supply

Table 20 summarizes the water supply projections through 2035 for the Project Area, including SWP and CVP imported water, groundwater pumping, Kern River water, recycled water, and oilfield-produced water. Table 21 presents a summary of the water supply projections through 2035 for the same water supply sources by sub-area. The assumptions and approach used to divide up the water sources by the Sub-Areas are described earlier in this WSA and additional notes are provided in Table 21.

TABLE 20
SUMMARY OF WATER SUPPLIES 2015 TO 2035 FOR PROJECT AREA

	Average (AF)	Single-Dry Year (AF)	Multiple Dry Year (AF)
Current (2015)[a]			
SWP Imported Water	565,900	105,500	293,800
CVP Imported Water	305,600	77,200	228,400
Groundwater Pumping	1,319,000	1,673,000	1,635,000
Kern River	764,400	197,000	335,500
Recycled Water [c]	77,000	77,000	77,000
Oil Produced Water [d]	125,887	125,887	125,887
Sub-Total	*3,157,777*	*2,255,577*	*2,695,477*
Future (2035)			
SWP Imported Water	565,900	105,500	293,800
CVP Imported Water	305,600	77,200	228,400
Groundwater Pumping	1,319,000	1,673,000	1,635,000
Kern River	764,400	197,000	335,500
Recycled Water [b]	77,000	77,000	77,000
Oil Produced Water [c]	154,182	154,182	154,182
Sub-Total	*3,186,083*	*2,283,883*	*2,723,883*

Notes:
(a) Table 20 summarizes available supplies without taking account of the additional 5,887 acre-feet of treated produced water available for agricultural irrigation in the eastern subarea as shown in Table 19 and Table 28 or the pro-rata reduction in agricultural demand for other irrigation water sources as a result of the additional use of treated produced water. For ease of reference, these adjustments are shown in Table 39 and carried forward in the regional supply and demand analyses for average, single dry and multiple dry years in Tables 41 through 43
(b) Recycled water by Sub-Area was estimated approximately based on the location of the entity producing the recycled water.
(c) Oilfield-produced water supply provided to Cawelo Water District was assumed to come from the East Sub-Area based on data provided by WZI.

Figure 8 graphically depicts both the current and future water supplies anticipated in the Project Area.

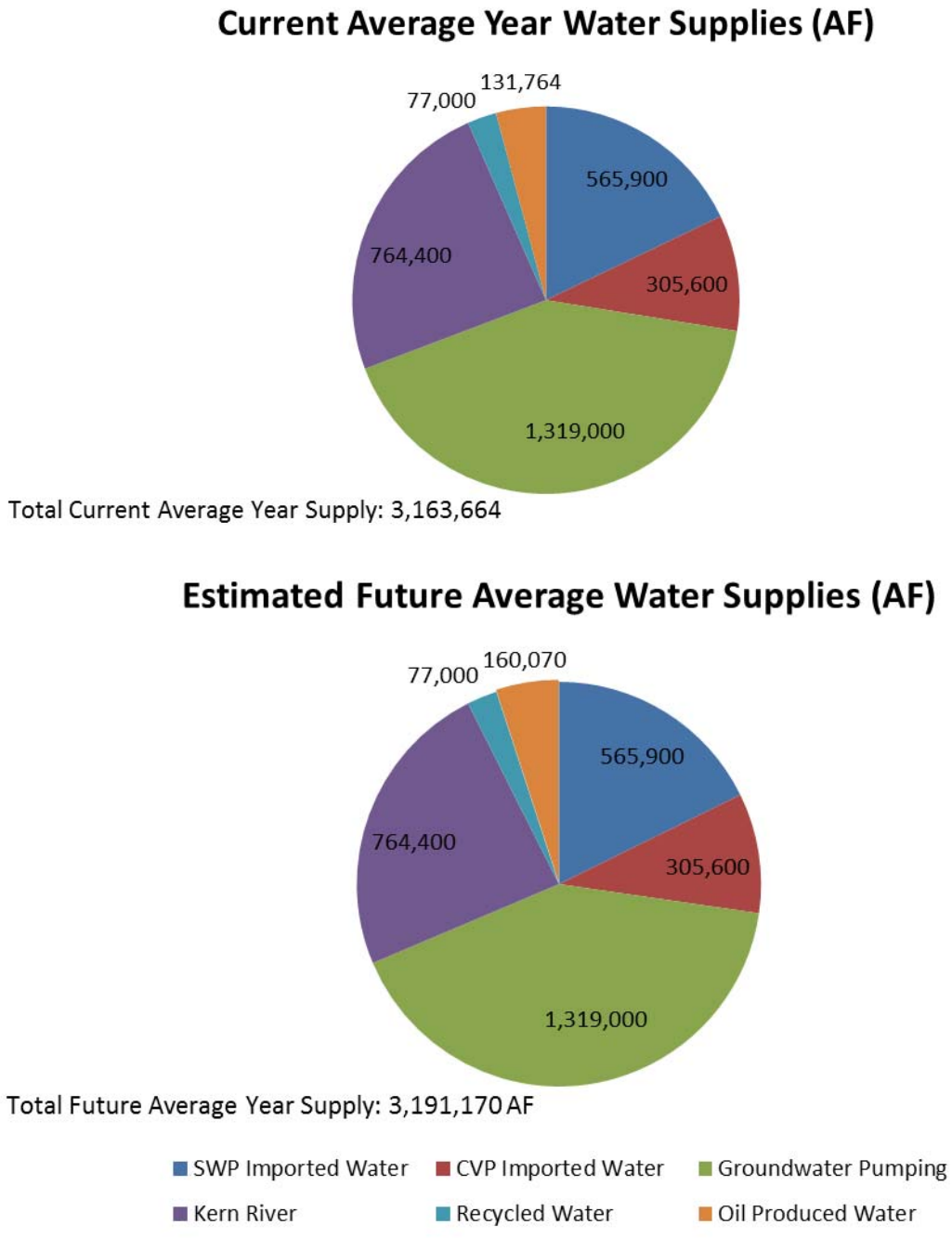


Figure 8. Current and Future Water Supplies in Project Area

TABLE 21
SUMMARY OF WATER SUPPLIES 2015 TO 2035 FOR SUB-AREAS

Average (AF)					
	2015	**2020**	**2025**	**2030**	**2035**
WEST					
SWP Imported Water	303,100	303,100	303,100	303,100	303,100
CVP Imported Water	900	900	900	900	900
Groundwater Pumping	659,500	659,500	659,500	659,500	659,500
Kern River	--	--	--	--	--
Recycled Water [(a)]	0	0	0	0	0
Oil Produced Water [(b,c)]	78,493	83,565	88,636	93,708	98,779
Sub-Total	*1,041,993*	*1,047,065*	*1,052,136*	*1,057,208*	*1,062,279*
CENTRAL					
SWP Imported Water	174,200	174,200	174,200	174,200	174,200
CVP Imported Water	262,500	262,500	262,500	262,500	262,500
Groundwater Pumping	237,400	237,400	237,400	237,400	237,400
Kern River	--	--	--	--	--
Recycled Water [(a)]	62,000	62,000	62,000	62,000	62,000
Oil Produced Water [(b,c)]	891	1,003	1,116	1,228	1,341
Sub-Total	*736,991*	*737,103*	*737,216*	*737,328*	*737,441*
EAST					
SWP Imported Water	88,600	88,600	88,600	88,600	88,600
CVP Imported Water	42,200	42,200	42,200	42,200	42,200
Groundwater Pumping	422,100	422,100	422,100	422,100	422,100
Kern River	764,400	764,400	764,400	764,400	764,400
Recycled Water [(a)]	15,000	15,000	15,000	15,000	15,000
Oil Produced Water [(b,c)]	46,597	48,669	50,741	52,813	54,884
Sub-Total	*1,378,897*	*1,380,969*	*1,383,041*	*1,385,113*	*1,387,184*
Total	**3,157,881**	**3,165,137**	**3,172,393**	**3,179,649**	**3,186,904**

Table 21 cont.

Single Dry Year					
	2015	**2020**	**2025**	**2030**	**2035**
WEST					
SWP Imported Water	56,500	56,500	56,500	56,500	56,500
CVP Imported Water	200	200	200	200	200
Groundwater Pumping	836,500	836,500	836,500	836,500	836,500
Kern River	--	--	--	--	--
Recycled Water [a]	0	0	0	0	0
Oil Produced Water [b,c]	78,493	83,565	88,636	93,708	98,779
Sub-Total	*971,693*	*976,765*	*981,836*	*986,908*	*991,979*
CENTRAL					
SWP Imported Water	32,500	32,500	32,500	32,500	32,500
CVP Imported Water	66,300	66,300	66,300	66,300	66,300
Groundwater Pumping	301,100	301,100	301,100	301,100	301,100
Kern River	--	--	--	--	--
Recycled Water [a]	62,000	62,000	62,000	62,000	62,000
Oil Produced Water [b,c]	891	1,003	1,116	1,228	1,341
Sub-Total	*462,791*	*462,903*	*463,016*	*463,128*	*463,241*
EAST					
SWP Imported Water	16,500	16,500	16,500	16,500	16,500
CVP Imported Water	10,700	10,700	10,700	10,700	10,700
Groundwater Pumping	535,400	535,400	535,400	535,400	535,400
Kern River	197,000	197,000	197,000	197,000	197,000
Recycled Water [a]	15,000	15,000	15,000	15,000	15,000
Oil Produced Water [b,c]	46,597	48,669	50,741	52,813	54,884
Sub-Total	*821,197*	*823,269*	*825,341*	*827,413*	*829,484*
Total	**2,255,681**	**2,269,937**	**2,270,193**	**2,277,449**	**2,284,704**

Table 21 cont.

Multiple Dry Year					
	2015	**2020**	**2025**	**2030**	**2035**
WEST					
SWP Imported Water	157,300	157,300	157,300	157,300	157,300
CVP Imported Water	700	700	700	700	700
Groundwater Pumping	817,500	817,500	817,500	817,500	817,500
Kern River	--	--	--	--	--
Recycled Water [(a)]	0	0	0	0	0
Oil Produced Water [(b,c)]	78,493	83,565	88,636	93,708	98,779
Sub-Total	*1,053,993*	*1,059,065*	*1,064,136*	*1,069,208*	*1,074,279*
CENTRAL					
SWP Imported Water	90,500	90,500	90,500	90,500	90,500
CVP Imported Water	196,200	196,200	196,200	196,200	196,200
Groundwater Pumping	294,300	294,300	294,300	294,300	294,300
Kern River	--	--	--	--	--
Recycled Water [(a)]	62,000	62,000	62,000	62,000	62,000
Oil Produced Water [(b,c)]	891	1,003	1,116	1,228	1,341
Sub-Total	*643,891*	*644,003*	*644,116*	*644,228*	*644,341*
EAST					
SWP Imported Water	46,000	46,000	46,000	46,000	46,000
CVP Imported Water	31,500	31,500	31,500	31,500	31,500
Groundwater Pumping	523,200	523,200	523,200	523,200	523,200
Kern River	335,500	335,500	335,500	335,500	335,500
Recycled Water [(a)]	15,000	15,000	15,000	15,000	15,000
Oil Produced Water [(b,c)]	46,597	48,669	50,741	52,813	54,884
Sub-Total	*997,797*	*999,869*	*1,001,941*	*1,004,013*	*1,006,084*
Total	**2,695,681**	**2,702,937**	**2,710,193**	**2,717,449**	**2,724,704**

Notes:

(a) Recycled water by the Sub-Areas was estimated approximately based on the location of the entity producing the recycled water. The additional available oilfield produced water supply for agricultural irrigation, as shown on Table 28, and the pro-rata decrease in water demand s addressed in Table 39, and is not included in the above table for ease of reference.

(b) Table 21 summarizes available supplies without taking account of the additional 5,887 acre-feet of treated produced water available for agricultural irrigation in the eastern subarea as shown in Table 19 and Table 28 or the pro-rata reduction in agricultural demand for other irrigation water sources as a result of the additional use of treated produced water. For ease of reference, these adjustments are shown in Table 39 and carried forward in the regional supply and demand analyses for average, single dry and multiple dry years in Tables 41 through 43.

(c) Oilfield-produced water supply provided to Cawelo Water District was assumed to come from the East Sub-Area based on data provided by WZI.

4.5 Water Supply Data Gaps and Limitations

As with most hydrologic studies, data is limited. Table 22 describes data limitations of this study as well as the approach used by the WSA to address the various limitations and uncertainty. Among the issues identified, the major data gap is the uncertainty related to groundwater supply and groundwater extraction. It is estimated that groundwater makes up over one-third of total water supplies and up to 60 percent in dry years. It is not possible to track extractions as the majority of groundwater extractions are not reported. Groundwater extractions and supply in the Project Area were estimated based on calculations available in published reports (KCWA 2011a). In addition, given the uncertainty with pumping levels, groundwater pumping projections were based on the historical mean of the available records. However, annual groundwater pumping may vary widely from year to year depending on hydrologic year types.

TABLE 22
APPROACH TO DATA LIMITATIONS AND UNCERTAINTY

Data Type	Approach to Data Limitation/Uncertainty
Groundwater Extraction	Pumping records unavailable. Reported data are based on estimated calculations from published KCWA reports.
Groundwater Pumping Projections	Assumed to be based on historical mean, but annual pumping may vary widely depending on hydrologic conditions.
SWP Future Projections	SWP future projections are based on the DWR 2013 Draft Delivery Reliability Report for long-term planning of water supply sources and they are not intended to capture year-to-year hydrologic variations.
CVP Future Projections	CVP future projections are based on the San Joaquin River Settlement for long-term planning of water supplies under different hydrological year types and they are not intended to capture year-to-year hydrologic variations.
CVP Deliveries - Flow Release Schedule from Friant Dam	Flow release schedule from Friant Dam are based on the currently available tentative interim flows. These flows are subject to change and the release schedule for flows after February 2014 has not been determined at the time of the WSA preparation.
Kern River Flow and Use	Kern River water is currently under litigation. Supply assumed to be similar to historic supplies. Assumed to be available on a consistent basis only in the East Sub-Area.

Section 5: Oil and Gas Water Demand

This section briefly summarizes the activities that use, generate and dispose of water during oil and gas production. The objectives of this section are to: i) provide an overview of historic water use, produced water generation and water disposal in the Project Area, ii) provide a water balance estimate for the year 2012 which is indicated as "representative year" for current and future water related activities for Kern County oil and gas production (WZI 2014), and iii) provide an estimate of fresh water (referred to as Municipal and Industrial [M&I] water) use in the Project Area.

Broadly, activities consuming water during oilfield operations include well drilling, development, maintenance, injection (water or steam) for oil extraction, well stimulation, and well closure. Next, depending on the age, characteristics of the formation and the type of production operation, various amounts of formation and injected waters (produced water) are extracted during oil production. Finally, produced water that is not re-used for oilfield operations and waste streams generated (e.g. drilling wastewater) are disposed of via deep injection wells or land disposal (via permit) or offsite reuse. The water use, production and disposal estimates are summarized for each of the three Sub-Areas (see Figure 1).

5.1 Data Sources

The following data sources were used for water balance evaluation in the project area.

- Various DOGGR Databases (Downloaded in March 2014): Historic data on annual well drilling, number and type of wells in operation, number of wells plugged or abandoned, injection water use for various oil production operations, produced water generation, waste disposal, and types of oil production in various oilfields.

- WZI Inc., 2014, Water Impact Factors, Kern County Oil and Gas EIR, prepared for Western States Petroleum Association [WSPA]). In this report WZI identified water use and disposition for different oil and gas activities (i.e. well construction, well maintenance, oil production). The report used a material balance approach to identify the water use ("impact factor") for the various activities. The material balance requires that the volume of water produced and purchased must equal the volume of water injected (for any purpose) or disposed to land or reused for agricultural irrigation. For the purpose of the WZI analysis, the year 2012 was selected as representative based on a review of the DOGGR data from 1993 to 2012. Impact factors (i.e. M&I or produced water use, production and disposal normalized to the number of certain type of wells) developed by WZI for various oilfield water related activities were used in the water balance evaluation.

5.2 Data Evaluation Procedures

Two types of data evaluations were conducted as part of this WSA. First, historic trends in water related activities were identified using information from DOGGR database. Water used for injection, produced water and disposal information were developed for the three Sub-Areas. These evaluations were performed to identify broader trends related to water use during oil and gas production in the past several years.

Secondly, water demand estimates for the next 20 years were estimated using water use data developed by WZI. The WZI report indicated that while annual water use, production and disposal varied from year to year, 2012 data were more representative of the average oil and gas operation with respect to water estimates for the Project Area. These data were used in conjunction with the data from DOGGR database to develop water balance estimates for 2012.

5.3 Oilfields and Types of Oil Production Operations

5.3.1 Oilfields in Project Sub-Areas

Table 23 shows the list of oilfields in each of the three sub-areas of the Project Area. There are 36, 18 and 19 oilfields, respectively, in the West, Central and East sub-areas.

TABLE 23
OIL-FIELDS BY PROJECT SUB-AREAS

West		Central	East
Antelope Hills, North	Los Lobos	Bellevue	Ant Hill
Asphalto	Lost Hills	Bellevue, West	Comanche Point
Beer Nose	Lost Hills, Northwest	Bowerbank	Dyer Creek
Belgian Anticline	McDonald Anticline	Calders Corner	Edison
Belridge, North	McKittrick	Canal	Edison, Northeast
Belridge, South	Midway-Sunset	Canfield Ranch	Fruitvale
Blackwells Corner	Monument Junction	Greeley	Jasmin
Buena Vista	Paloma	Rio Bravo	Kern Bluff
Cal Canal Gas	Pioneer	Rose	Kern Front
Carneros Creek	Pleito	Rosedale	Kern River
Chico-Martinez	Railroad Gap	Rosedale Ranch	Mount Poso
Cienega Canyon	Rio Viejo	Semitropic	Mountain View
Coles Levee, North	San Emidio Nose	Seventh Standard	Poso Creek
Coles Levee, South	Temblor Ranch	Shafter, North	Round Mountain
Cymric	Welcome Valley	Stockdale	Tejon
Devils Den	Wheeler Ridge	Strand	Tejon Hills
Elk Hills	White Wolf	Ten Section	Tejon North
Landslide	Yowlumne	Wasco	Union Avenue, Valpredo

5.3.2 Types of Enhanced Oil Recovery Operations

The oil and gas industry in Kern County uses three major types of operations for enhanced oil recovery (EOR) that consume some form of water (water or steam). They include steam flooding, water flooding and cyclic steam. In addition, oil is also produced from some wells without any water or steam injection. The water demand and produced water during the three types of operations vary with the type of operation and other local conditions. Table 24 shows the number of oilfields involved in each type of oil production in 2012 and 2013. In the West Sub-Area a total of 29 and 28 oilfields were involved in oil production in the years 2012 and 2013 respectively, using these three types of oil production. One oilfield in the

Central Sub-Area produced oil by water flooding. Twenty (20) oilfields in the East Sub-Area used a combination of cyclical steam, steam flooding, and water flooding in 2012 and 2013.

TABLE 24
NUMBER OF OILFIELDS INVOLVED IN VARIOUS TYPES OF OIL PRODUCTION ACTIVITIES IN PROJECT SUB-AREAS DURING 2012 AND 2013

Sub-Area	Cyclic Steam		Steam Flooding		Water Flooding		Total	
	2012	2013	2012	2013	2012	2013	2012	2013
West	9	8	9	9	11	11	29	28
Central	0	0	0	0	1	1	1	1
East	6	6	7	7	7	7	20	20

5.4 Historic Water Injection for Oil Production

Figures 9 to 11 show the historical trends in water used for various types of EOR operations. The water use shown includes both M&I water and treated oilfield produced water. In Kern County, the total annual water injection increased from approximately 79,000 AF in 1995 to approximately 105,000 AF in 2013 (Figure 9). Total water use for steam flooding operations gradually decreased from approximately 49,000 AF in year 2000 to approximately 39,000 AF in 2013. However, the water use for water flooding operations increased from 21,000 AF in 2000 to 47,000 AF in 2013. Water use for cyclic steam operations increased from 15,000 to 19,000 AF during this period. Figures 9 to 11 rely on data from WZI as a breakdown of water use from these different sources is not included in the DOGGR database.

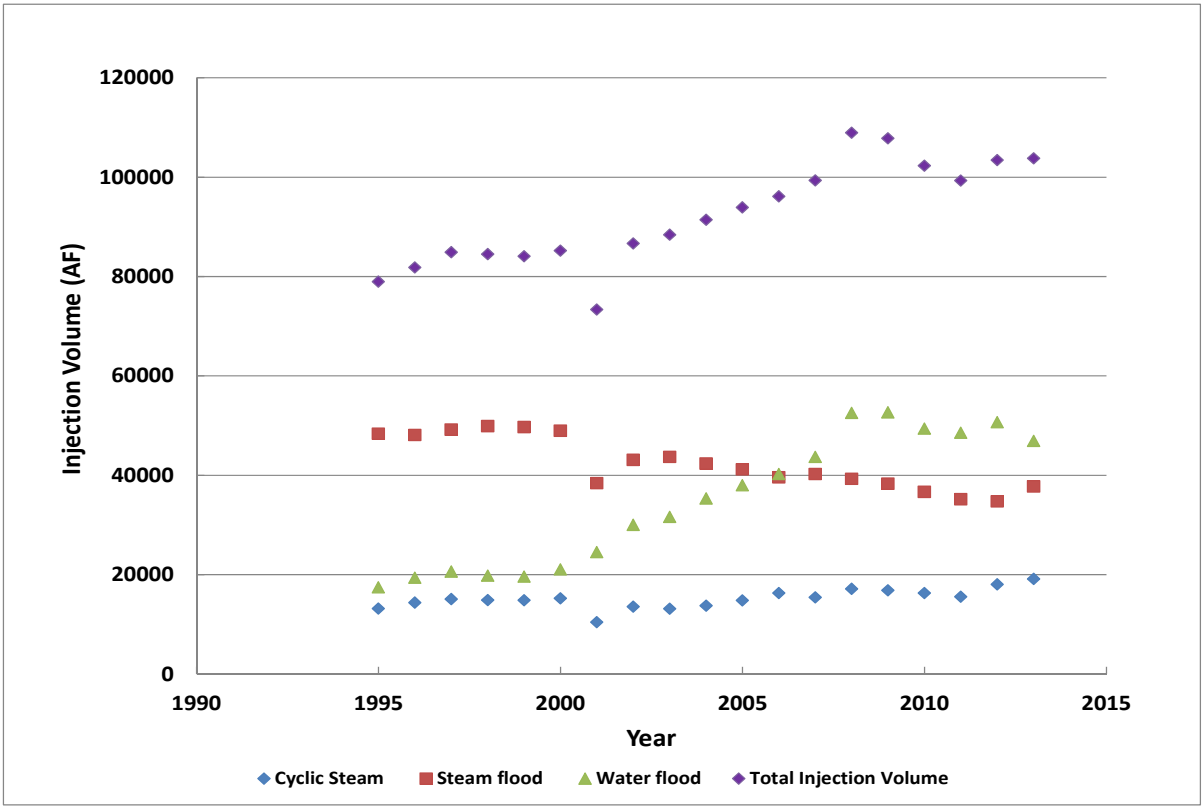


Figure 9. Historic Injection Volume for Oil and Gas Production in Kern County

The amount of water use and the trends in the three sub-areas varied during the past several years. Figure 10 shows the water use trends for EOR in the West Sub-Area from years 2003 to 2013. The water use for water flooding operations increased by 45 percent, from approximately 31,300 AF in 2003, to 45,500 AF, in 2013. The water use for steam flooding decreased by about 16 percent, from approximately 29,200 AF in 2003 to 24,600 AF in 2013. The water use for cyclic steam increased nearly 50 percent from approximately 11,500 AF in 2003 to 17,500 AF in 2013. The total water use for EOR in the West Sub-Area in 2013 is approximately 87,600 AF.

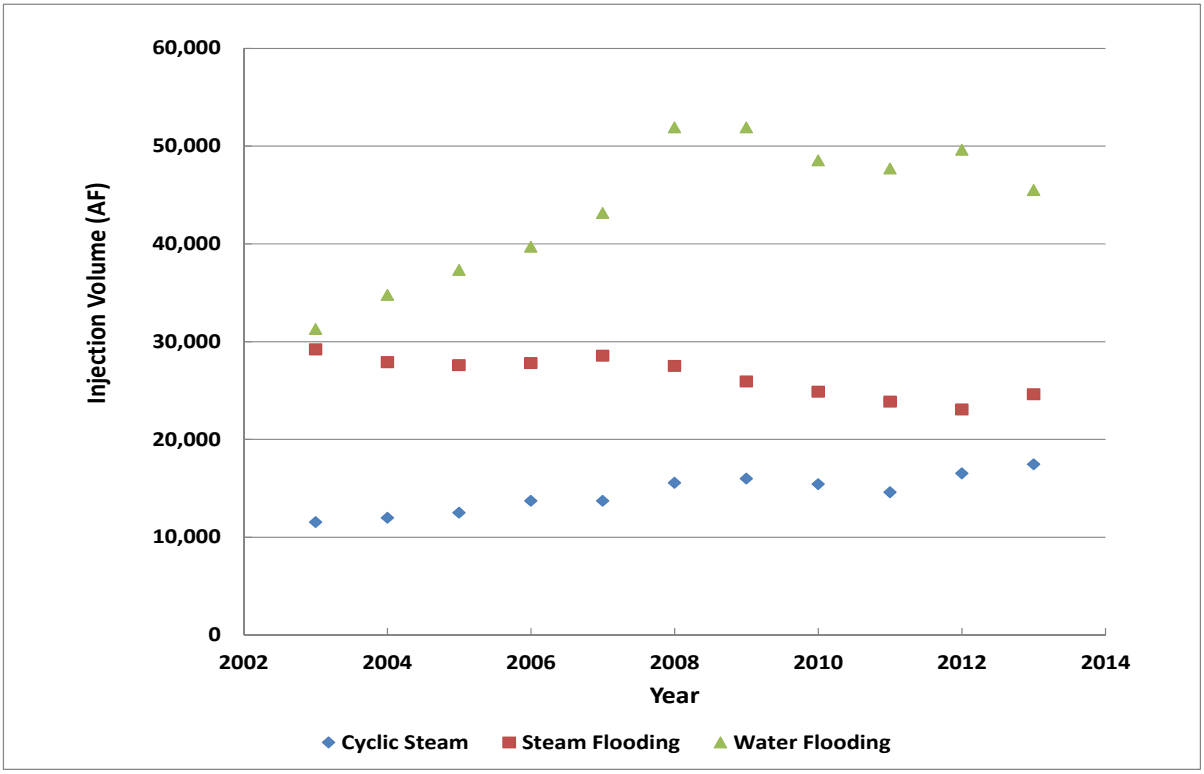


Figure 10. Historic Injection Volume for Oil and Gas Production in West Sub-Area

Figure 11 shows the water trends for oil production in the Central Sub-Area from 2003 to 2013. The water use for water flooding increased ten–fold, from approximately 0.13 AF in 2004 to approximately 14 AF in 2013. The annual water use for steam flooding and steam injection operations was less than 0.05 AF throughout this period. The total water use for oil production in the Central Sub-Area in 2013 is approximately 14.2 AF.

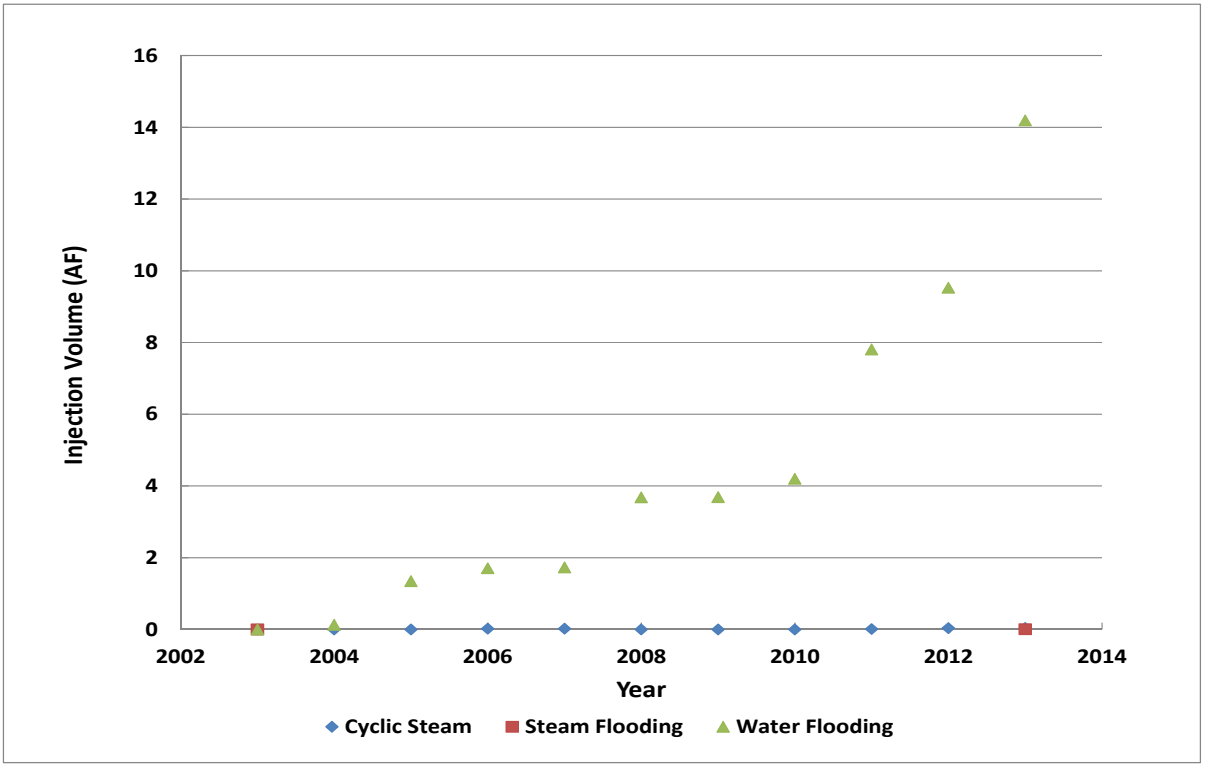


Figure 11. Historic Injection Volume for Oil and Gas Production in Central Sub-Area

Figure 12 shows the water trends for oil production in the East Sub-Area from 2003 to 2013. The distribution of the type of oil production and thus, the water use trends in the East Sub-Area are significantly different than those in the West and Central sub-areas. Approximately 85 percent of the water injection for EOR in the East Sub-Area is associated with steam flooding. The water use for steam flooding decreased by approximately 10 percent from approximately 14,500 AF in 2003 to approximately 13,000 AF in 2013. The water use for water flooding increased two fold, from approximately 340 AF in 2003 to 747 AF in 2013. The water use for cyclic steam was approximately remained about the same at 1,600 AF between 2003 and 2013. The total water use for EOR in the East Sub-Area in 2013 was approximately 15,400 AF.

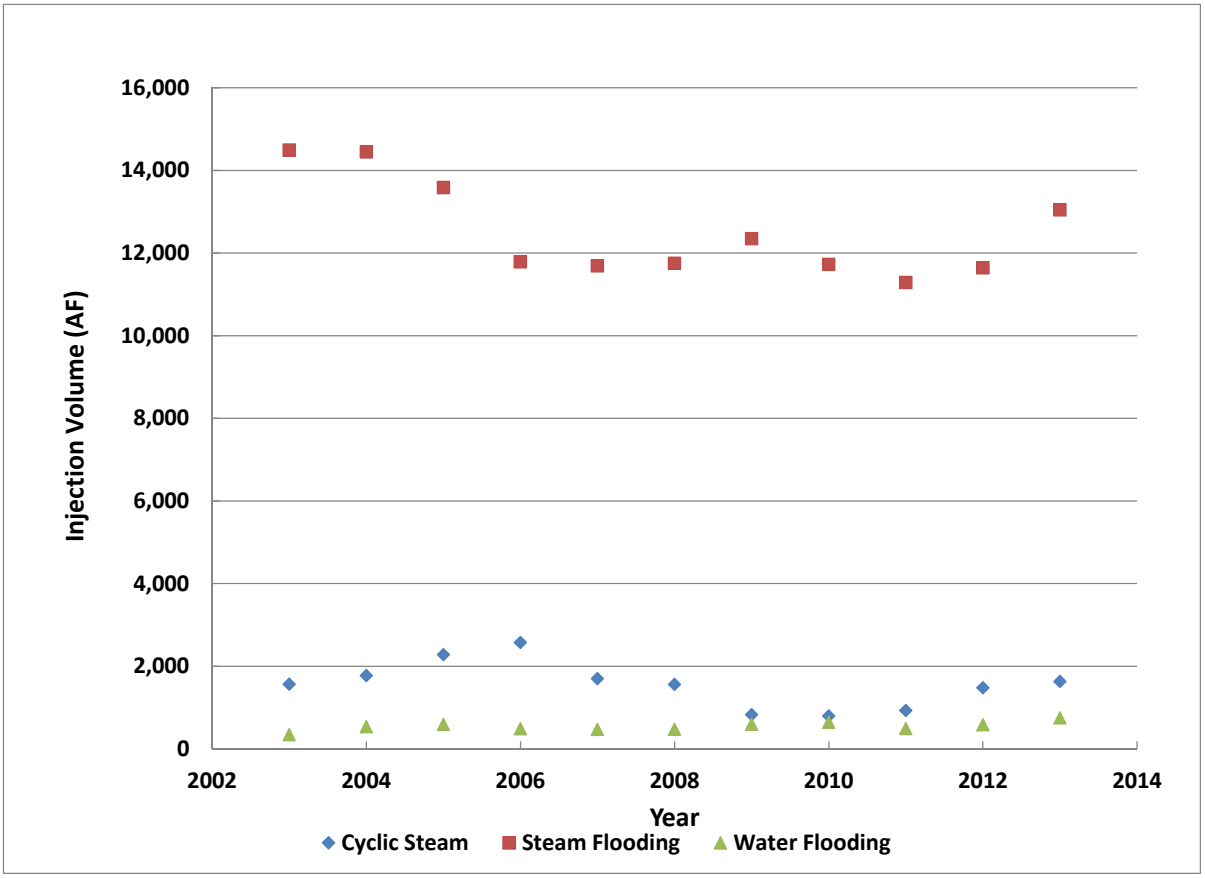


Figure 12. Historic Injection Volume for Oil and Gas Production in East Sub-Area

5.5 Water Use for Well Drilling, Stimulation, and Abandonment

The DOGGR data base provides the number of wells drilled, stimulated and abandoned each year. Figure 13 shows the number of wells drilled in Kern County from 2003 to 2009. The amount of water used exclusively for well drilling is not available in the DOGGR database. The WZI report provides an impact factor for well drilling where the water use is normalized to the number of active production wells in the sub-area and provides an estimate of water used for well drilling, stimulation, and abandonment in 2012.

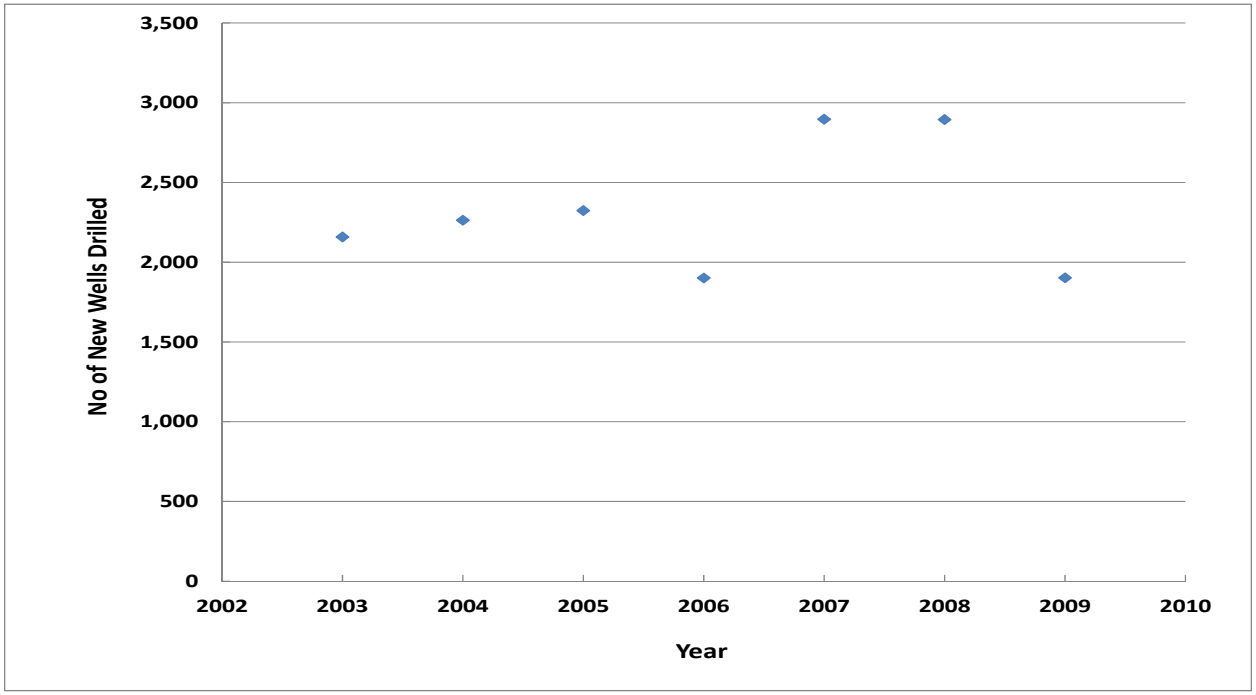


Figure 13. Number of Wells Drilled in the Project Area

5.6 Produced Water Generation

Figure 14 shows historic produced water generation in the Project Area. From 2003 to 2013 the amount of produced water generated increased from 180,000 AF to 232,000 AF. Approximately 57 percent of the produced water is generated in West Sub-Area and 42 percent from the East Sub-Area and 1 percent from the Central Sub-Area.

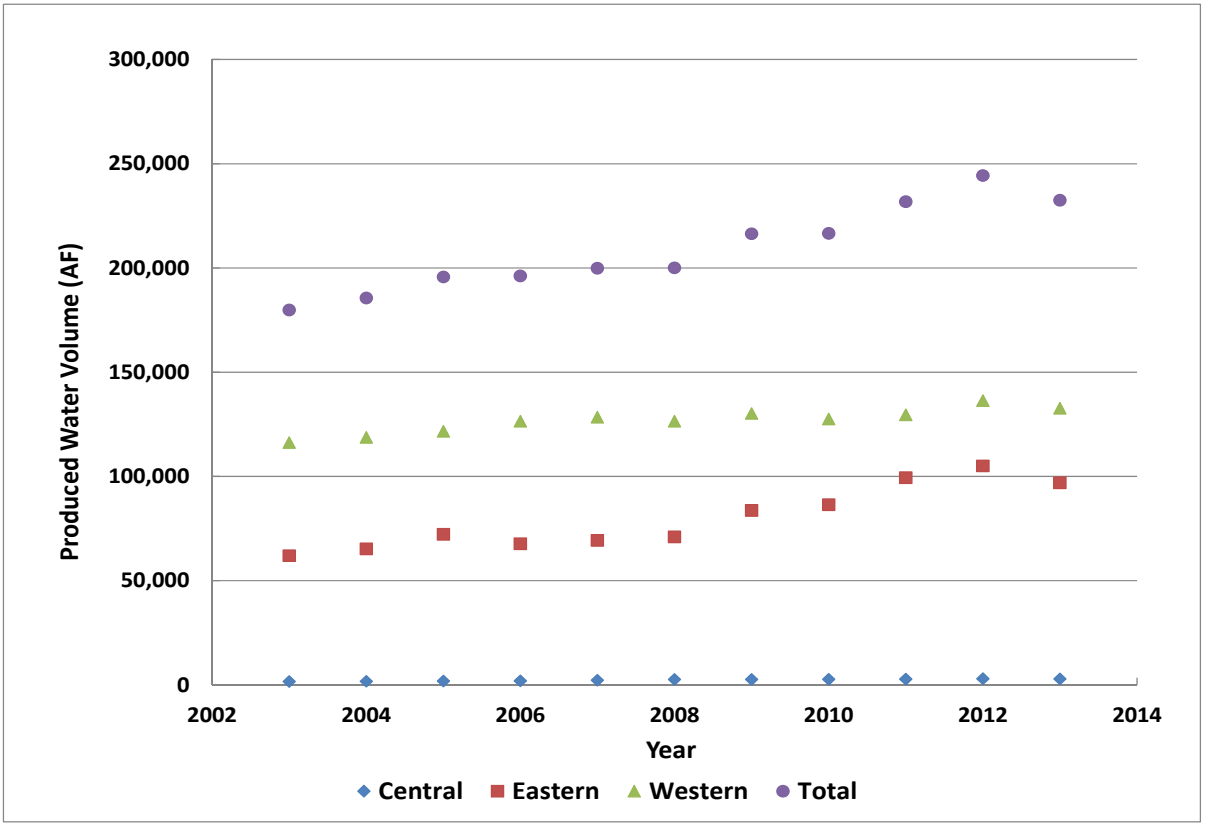


Figure 14. Historic Produced Water in the Project Area

5.7 Estimates of Produced Water Disposal as Waste by Deep Well Injection

Depending on water quality characteristics and other considerations the produced water generated is either reused for enhanced oil recovery, various oilfield construction and maintenance activities, or disposed as waste through deep well injection or by surface means. Historical use of produced water for EOR is shown in Figures 10 through 12. Figure 15 provides the historical volume of water disposed as waste through deep well injection during oil and gas production in Kern County. Approximately 41,100 AF of water was disposed of through injection wells in 1995. This volume decreased to approximately 29,600 AF in 2000. The waste injection volume then gradually increased to approximately 84,500 AF in 2013. Table 25 provides the number of waste disposal wells and volume disposed in each sub-Area in 2013.

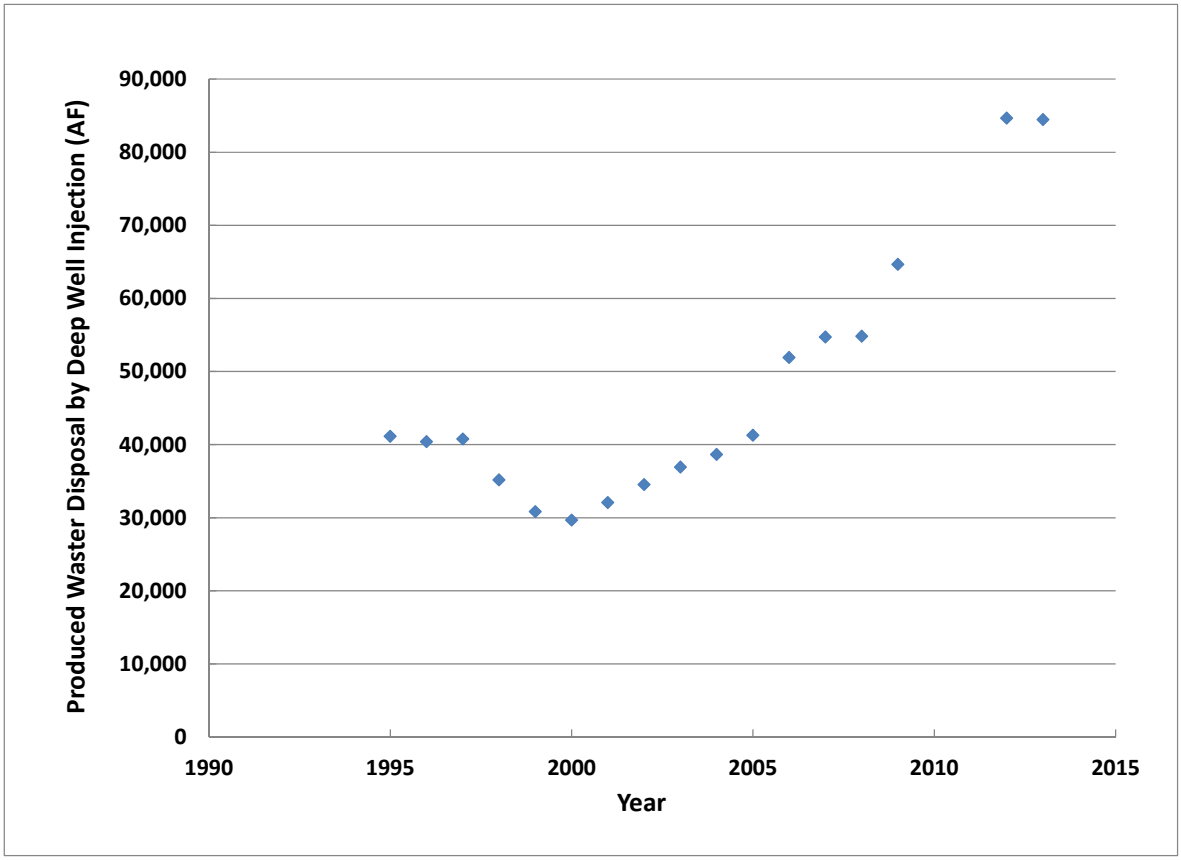


Figure 15. Historic Disposal Volume by Injection in the Project Area

TABLE 25
WASTE DISPOSAL WELLS AND VOLUME DISPOSED IN 2013 BY DEEP WELL INJECTION

Project Sub-area	No. of Wells	Waste Disposal Volume (AF)
East	438	42,320
Central	99	2,000
West	876	40,070
Any Field	9	74
Total	1,422	84,464

5.8 Kern County Oil and Gas Water Balance in 2012

As described in Section 5.1 WZI developed impact factors for water use, production and disposal activities in the project area. Tables 26 and 27 summarize the impact factors developed by WZI.

TABLE 26
IMPACT FACTOR FOR M&I WATER FOR THE THREE SUB-AREAS (WZI 2014)

Component	Unit Demand (bbl)[(a)]			Basis
	West	Central	East	
I. Water Use for New Well Construction				
Drilling Mud	563	1,856	538	Per producing Well
Cementing	422	1,391	403	Per producing Well
SB4 Activities	1,903	1,6125	0	Per producing Well
II. Water Use for Maintenance and Abandonment Activities				
Mud Service	141	466	135	Per Reworked Well
Cementing	211	696	201	Per Reworked Well
Acidizing Wells	128	128	128	Per new producing well
Coiled Tubing[(b)]	83	274.5	79.5	Per new producing well
Well Abandonment Water	891	2,939	851	Per abandoned well
Domestic Water	85.3	85.07	85.3	Per producing Well
III. Water Use for Oil Production				
Steam Production	1,566	0	0	Per producing Well

Notes: (a) bbl – barrels (42 gallons)

(b) The values represent 50% of the coil tubing water demand. WZI report indicates that the reminder of the water demand will be met using oilfield produced water.

TABLE 27
IMPACT FACTOR FOR OILFIELD PRODUCED WATER FOR THE THREE SUB-AREAS (WZI 2014)

(Unit Demand bbl)

Activity	West	Central	East	Basis
Steam injection from Treated Produced Water[(a)]	6,264	0	5,407	Per producing Well
Pressure Maintenance from Treated Produced Water	11	0	0	Per producing Well
Water Flooding from Treated Produced Water	9,803	5,540	223	Per producing Well
Coiled Tubing	83	274.5	79.5	Per new producing well
Well Pulling	126	415	120	Per producing Well
Water for dust control	240	240	240	Per "new reworked' well
Water for surface Facility Construction	17	17	17	Per new well

Notes: (a) Includes cyclic steam and steam flooding operations

This WSA primarily relies on data provided by WZI to determine potential oil and gas water demand. In addition, as a cross-check, a review of DOGGR data was included to evaluate produced water generation, injection disposal and groundwater extraction within oilfields, as well as various construction, maintenance, abandonment, land disposal, and agricultural use. Evaluation of DOGGR data in conjunction with WZI data indicated convergence (approximately >95%) of the water balance for the three sub-areas. Table 28 provides a summary of water balance thus estimated.

In Table 28 oil and gas demand is divided into M&I and non-M&I water use. Table 28 illustrates that a significant portion of oil and gas demand is met with produced water. However, M&I water use is the important demand for the purposes of this WSA, since M&I water is water that could be used for other uses besides oil and gas operations.

TABLE 28
WATER BALANCE ESTIMATES (WZI 2014)[1]

	Region			
Water Requirements by Activity (AF/yr)	**West**	**Central**	**East**	**Total**
Water Demand				
Non-M&I Water				
Injection (Steam+Water), Pressure Maintenance+Well pulling	75,322	818	12,528	88,668
Coil Tubing	14	1	6	20.45
Dust Conrol	80	1	38	119.21
Surface Facility Construction	3	0	1	4.16
Total Non-M&I Water Demand	*75,418*	*820*	*12,574*	*88,812*
M&I Water				
New Well Construction (Drill Mud+SB4)	472	42	74	*589*
Maintenance (Mud Svc+Cementing)	40	2	19	*60.90*
Maintenance (Acidizing+Coil Tubing)	35	1	16	*51.77*
Maintenance (Well Pulling+Domestic Water)	397	12	186	*594*
Well Abandonment	134	6	62	*202.3*
Steam Production	7279	0	0	*7,279*
Total M&I Water Demand	*8,358*	*63*	*357*	*8,778*
Total Annual Water Demand	**83,776**	**883**	**12,931**	**97,590**
Water Supply				
Produced Water	124,960	2,516	68,957	196,432
M&I Outside Supply				
Balance for Non-M&I Water Demand	0	0	0	0
Annual M&I Outside Supply Required	*8,358*	*63*	*357*	*8,778*
Total Annual Water Supply	**133,317**	**2,578**	**69,314**	**205,210**

Water Requirements by Activity (AF/yr)	Region			Total
	West	Central	East	
M&I Outside Supply	8,358	63	357	8,778
Produced Water Generated[2]	131,341	2,884	100,734	234,959
Subtotal Inputs	*139,698*	*2,947*	*101,091*	*243,736*
Water Outputs				
Total Annual Water Demand	83,776	883	12,931	97,590
Disposal Injection Wells	40,482	2,170	41,919	84,571
Land Application	19,545	189	11,197	30,931
Agricultural use for Cawelo Water District, Jasmine Mutual Water Company and Concordia Ranch[4]			38,658	
Subtotal Outputs	*143,803*	*3,242*	*104,705*	*251,749*
Net Balance (Inputs - Outputs)	**-4,105**	**-294**	**-3,614**	**-8,013**
Water Balance Closure	**97.1%**	**90.0%**	**96.4%**	**96.7%**

1. This Table is intended to i) provide a general overview of water balance in the project area, and ii) to compare data obtained from WZI with other sources (e.g. DOGGER 2012 database). Hence, some values in this Table may slightly differ from those in Figures 16 to 24 shown in the following Sections, where the data are derived primarily from WZI database. However, the overall water balance differed by approximately 3% or less due to these minor discrepancies. Footnotes 2 through 5 provide additional details on the differences in the values shown in this Table and in Figures 16 to 24 in this report.
2. The values shown are estimated from DOGGER 2012 report for Kern County oilfields. These values differ from the values of 132,022 AF, 2,873 AF and 102,923 AF for West, Central and East sub-areas reported by WZI by 0.2 to 0.5%. WZI reported values are primarily used for Figures 16 through 24 in this report.
3. The values include approximately 37,107 AF AF used by Cawelo Water District in 2012 (Agricultural Water Master Plan, 2014) 1,460 AF used by Jasmine Fields and 91 AF used by Concordia Fields for agriculture (Personal communication Chad Hathaway, Hathaway LLC provided to Jonathan Lilien, Chevron Inc. August 18, 2015). WZI (2014) reported agricultural use of produced water as 32,771 AF in 2012. The data in Cawelo AWMP (Feb 2014, Table 30) indicate that the average annual deliveries of "Oilfield Produced" water to Cawelo Water District averaged 32,233 AF (2 year average - 2011 and 2012), 32,535 AF (3 year average 2010 to 2012) and 32,326 (4 year average, 2009 to 2012).

Sections 5.8.1 and 5.8.2, provide a detailed breakdown of produced water and M&I water balance in the project area in 2012.

5.8.1 2012 Produced Water Balance in Kern County

This section presents the produced water balance for the total project area as well as the three sub-areas, developed using the impact factors provided by WZI for 2012. Figure 16 shows the amount of produced water generated in the project area in 2012. Of the approximately 238,000 AF generated in the Project Area, approximately 132,000, 2,800 and 103,000 AF (56%, 1% and 43%) were produced in West, Central and East sub-areas, respectively. In 2012, approximately 216 and 242 AF of produced water generated in the Central Sub-Area were transferred to the West and East sub-areas, respectively for beneficial reuse or disposal as waste.

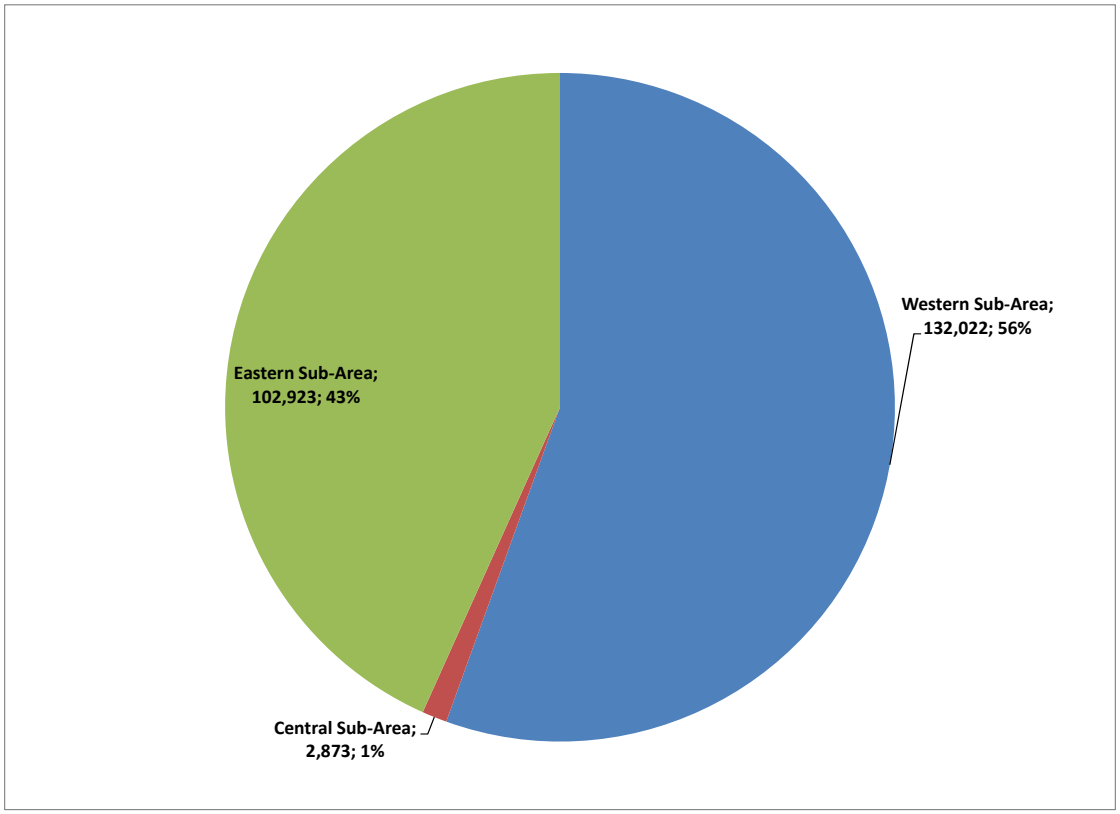


Figure 16. Estimate of Produced Water Generated in the Project Area in 2012 (AF)[1]
1.Some values shown in the Figure differs from those in Table 28 by 0.2 to 0.5% for different sub-areas due to the differences in data source. Refer to notes 1 and 2 in Table 28.

Figure 17 shows the produced water balance for the total Project Area in 2012. The solid areas in the pie chart shows the amount of produced water beneficially used in the project area and the cross-hatched areas show the amount of produced water disposed as waste through deep well injection or by surface disposal.

Approximately 32 percent (75,400 AF) of the produced water generated in the project area was used for EOR in the West Sub-Area, and nearly 20 percent (46,900 AF) was used for EOR and other beneficial uses in the East Sub-Area. A small amount (<1%, 380 AF) of produced water was used for beneficial uses, including EOR in the Central Sub-Area. Approximately 24 percent of the produced water was disposed as waste in the West Sub-Area either through deep well injection (16%) or surface disposal (8%). Approximately 16% was disposed as waste in the

East Sub-Area. Approximately 1 percent of the produced water was disposed as waste in the Central Sub-Area. Overall, approximately 54 percent of the produced water generated in the Project Area was used for beneficial uses, and the rest was disposed by deep well injection or by surface discharge.

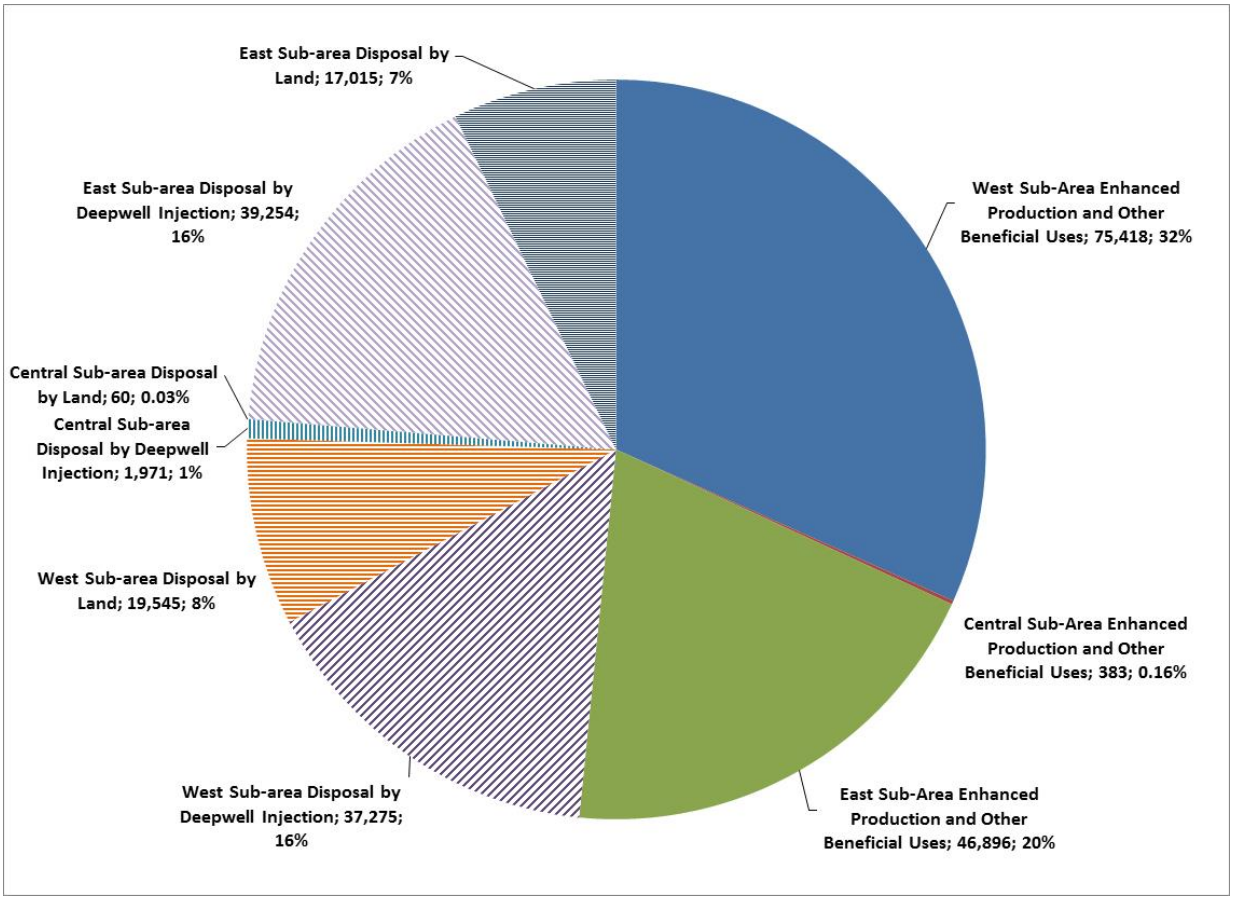


Figure 17. Estimated Produced Water Use and Disposal in the Project Area in 2012 (AF)[1]

1.Some values shown in the Figure differ from those in Table 28 due to the differences in data source and assumptions of M&I water use and resulting land applied water estimates. Refer to notes 1 and 2 in Table 28.

Figure 18 shows the produced water balance for the West Sub-Area. The solid legends in the pie chart shows the amount of produced water beneficially used in the Project Area and the hashed legends show the amount of produced water disposed as waste through deep well injection or by surface disposal.

The water balance for West Sub-Area also includes 216 AF transferred from the Central Sub-Area. Approximately 35 percent (~45,600 AF) of the produced water generated or otherwise received was used for EOR by water flooding operations. Approximately 9 and 13 percent of the produced water were used for EOR by cyclic steam and steam flooding operations. A small amount of produced water (~ 600 AF) was beneficially used for oilfield construction and other maintenance activities. Approximately, 28 and 15 percent of the produced water were disposed as waste through deep well injection and by surface means, respectively. Overall, nearly 57 percent of the produced water in the West Sub-Area was beneficially used for various applications, and 43 percent of the produced water was disposed as waste.

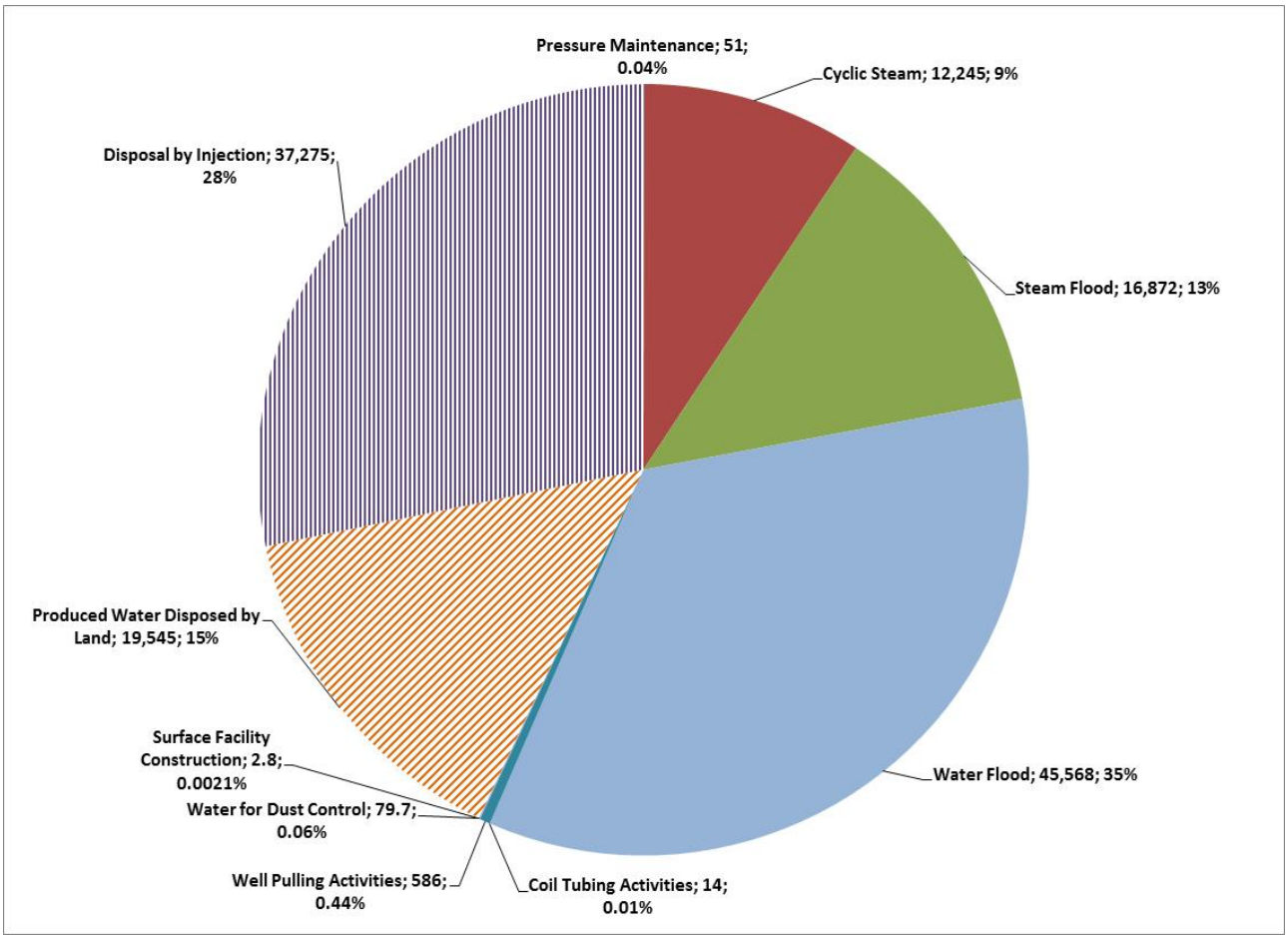


Figure 18. Estimated Produced Water Use and Disposal in the West Sub-Area in 2012 (AF)[1]

1.Some values shown in the Figure differ from those in Table 28 due to the differences in data source and assumptions of M&I water use and resulting land applied water estimates. Refer to notes 1 and 2 in Table 28.

Figure 19 shows the produced water balance for the Central Sub-Area. The solid areas in the pie chart shows the amount of produced water beneficially used in the Project Area (or transferred to other sub-Areas for beneficial use or disposal), and the crosshatched areas show the amount of produced water disposed as waste through deep well injection or by surface disposal.

Out of the 2,873 AF of produced water generated in the Central Sub-Area, approximately 12.4 percent (~355 AF) was used for EOR by water flooding operations. A small amount of produced water (~28 AF) was beneficially used for oilfield construction and other maintenance activities. Approximately 16 percent of the produced water was transferred to the West and East sub-areas for beneficial use or disposal. Approximately, 69 percent of the produced water was disposed as waste through deep well injection and 2 percent through surface discharge.

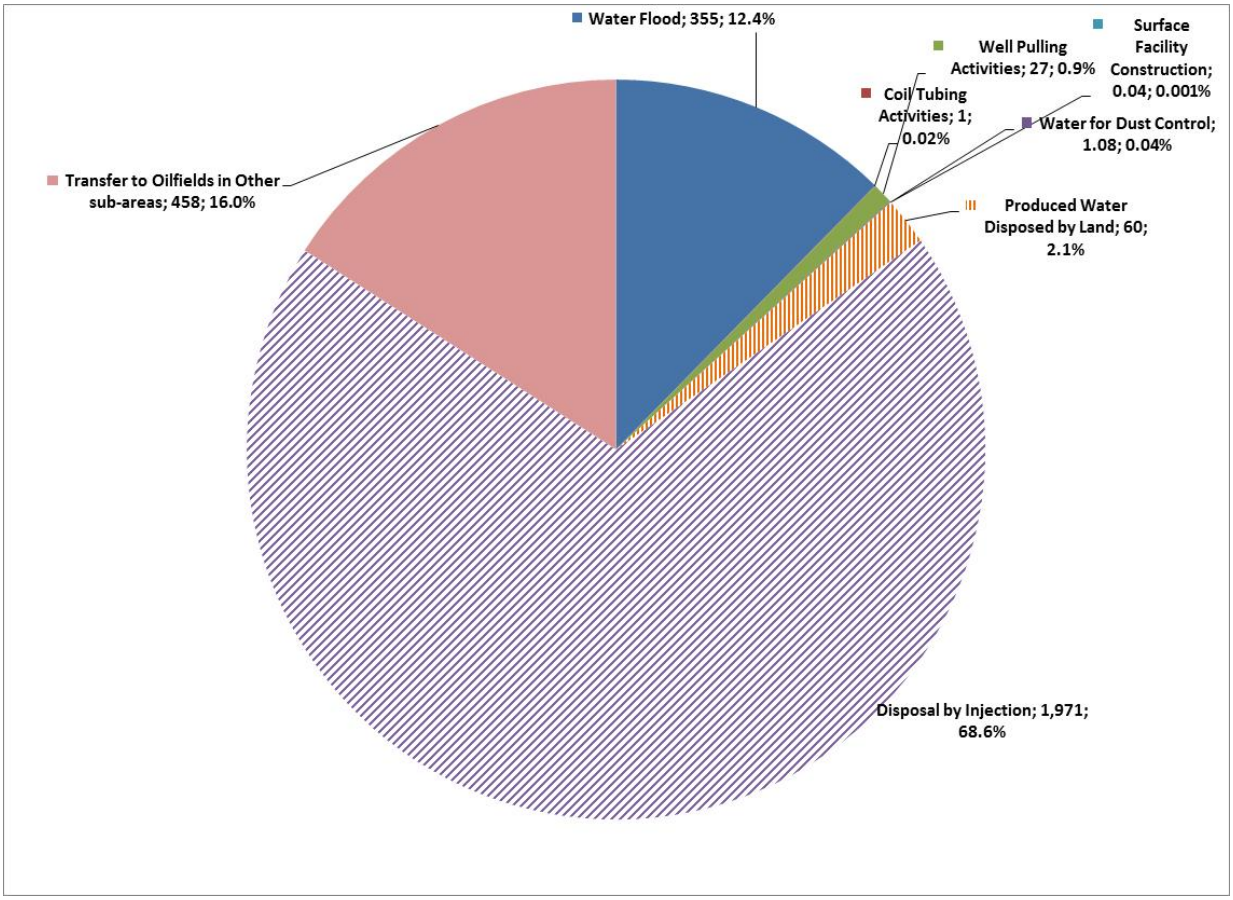


Figure 19. Estimated Produced Water Use and Disposal in the Central Sub-Area in 2012 (AF)[1]

1.Some values shown in the Figure differ from those in Table 28 due to the differences in data source and assumptions of M&I water use and resulting land applied water estimates. Refer to notes 1 and 2 in Table 28.

Figure 20 shows the produced water balance for the East Sub-Area. The solid areas in the pie chart shows the amount of produced water beneficially used in the Project Area and the cross hatched areas show the amount of produced water disposed as waste through deep well injection or by surface disposal.

The water balance for East Sub-Area also includes the 242 AF transferred from the Central Sub-Area. A key beneficial use of produced water from East Sub-Area is its use for agriculture by Cawelo Water District. Approximately 36 percent (~37,000 AF) of the produced water generated or otherwise received in the East Sub-Area is used by Cawelo Water District for agriculture. Additionally, about 1,500 AF of produced water is used for agriculture in Jasmine Mutual Water Company and Concordia Ranch. Approximately 10 percent (~10,400 AF) of the produced water was used for EOR by steam flooding operations. About 2 percent of the produced water was used for EOR by cyclic steam and water flooding operations and other oilfield construction and maintenance activities. Approximately, 38 and 17 percent of the produced water was disposed as waste through deep well injection and by surface means, respectively. Overall, approximately 50 percent of the produced water in the East Sub-Area was beneficially used for various applications, and 50 percent of the produced water was disposed as waste.

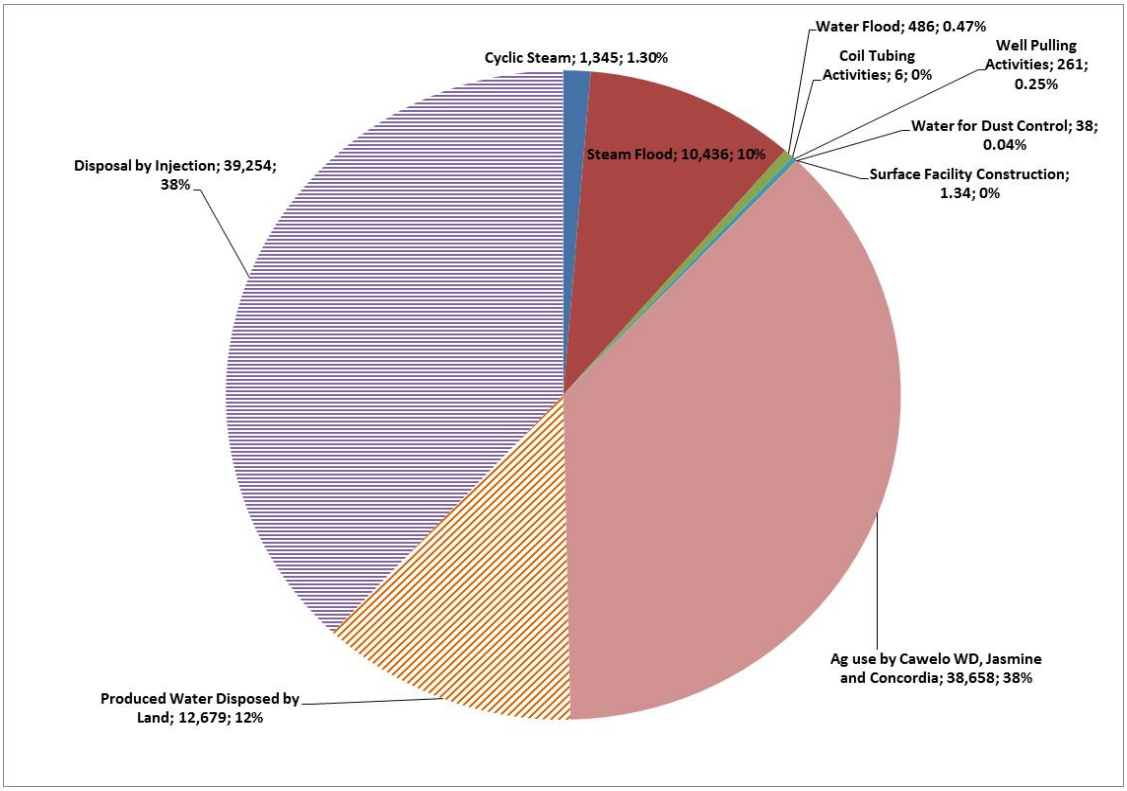


Figure 20. Estimated Produced Water Use and Disposal in the East Sub-Area in 2012 (AF)[1]

1.Some values shown in the Figure differ from those in Table 28 due to the differences in data source and assumptions of M&I water use and resulting land applied water estimates. Refer to notes 2 and 3 in Table 28.

5.8.2 2012 M&I Water Balance in Kern County

Figure 21 shows estimated M&I water use for various oil and gas applications in the Project Area. The total estimated oil and gas M&I water use in the Project Area is approximately 8,778 AF for 2012. Approximately 95 percent (8,358 AF) was used in the West Sub-Area for various activities. The oil and gas M&I water use in the Central and East sub-areas are approximately 1 percent (63 AF) and 4 percent (357 AF), respectively. The estimated total oil and gas M&I water use of 8,778 AF is approximately 3.4 percent of produced water (256,070 AF) beneficially used in the Project Area in 2012.

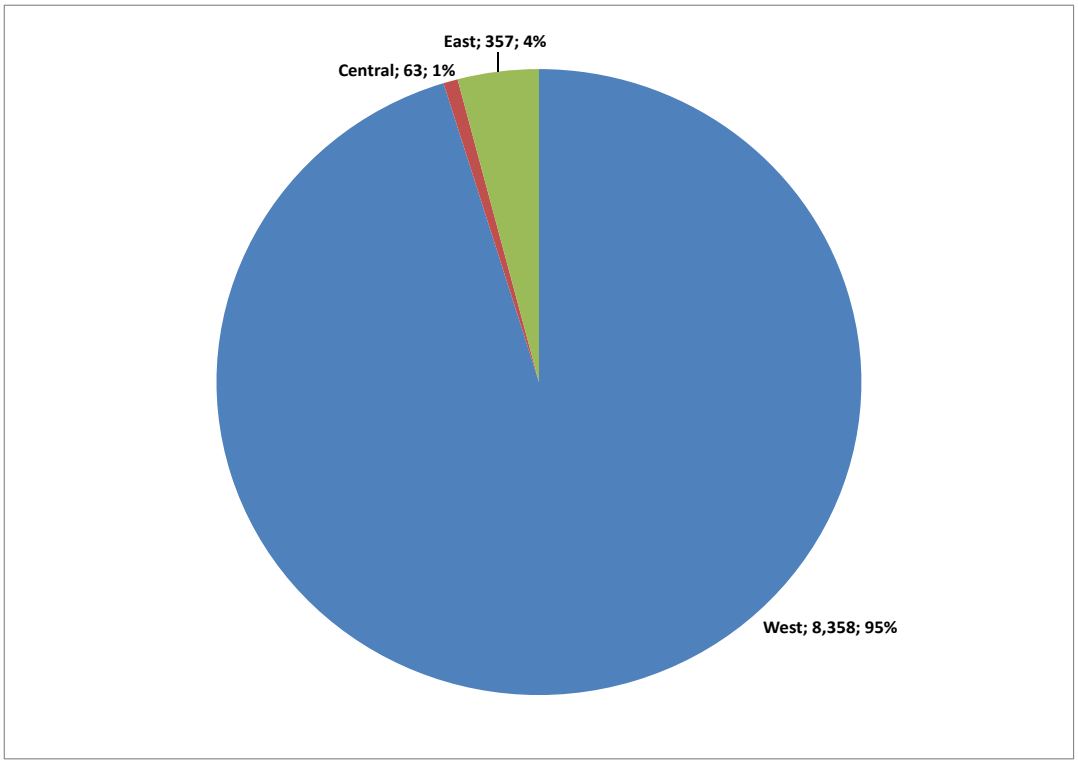


Figure 21. Estimated M&I Water Use in the Project Area in 2012 (AF)

Figure 22 shows the estimated oil and gas M&I water use for various activities in the West Sub-Area in 2012. The major oil and gas M&I water use include steam production for EOR (87%), domestic water use (5%) and SB-4 activities (4%).

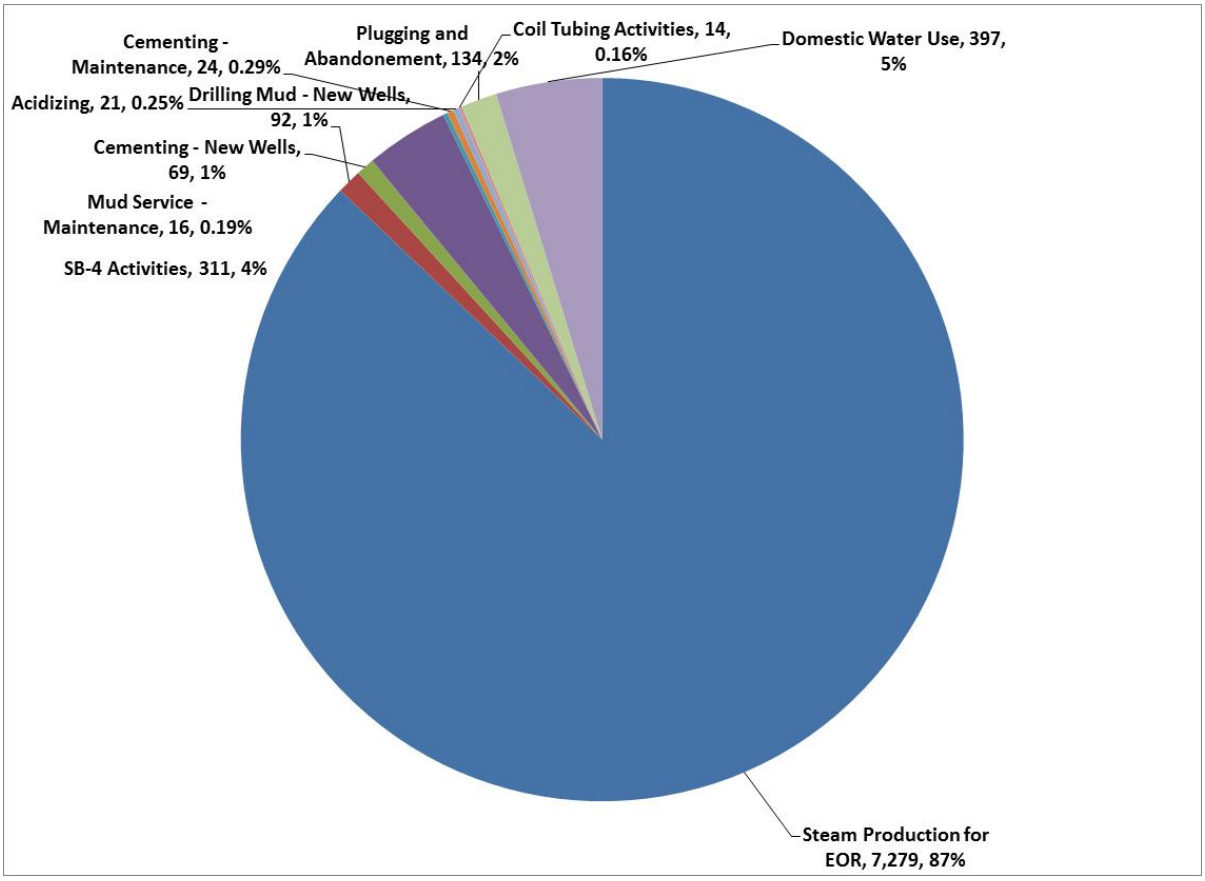


Figure 22. Estimated M&I Water Use in the West Sub-Area in 2012 (AF)

Figure 23 shows the estimated oil and gas M&I water use for various activities in the Central Sub-Area in 2012. The major oil and gas activities that require M&I water include, SB-4 activities (56%) water, domestic water use (18%) and drilling mud for new well construction (6%).

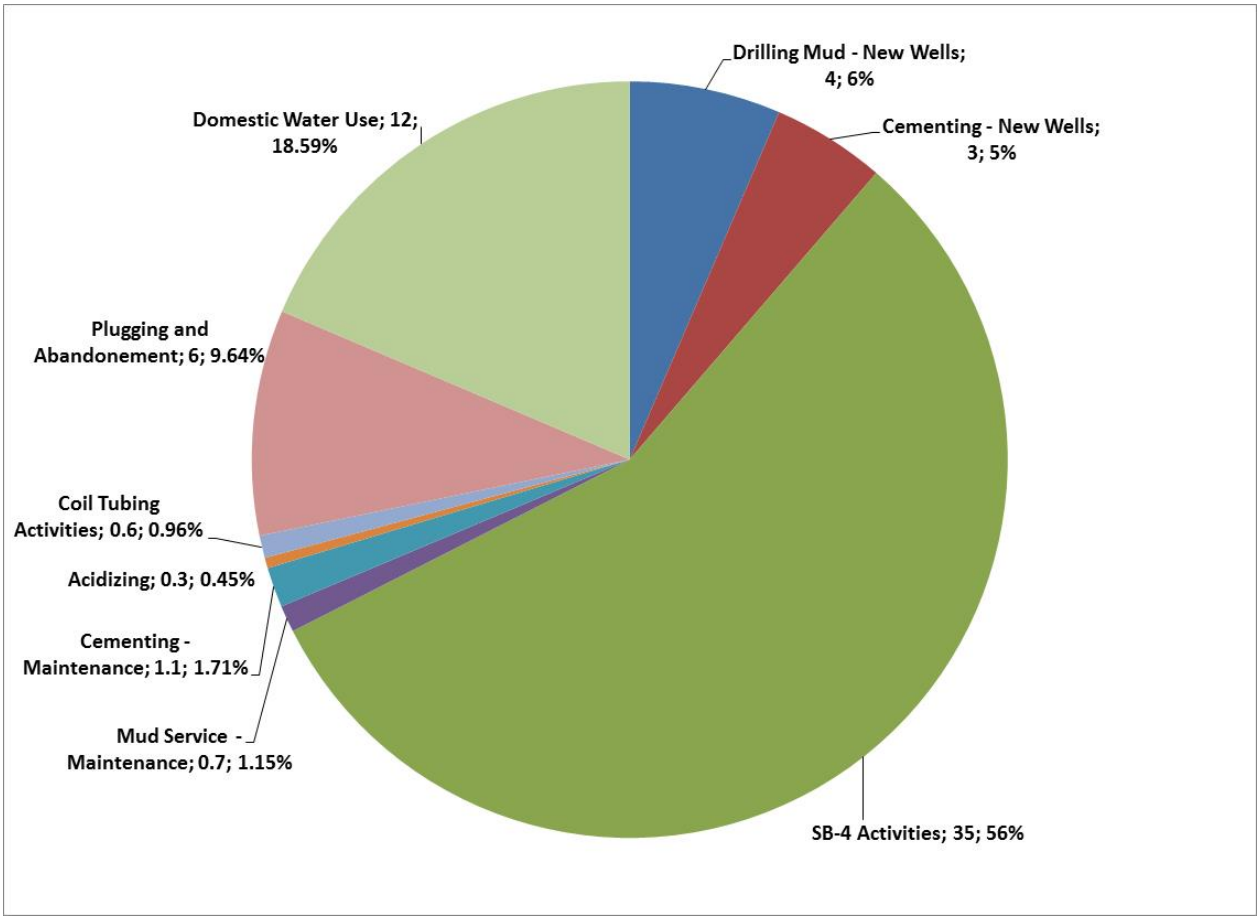


Figure 23. Estimated M&I Water Use in the Central Sub-Area in 2012 (AF)

Figure 24 shows the estimated oil and gas M&I water use for various activities in the East Sub-Area in 2012. The major oil and gas activities that require M&I water include, domestic water use (52%), plugging and abandonment (17%) and drilling mud for new wells (12%).

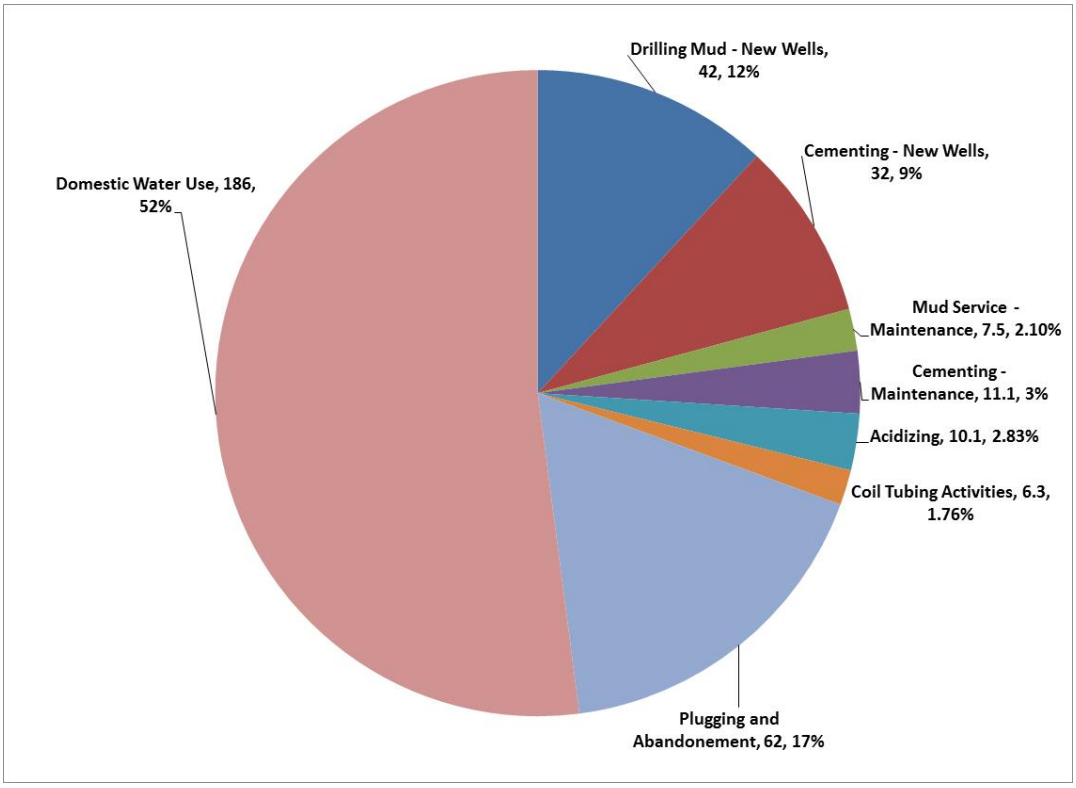


Figure 24. Estimated M&I Water Use in the East Sub-Area in 2012 (AF)

5.9 Oil and Gas Water Demand

Based on WZI evaluations, in 2012 oil and gas water demands were:

- 8,778 AF M&I water and 88,812 AF produced water for the Project Area
- 8,358 AF M&I water and 75,418 AF produced water for the West Sub-Area
- 63 AF M&I water and 820 AF produced water for the Central Sub-Area
- 357 AF M&I water and 12,574 AF produced water for the East Sub-Area (does not include produced water delivered to Cawelo Water District, Jasmine Mutual Water Company and Concordia Ranch for agriculture)

5.10 Future Oil and Gas Water Demand

Future oil and gas water demand was estimated using the impact factors for various well construction, oil & gas production, maintenance and abandonment activities developed by WZI (see Tables 28 and 29). These impact factors were used in conjunction with the projections for number of wells estimated to be drilled and abandoned in future years provided by WZI (Table 29). Table 29 provides the breakdown of various types of wells to be drilled or abandoned in the three sub-areas in future. The assumptions used in the well projections are also shown. In addition, the number of "reworked" wells in each sub-area was estimated using the ratio of reworked well to total wells in 2012 and the total estimated wells in a given year.

TABLE 29
PROJECTIONS FOR FUTURE WELL OPERATION, CONSTRUCTION, AND ABANDONMENTS

Activity	West	Central	East	Total
New Producing Wells. (Active, New, Idle and Blank)	1730	131	836	2,697
Total Wells: Active, New, Idle and Blank	2,447	162	1040	3,649
Hydraulic Stimulation (SB-4)	680	131	2	763
Plugging & Abandonment[(a)]	1,803	74	354	2,231

Notes: (a) The number of abandoned producing and non-producing wells were estimated using the ratio of new producing and non-producing wells drilled in each sub-area

Figure 25 show the projected water demand for the oil and gas sector estimated using the above projections and assumptions for the three sub-Areas. The total projected oil and gas sector produced water demand increases from approximately 128,000 AF in 2012 to approximately 161,000 AF in 2035.

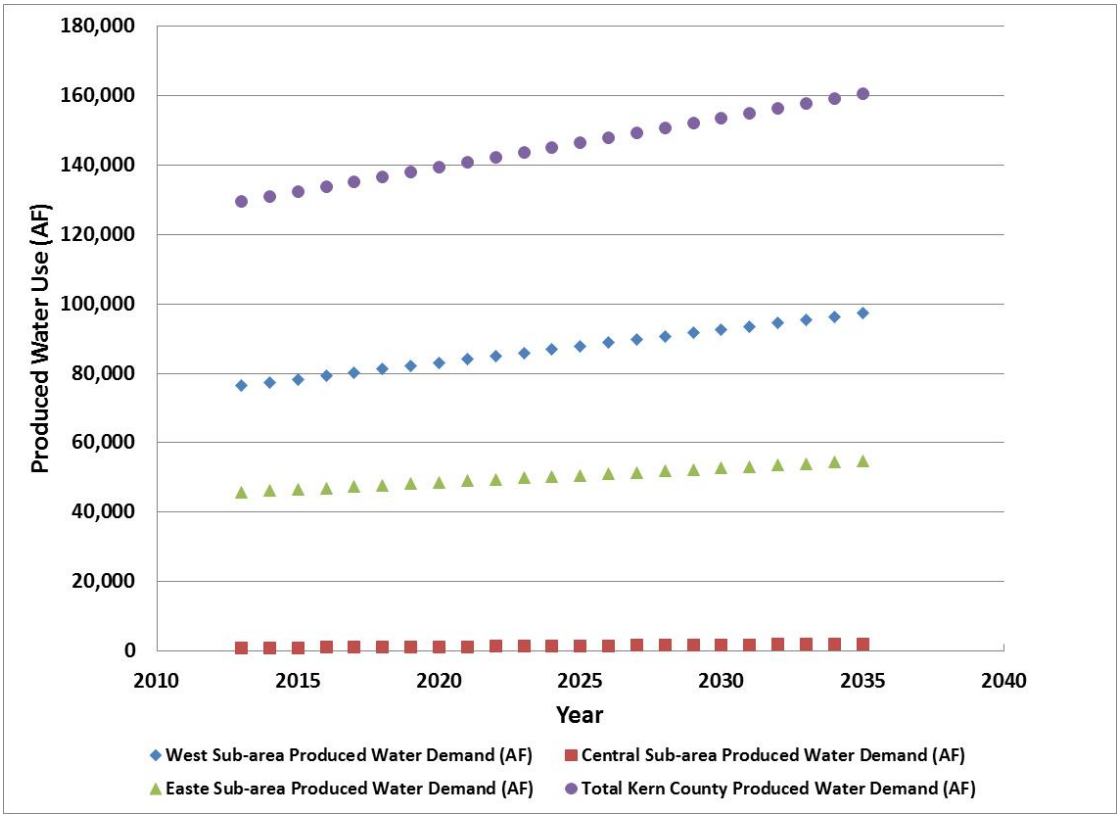


Figure 25. Projected Beneficial Produced Water Demand in the Project Area from 2015 to 2035

Table 30 and Figure 26 show the M&I water demand for the oil and gas sector estimated using the above projections and assumptions for the three sub-areas. For the West Sub-Area, the projected M&I water demand increases from 8,700 AF in 2013 to 10,850 AF in 2035. For the

Central Sub-Area the projected M&I water demand increases from 375 AF to 395 AF in 2035. For the East Sub-Area the projected M&I water demand increases from 374 AF to 515 AF in 2035. The total projected oil and gas sector M&I water demand increases from 9,450 AF in 2013 to 11,760 AF in 2035, an approximately 34 percent increase from the 2012 M&I water demand. The West Sub-Area projected M&I water demand is approximately 92 percent of the total projected M&I water demand. Figure 26 shows the trends in projected M&I water demands for the oil and gas sector Project Area.

In Table 30 the left column for each sub-area is based on projections. However, in Table 30 to be conservative, a 10 percent contingency has been added to cover any annual variations.

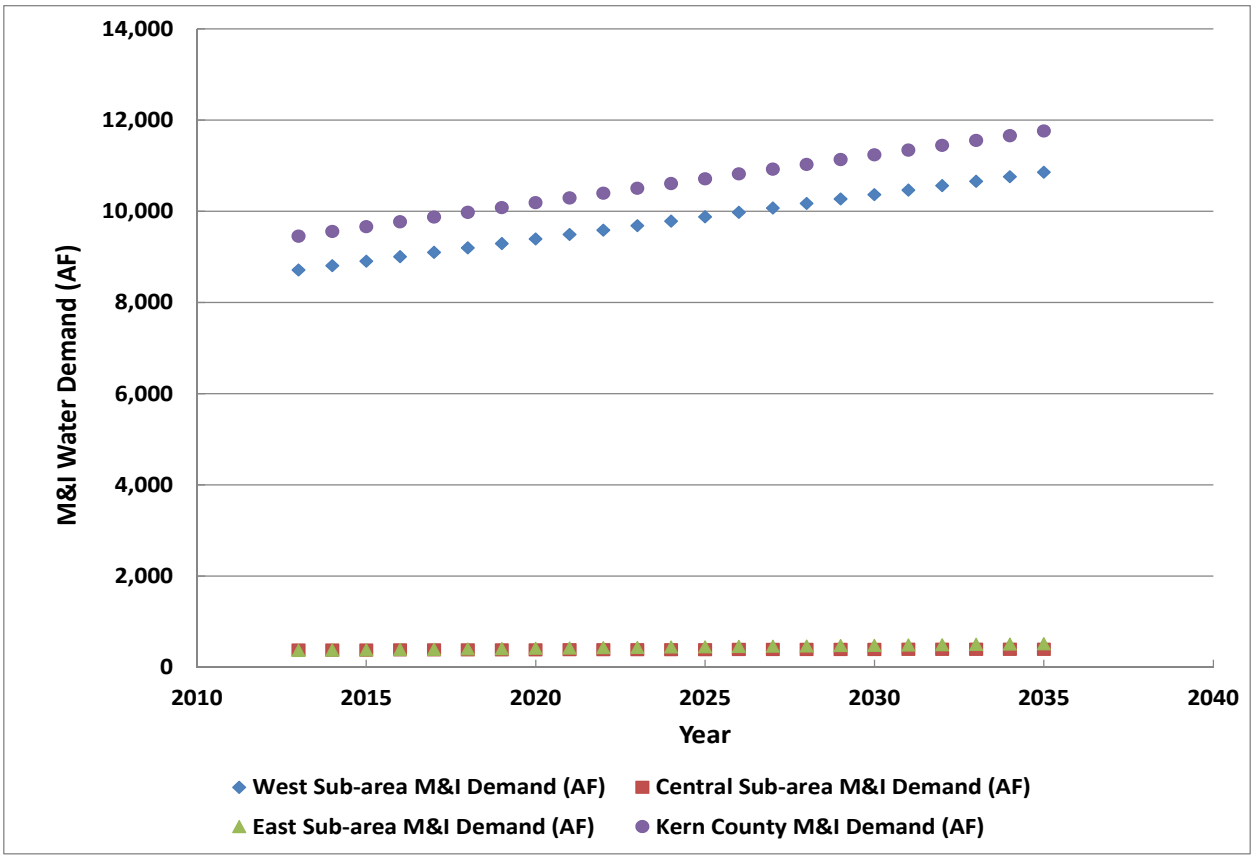


Figure 26. Projected M&I Water Demand for Oil and Gas Activities

TABLE 30
OIL AND GAS SECTOR M&I WATER DEMAND PROJECTION PLUS 10% CONTINGENCY

Year	West Sub-Area		Central Sub-Area		East Sub-Area		Total for Project Area	
	Projected M&I Demand (AF)	Projected M&I Demand + 10% (AF)	Projected M&I Demand (AF)	Projected M&I Demand + 10% (AF)	Projected M&I Demand (AF)	Projected M&I Demand + 10% (AF)	Projected M&I Demand (AF)	Projected M&I Demand + 10% (AF)
2013	8,707	9,578	376	413	368	404	9,450	10,395
2014	8,804	9,685	376	414	374	412	9,555	10,511
2015	8,902	9,792	377	415	381	419	9,660	10,626
2016	8,999	9,899	378	416	388	426	9,765	10,742
2017	9,097	10,006	379	417	394	434	9,870	10,857
2018	9,194	10,114	380	418	401	441	9,975	10,973
2019	9,292	10,221	381	419	408	449	10,080	11,088
2020	9,389	10,328	382	420	414	456	10,185	11,204
2021	9,486	10,435	383	421	421	463	10,290	11,319
2022	9,584	10,542	383	422	428	471	10,395	11,435
2023	9,681	10,650	384	423	434	478	10,500	11,550
2024	9,779	10,757	385	424	441	485	10,605	11,666
2025	9,876	10,864	386	425	448	493	10,710	11,781
2026	9,974	10,971	387	426	454	500	10,815	11,897
2027	10,071	11,078	388	427	461	507	10,920	12,012
2028	10,169	11,185	389	428	468	515	11,025	12,128
2029	10,266	11,293	390	428	474	522	11,130	12,243
2030	10,363	11,400	390	429	481	529	11,235	12,359
2031	10,461	11,507	391	430	488	537	11,340	12,474
2032	10,558	11,614	392	431	494	544	11,445	12,589
2033	10,656	11,721	393	432	501	551	11,550	12,705
2034	10,753	11,829	394	433	508	559	11,655	12,820
2035	10,851	11,936	395	434	515	566	11,760	12,936

Section 6: Project Area Water Demand

In addition to evaluating supplies, a WSA must also evaluate current and future demands. This WSA evaluates the water demands in the Project Area and the three designated oil and gas Sub-Areas, West, Central, and East. Future water demand projections are described in normal, single-dry, and multiple-dry years, in five-year increments from 2010 to 2035, based on existing, publicly available data.

6.1 Overview of Water Demand

Water demands within the Kern Region are serviced by a variety of water purveyors, including the large wholesale agency, KCWA, its member districts, irrigation and water storage districts, investor-owned water companies, mutual water companies, municipalities and private well owners. The locations of the water purveyors and communities in the Project Area are described in section 2.4 of this WSA.

The current water demand in the Project Area includes urban (M&I), agricultural, and oil and gas sectors. Water districts in the Project Area conjunctively use surface water (both imported and local), groundwater, recycled water, and oilfield produced water to meet their water demand requirements.

The total current demand for the urban, agriculture, and oil and gas sectors in the Project Area is estimated to be approximately 3,008,480. The combined urban and agricultural demand for the current conditions is estimated to be approximately 2,905,700 AF annually. Of all demands (ag, urban, oil and gas), agriculture is by far the largest water use, accounting more than 88%. The current water demand by the oil and gas sector is estimated to be approximately 102,800 AF, making up less approximately 4% of the total Project Area demand.

The total water demand for all sectors is projected to be a little more than 3,103,500 AF by 2035. This represents a 3.2% increase in demand from the current conditions. The urban demand would reach about 302,000 AF by 2035, an increase of approximately 27% from 2015 conditions. Although some changes to agricultural land use is anticipated to occur in the future, as a conservative assumption, agricultural demand was assumed to stay at the same level as current conditions.

Urban demand is anticipated to vary by hydrological year types (normal, single-dry, and multiple-dry years), but the change in demand through time would be greater than the variations due to hydrological conditions. Compared to the 2035 normal demand projections (302,000 AF), urban demand would be slightly lower during a single-dry year (300,000 AF) and slightly higher during multiple dry years (306,000 AF).

Oil and gas demand is assumed to be controlled primarily by future operations, and not affected by hydrological conditions; thus, demand for this sector was assumed to be independent from hydrological year types.

6.1.1 Current and Future Water Demand

This section presents the current and future projections of water demand for the Project Area and the three Sub-Areas. The water demand projections were estimated separately for the urban, agricultural, and oil and gas sectors and described in the following sections.

6.1.1.1 Urban Demand

Urban demand projections were evaluated in normal, single-dry, and multiple-dry years in five-year increments from 2010 to 2035, based on existing, publicly available data. Data were compiled primarily from the water purveyors with UWMPs in the Project Area, the Tulare Lake Basin Portion of Kern County IRWMP, and the Poso Creek IRWMP. Water supplies utilized in the Project Area to meet urban demand are the SWP via the California Aqueduct, the CVP via the Friant-Kern Canal, local surface supplies from the Kern River and other local streams, groundwater pumping from the Kern County Subbasin of the San Joaquin Valley Groundwater Basin, recycled water, and oilfield produced water. Urban water demands reported by the agencies typically include M&I customers (residential, commercial/industrial/institutional, and landscape) and other water use types (e.g., fire and water losses). Purveyors supplying water to M&I customers include the followings:

- Arvin CSD
- Buttonwillow CWD
- California Water Service
- Casa Loma WC
- City of Bakersfield
- City of Delano
- City of Shafter
- City of Tehachapi
- City of Wasco
- East Niles CSD
- Greenfield CWD
- KCWA ID4
- Lamont PUD
- Lost Hills UD
- McFarland MWC
- Mettler CWD
- North of the River MWD
- Oildale MWC
- Stockdale MWC
- Vaughn WC
- Victory MWC
- West Kern WD

6.1.1.2 Urban Demand for Project Area

Table 31 provides a summary of current and projected urban water demands for the Project Area for normal water year from 2010 to 2035. Tables 32 and 33 present urban water demand projections during a single-dry year and multiple-dry years, respectively. Overall, the water demand in the Project Area is projected to increase by 2035. During normal years, water demand would increase from approximately 237,000 AF in 2015 to 302,000 AF in 2035. Water demand projections are estimated to be slightly lower for a single-dry year and slightly higher for multiple-dry years compared to normal year projections. Water demand would increase from approximately 235,000 AF in 2015 to 300,000 AF in 2035 during a single-dry year and from 240,000 AF in 2015 to 306,000 TAF in 2035 during multiple-dry years.

The current and future demand projections were not readily available for Casa Loma WC and Mettler CWD, which are both located in the Central Sub-Area. Casa Loma WC is a privately held company located in Bakersfield within the KCWA ID4 service area, but serves its customers local groundwater. The source of Mettler CWD's water supply is unknown, but is assumed to be small.

For agencies without published 2035 demand projections, demand was assumed to grow at the same rate as population. The 2035 demand projections were estimated based on the average annual population growth rate of 1.8% for Kern Country from 2030 to 2035 based on the population forecast reported by the Kern Council of Governments Draft 2014 Regional Transportation Plan/Sustainable Communities Strategy (Kern Council of Governments 2014).

TABLE 31
URBAN WATER DEMAND PROJECTIONS – NORMAL WATER YEAR (AFY)

		Demand						
Sub-Area	**Purveyor**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
East and Central	KCWA Improvement District No.4							
East and Central	California Water Service	77,177	84,029	80,644	86,788	93,400	100,513	(a)
East and Central	City of Bakersfield	43,210	45,906	44,419	48,577	52,735	57,655	(b), (c)
East	East Niles CSD	8,942	9,238	9,569	10,042	10,583	11,572	(c), (d)
East and Central	North of the River MWD	8,400	8,800	9,200	10,000	11,000	11,000	(e)
East and Central	Oildale MWC	8,173	7,930	7,768	8,524	9,324	10,194	(c), (f)
Central	Casa Loma Water Company	--	--	--	--	--	--	(g), (h)
East	Greenfield CWD	2,843	3,108	3,398	3,715	4,061	4,440	(c) (h)
Central	Stockdale MWC and Annex	219	239	261	286	312	341	(c) (h)
Central	Victory MWC	224	245	268	293	320	350	(c) (h)
West	Buttonwillow CWD	142	155	170	186	203	222	(c) (h)
East and Central	Vaughn WC	11,104	14,962	15,383	17,479	19,576	21,402	(c), (i)
West	West Kern WD	27,170	26,983	27,080	27,177	27,275	27,373	(j)
Central	City of Delano	9,271	11,785	11,785	13,021	14,387	15,900	(k)
Central	City of Shafter	4,739	5,037	5,322	5,171	5,708	6,302	(l)
Central	City of Wasco	4,681	6,661	8,925	11,469	14,293	17,397	(m)
Central	McFarland MWC	1,765	1,929	2,109	2,306	2,521	2,756	(c), (h)
Central	City of McFarland (in McFarland MWC)							
East	Arvin CSD	3,472	3,796	4,150	4,538	4,961	5,424	(c), (h)
East	Lamont PUD	4,865	5,319	5,815	6,358	6,951	7,600	(c), (h)
Central	Mettler CWD	--	--	--	--	--	--	(h), (g)
Central and West	Lost Hills UD	462	506	553	604	661	723	(c), (h)
East	Tehachapi-Cummings CWD	367	401	439	480	524	573	(c), (h), (n)
	Total	**217,226**	**237,028**	**237,257**	**257,014**	**278,795**	**301,736**	

Notes:

(a) California Water Service Bakersfield District 2010 UWMP for 2010 through 2035 demand projections (Table 3.4-2).
(b) City of Bakersfield 2010 UWMP for 2010 through 2030 demand projections (Tables 6 and 23).
(c) 2035 demand projection was estimated proportional to the population growth rate of 1.8 percent from 2030 to 2035.
(d) East Niles CSD 2010 UWMP (Table 32).
(e) KCWA ID4 and North of the River MWD 2010 UWMP (Table 6-3).
(f) Oildale MWC 2010 UWMP (Tables 8 through 11 and 13).
(g) Demand data unavailable.
(h) Tulare Lake Basin Portion of Kern County IRWMP (Table 2-19).
(i) Vaughn WC 2010 UWMP for 2010 and 2030 water demand projections (Table 19).
(j) West Kern WD 2010 UWMP for 2010 through 2035 water demand projections (Table 6-4).
(k) City of Delano 2010 UWMP (Table 3-12).

(l) City of Shafter 2010 UWMP (Tables 11-14 and 26).
(m) City of Wasco 2010 UWMP (Tables 3-5 and 5-5).
(n) A small portion of the Tehachapi-Cummings CWD (about 5 percent) is within the Project Area; thus, only 5 percent of the demand is included.

TABLE 32
URBAN WATER DEMAND PROJECTIONS – SINGLE DRY YEAR (AFY)

Sub-Area	Purveyor	Demand					Notes
		2015	2020	2025	2030	2035	
East and Central	KCWA Improvement District No.4						
East and Central	California Water Service	82,213	78,901	84,913	91,382	98,342	(a)
East and Central	City of Bakersfield	43,611	42,198	46,148	50,098	54,772	(b), (c)
East	East Niles CSD	9,237	9,569	10,042	10,583	11,572	(c), (d)
East and Central	North of the River MWD	9,240	9,660	10,500	11,550	11,550	(c)
East and Central	Oildale MWC	7,930	7,768	8,524	9,324	10,194	(c), (f)
Central	Casa Loma Water Company	--	--	--	--	--	(g), (h)
East	Greenfield CWD	3,108	3,398	3,715	4,061	4,440	(c) (h)
Central	Stockdale MWC and Annex	239	261	286	312	341	(c) (h)
Central	Victory MWC	245	268	293	320	350	(c) (h)
West	Buttonwillow CWD	155	170	186	203	222	(c) (h)
East and Central	Vaughn WC	14,962	15,383	17,479	19,576	21,402	(c), (i)
West	West Kern WD	29,681	29,788	29,895	30,003	30,111	(j)
Central	City of Delano	10,667	11,785	13,021	14,387	15,900	(k)
Central	City of Shafter	5,037	5,322	5,171	5,708	6,302	(l)
Central	City of Wasco	6,661	8,925	11,469	14,293	17,397	(m)
Central	McFarland MWC	1,929	2,109	2,306	2,521	2,756	(c), (h)
Central	City of McFarland (in McFarland MWC)						
East	Arvin CSD	3,796	4,150	4,538	4,961	5,424	(c), (h)
East	Lamont PUD	5,319	5,815	6,358	6,951	7,600	(c), (h)
Central	Mettler CWD	--	--	--	--	--	(h), (g)
Central and West	Lost Hills UD	506	553	604	661	723	(c), (h)
East	Tehachapi-Cummings CWD	401	439	480	524	573	(c), (h), (n)
	Total	**234,938**	**236,461**	**255,928**	**277,418**	**299,970**	

Notes:

(a) California Water Service Bakersfield District 2010 UWMP for 2010 through 2035 demand projections (Table 5.2-5).
(b) City of Bakersfield 2010 UWMP for 2010 through 2030 demand projections (Table 24).
(c) 2035 demand projection was estimated proportional to the population growth rate of 1.8 percent from 2030 to 2035.
(d) East Niles CSD 2010 UWMP (Table 33).
(e) KCWA ID4 and North of the River MWD 2010 UWMP (Table 6-5).
(f) Oildale MWC 2010 UWMP.
(g) Demand data unavailable.
(h) Tulare Lake Basin Portion of Kern County IRWMP (Table 2-19). Normal year water demand was assumed for a single-dry year water demand as a conservative assumption.
(i) Vaughn WC 2010 UWMP for 2010 and 2030 water demand projections (Table 31).

(j) West Kern WD 2010 UWMP for 2010 through 2035 water demand projections (Table 6-5).
(k) City of Delano 2010 UWMP (Table 5-14).
(l) City of Shafter 2010 UWMP (Table 27).
(m) City of Wasco 2010 UWMP (Table 5-8).
(n) A small portion of the Tehachapi-Cummings CWD (about 5 percent) is within the Project Area; thus, only 5 percent of the demand is included.

TABLE 33
URBAN WATER DEMAND PROJECTIONS – MULTIPLE DRY YEAR (AFY)

Sub-Area	Purveyor	Demand 2015	2020	2025	2030	2035	Notes
East and Central	KCWA Improvement District No.4						
East and Central	California Water Service	87,324	83,806	90,191	97,063	104,455	(a)
East and Central	City of Bakersfield	43,611	42,198	46,148	50,098	54,772	(b), (c)
East	East Niles CSD	9,237	9,569	10,042	10,583	11,572	(c), (d)
East and Central	North of the River MWD	9,240	9,660	10,500	11,550	11,550	(c)
East and Central	Oildale MWC	7,930	7,768	8,524	9,324	10,194	(c), (f)
Central	Casa Loma Water Company	--	--	--	--	--	(g), (h)
East	Greenfield CWD	3,108	3,398	3,715	4,061	4,440	(c), (h)
Central	Stockdale MWC and Annex	239	261	286	312	341	(c), (h)
Central	Victory MWC	245	268	293	320	350	(c), (h)
West	Buttonwillow CWD	155	170	186	203	222	(c), (h)
East and Central	Vaughn WC	14,962	15,383	17,479	19,576	21,402	(c), (i)
West	West Kern WD	29,485	29,591	29,697	29,804	29,912	(j)
Central	City of Delano	10,668	11,785	13,022	14,388	15,901	(k)
Central	City of Shafter	5,037	5,322	5,171	5,708	6,302	(l)
Central	City of Wasco	6,661	8,925	11,469	14,293	17,397	(m)
Central	McFarland MWC	1,929	2,109	2,306	2,521	2,756	(c), (h)
Central	City of McFarland (in McFarland MWC)						
East	Arvin CSD	3,796	4,150	4,538	4,961	5,424	(c), (h)
East	Lamont PUD	5,319	5,815	6,358	6,951	7,600	(c), (h)
Central	Mettler CWD	--	--	--	--	--	(h), (g)
Central and West	Lost Hills UD	506	553	604	661	723	(c), (h)
East	Tehachapi-Cummings CWD	401	439	480	524	573	(c), (h), (n)
	Total	**239,853**	**241,170**	**261,009**	**282,901**	**305,885**	

Notes:

(a) California Water Service Bakersfield District 2010 UWMP for 2010 through 2035 demand projections (Table 5.2-6). The highest demand reported for the first dry year was considered as a conservative approach.
(b) City of Bakersfield 2010 UWMP for 2010 through 2030 demand projections (Table 25).
(c) 2035 demand projection was estimated proportional to the population growth rate of 1.8 percent from 2030 to 2035.
(d) East Niles CSD 2010 UWMP (Table 34).
(e) KCWA ID4 and North of the River MWD 2010 UWMP (Table 6-7).
(f) Oildale MWC 2010 UWMP.
(g) Demand data unavailable.
(h) Tulare Lake Basin Portion of Kern County IRWMP (Table 2-19). Normal year water demand was assumed for multiple-dry year water demand as a conservative assumption.

(i) Vaughn WC 2010 UWMP for 2010 and 2030 water demand projections (Table 32).
(j) West Kern WD 2010 UWMP for 2010 through 2035 water demand projections (Table 6-6).
(k) City of Delano 2010 UWMP (Table 5-15).
(l) City of Shafter 2010 UWMP (Table 28).
(m) City of Wasco 2010 UWMP (Tables 5-11, 5-14, 5-17, 5-20, and 5-23).
(n) A small portion of the Tehachapi-Cummings CWD (about 5 percent) is within the Project Area; thus, only 5 percent of the demand is included.

In an effort to segregate any reporting of agricultural water demand from urban demand, water demand projections for specific water sectors, in particular the agricultural sector, was identified from UWMPs. Data reviewed suggest that urban water demand projections reported by the agencies primarily represent M&I customers and do not typically account for water deliveries to large agriculture farmlands. Data also suggest that some agencies report water use for agricultural within their service area, but agricultural demand was reported to be supplied mainly by recycled water where agencies typically use agricultural lands to discharge the treated wastewater from wastewater treatment plants (WWTPs). With the exception of East Niles CSD that reported a small amount of water delivery to agricultural sector (about 20 AFY) as part of their urban water use, information from UWMPs indicates that urban water demand as reported in UWMPs excludes agricultural water use. In the case of East Niles CSD, urban water demand projections were adjusted to exclude the 20 AFY of agricultural demand from total demand. Tables 31, 32, and 33 reflect this adjustment for East Niles CSD.

6.1.2 Urban Demand by Sub-Areas

Urban water demand projections by the three Sub-Areas are presented for normal/average years, a single-dry year, and multiple-dry years in Tables 34, 35, and 36, respectively. The future projections of water demand by the Sub-Areas were based on the assumption that water demand for an individual agency is distributed by each Sub-Area proportional to the agency's area within each Sub-Area. This is a similar approach taken for evaluating the water supply reliability by the Sub-Areas as described earlier in this WSA. This approach was used as an approximation to illustrate how the future demand projections would vary between the three Sub-Areas.

Similar to the trends seen for the Project Area, water demand by the Sub-Areas would increase over time in a normal year and water demand would vary slightly by the hydrological year types. The highest urban demand would be experienced in the East Sub-Area, accounting for about 50 percent of the total urban water demand. The Central Sub-Area accounts for the next largest share of urban demand and the remaining 15 percent of total demand is estimated in the West Sub-Area.

TABLE 34
URBAN WATER DEMAND PROJECTIONS BY SUB-AREAS – NORMAL WATER YEAR (AFY)

	Demand				
Sub-Area	**2015**	**2020**	**2025**	**2030**	**2035**
West	27,471	27,613	27,760	27,912	28,070
Central	89,458	91,015	101,205	112,575	124,883
East	120,100	118,628	128,049	138,308	148,783
Total	**237,028**	**237,257**	**257,014**	**278,795**	**301,736**

TABLE 35
URBAN WATER DEMAND PROJECTIONS BY SUB-AREAS – SINGLE DRY YEAR (AFY)

	Demand				
Sub-Area	**2015**	**2020**	**2025**	**2030**	**2035**
West	30,169	30,321	30,478	30,640	30,808
Central	86,212	88,957	98,957	110,137	122,221
East	118,557	117,182	126,493	136,640	146,942
Total	**234,938**	**236,461**	**255,928**	**277,418**	**299,970**

TABLE 36
URBAN WATER DEMAND PROJECTIONS BY SUB-AREAS – MULTIPLE DRY YEAR (AFY)

	Demand				
Sub-Area	**2015**	**2020**	**2025**	**2030**	**2035**
West	29,973	30,124	30,280	30,441	30,609
Central	86,771	89,494	99,535	110,759	122,890
East	123,110	121,551	131,194	141,700	152,387
Total	**239,853**	**241,170**	**261,009**	**282,901**	**305,885**

6.1.3 Agricultural Demand

Kern County ranks among the leading five counties in the US in the value of its agricultural products. The gross value of all agricultural products from the County in 2012 exceeded $6.2 billion according to the Kern County Crop Report (Department of Agriculture and Measurement Standard, 2013).

Water supplies utilized in the Project Area to meet agricultural demand include surface water (both imported and local), groundwater, recycled water, and oil-field produced water. In the Project Area, detailed records of the exact amount of water and the source of water used by individual agencies on agricultural lands are not available. This differs from urban demand projections where the agencies with UWMPs report their water use by different sectors both for current and future conditions. To provide a basis for quantitative analysis, agricultural demand for the Project Area was developed from the irrigated acreage based on the latest land use data for Kern County and an average consumptive water use of 2.87 AF per acre as reported in the Tulare Lake Basin Portion of Kern County IRWMP. This is considered a reasonable approach commonly applied to estimate the agricultural water demand in the absence of actual data. Figure 3 shows the land use data used based on the latest available land use database from DWR. DWR's land use data for Kern County reflect 2006 conditions (DWR 2006).

In general, the region relies heavily on imported water supplies to support the irrigated agricultural economy. It is anticipated that to the extent that surface water supplies are inadequate to meet irrigation water requirements, groundwater will be used to make up the shortfall. Therefore, uncertainties with the reliability of imported surface water and long-term sustainability of groundwater resources will continue to be high priority concerns for the region.

The following water districts located in the Project Area supply water to agricultural customers:

- Arvin-Edison WSD
- Belridge WSD
- Berrenda Mesa WD
- Buena Vista WSD
- Buttonwillow ID
- Cawelo WD
- Delano-Earlimart ID
- Henry Miller WD
- KCWA
- Kern Delta WD
- Kern-Tulare WD
- Lost Hills WSD
- North Kern WSD
- Rio Bravo Ranch
- Pond Poso ID
- Rag Gulch WD
- Rosedale Ranch ID
- Rosedale-Rio Bravo WSD
- Semitropic WSD
- Shafter Wasco ID
- Southern San Joaquin MUD
- Tehachapi-Cummings CWD
- West Kern WD
- Wheeler Ridge-Maricopa WSD

6.1.3.1 Agricultural Demand for Project Area

Table 37 provides a breakdown of the acreage by crop type in the Project Area and water demand by each crop. The total irrigated land is estimated to be approximately 885,828 acres. Nearly 40 percent of the irrigated land (or about 346,540 acres) is located in the Poso Creek area which is predominantly agricultural land.

The total agricultural demand in the Project Area is estimated to be approximately 2.669 MAF, as presented in Table 37. Historically the trend of agricultural water use has been decreasing, this is confirmed by review of Kern County Agricultural Crop Reports for 2000 to 2013. This analysis relies on 2006 crop data from DWR. The amount of land used for agriculture has not been greater than the acreage in 2006 in any year since 2006. For the purposes of this analysis future agricultural water demands were assumed to remain the same as 2006 levels, at 2.669 MAF. This is a conservative assumption given the conversion from agricultural to urban use in the region.

6.1.3.2 Agricultural Demand by Sub-Areas

Table 38 presents the irrigated acreage and corresponding agricultural water demand by the three Sub-Areas. As shown in Table 38, the agricultural water demand is highest in the Central Sub-Area that comprises about 50 percent of the total demand. The West Sub-Area accounts for the next largest agricultural demand, making up about 32 percent of total demand while the East Sub-Area accounts for the remaining 18 percent.

Similar to the approach used for the Project Area demand projections, future agricultural water demands by the Sub-Areas were assumed to stay at the same levels as the current conditions.

TABLE 37
SUMMARY OF AGRICULTURAL WATER DEMAND (AFY)

Crop Type	Irrigated Acreage[(a)]	Consumptive Water Use (AF/acre)[(b)]	Agricultural Water Demand (AFY)
Alfalfa and alfalfa mixtures	90,129	4.10	369,529
Almonds	171,273	3.28	561,776
Apples, Pears, Plums	3,958	3.45	13,655
Apricots, Nectarines, Peaches	4,890	3.35	16,383
Beans (dry and green)	3,811	2.11	8,041
Carrots	24,684	2.55	62,944
Citrus(grapes, lemons, oranges)	60,566	3.37	204,108
Corn, Grain Sorghum	26,659	2.95	78,644
Cotton	103,302	2.71	279,949
Grapes(Vineyards)	103,371	2.81	290,471
Grain and Grain Hay	110,184	2.07	228,080
Melons, Squash, Cucumbers	4,375	1.46	6,388
Misc. Deciduous Trees	15,996	3.34	53,427
Misc. Field Crops	47,972	2.09	100,261
Misc. Subtropical Trees	669	3.38	2,263
Misc. Vegetables	6,785	1.62	10,991
Nursery	5,145	3.28	16,875
Onions, Garlic	10,875	1.70	18,487
Pasture, Turf, Misc. Grasses	9,530	4.13	39,360
Pistachios	63,351	4.11	260,372
Potatoes	4,379	1.98	8,671
Safflower	1,304	2.23	2,909
Sugar Beets	574	3.29	1,888
Tomatoes	9,854	2.51	24,734
Walnuts	2,153	3.89	8,375
Total Irrigated Lands	**885,828**	**2.87**	**2,668,687**

Notes: (a) Data from DWR 2006 land use survey for Kern County.
(b) Data from Tulare Lake Basin Portion of Kern County IRWMP

TABLE 38
SUMMARY OF AGRICULTURAL WATER DEMAND BY SUB-AREAS (AFY)

Sub-Area	Irrigated Acreage	Agricultural Water Demand (AFY)
West	289,404	867,309
Central	428,561	1,327,759
East	167,863	473,619
Total	**885,828**	**2,668,687**

6.2 Estimated Current and Future Water Demand

Table 39 summarizes the water demand projections through 2035 for the Project Area and Sub-Areas including the urban, agricultural, and oil and gas demand. The assumptions and approach used to divide up the water demand by the Sub-Areas are described earlier in this WSA.

TABLE 39
SUMMARY OF WATER DEMAND 2015 THROUGH 2035 FOR PROJECT AREA

Sub-Area	Demand Sector	2015	2020	2025	2030	2035
Normal Year						
West	Urban Demand (M&I)	27,471	27,613	27,760	27,912	28,070
	Agricultural Demand Raw and M&I Water	867,309	867,309	867,309	867,309	867,309
	Agricultural Demand Produced Water	0	0	0	0	0
	Oil and Gas M&I Demand	8,902	9,389	9,876	10,363	10,851
	Oil and Gas Produced Water Demand	78,302	83,059	87,816	92,573	97,331
	Subtotal West Sub-Area Demand Normal Year	*981,984*	*987,370*	*992,761*	*998,157*	*1,003,561*
Central	Urban Demand (M&I)	89,458	91,015	101,205	112,575	124,883
	Agricultural Demand Raw and M&I Water	1,327,759	1,327,759	1,327,759	1,327,759	1,327,759
	Agricultural Demand Produced Water	0	0	0	0	0
	Oil and Gas M&I Demand	377	382	386	390	395
	Oil and Gas Produced Water Demand	993	1,266	1,539	1,812	2,086
	Subtotal Central Sub-Area Demand Normal Year	*1,418,587*	*1,420,422*	*1,430,889*	*1,442,536*	*1,455,123*
East	Urban Demand (M&I)	120,100	118,628	128,049	138,308	148,783
	Agricultural Demand Raw and M&I Water	434,961	434,961	434,961	434,961	434,961
	Agricultural Demand Produced Water	38,658	38,658	38,658	38,658	38,658
	Oil and Gas M&I Demand	381	414	448	481	515
	Oil and Gas Produced Water Demand	13,811	15,857	17,903	19,949	21,995
	Subtotal East Sub-Area Demand Normal Year	*607,911*	*608,518*	*620,019*	*632,357*	*644,912*
Total Normal Year Demands		**3,008,482**	**3,016,310**	**3,043,669**	**3,073,050**	**3,103,596**

Table 39 cont.

Sub-Area	Demand Sector	2015	2020	2025	2030	2035
Single-Dry Year						
West	Urban Demand (M&I)	30,169	30,321	30,478	30,640	30,808
	Agricultural Demand Raw and M&I Water	867,309	867,309	867,309	867,309	867,309
	Agricultural Demand Produced Water	0	0	0	0	0
	Oil and Gas M&I Demand	8,902	9,389	9,876	10,363	10,851
	Oil and Gas Produced Water Demand	78,302	83,059	87,816	92,573	97,331
	Subtotal West Sub-Area Demand Single-Dry Year	*984,682*	*990,078*	*995,479*	*1,000,885*	*1,006,299*
Central	Urban Demand (M&I)	86,212	88,957	98,957	110,137	122,221
	Agricultural Demand Raw and M&I Water	1,327,759	1,327,759	1,327,759	1,327,759	1,327,759
	Agricultural Demand Produced Water	0	0	0	0	0
	Oil and Gas M&I Demand	377	382	386	390	395
	Oil and Gas Produced Water Demand	993	1,266	1,539	1,812	2,086
	Subtotal Central Sub-Area Demand Single-Dry Year	*1,415,341*	*1,418,364*	*1,428,641*	*1,440,098*	*1,452,461*
East	Urban Demand (M&I)	118,557	117,182	126,493	136,640	146,942
	Agricultural Demand Raw and M&I Water	434,961	434,961	434,961	434,961	434,961
	Agricultural Demand Produced Water	38,658	38,658	38,658	38,658	38,658
	Oil and Gas M&I Demand	381	414	448	481	515
	Oil and Gas Produced Water Demand	13,811	15,857	17,903	19,949	21,995
	Subtotal East Sub-Area Demand Single-Dry Year	*606,368*	*607,072*	*618,463*	*630,689*	*643,071*
Total Single-Dry Year Demands		**3,006,391**	**3,015,514**	**3,042,5839**	**3,071,672**	**3,101,831**

Table 39 cont.

Sub-Area	Demand Sector	2015	2020	2025	2030	2035
	Multi-Dry Year					
West	Urban Demand (M&I)	29,973	30,124	30,280	30,441	30,609
	Agricultural Demand Raw and M&I Water	867,309	867,309	867,309	867,309	867,309
	Agricultural Demand Produced Water	0	0	0	0	0
	Oil and Gas M&I Demand	8,902	9,389	9,876	10,363	10,851
	Oil and Gas Produced Water Demand	78,302	83,059	87,816	92,573	97,331
	Subtotal West Sub-Area Demand Multi-Dry Year	*984,486*	*989,881*	*995,281*	*1,000,686*	*1,006,100*
Central	Urban Demand (M&I)	86,771	89,494	99,535	110,759	122,890
	Agricultural Demand Raw and M&I Water	1,327,759	1,327,759	1,327,759	1,327,759	1,327,759
	Agricultural Demand Produced Water	0	0	0	0	0
	Oil and Gas M&I Demand	377	382	386	390	395
	Oil and Gas Produced Water Demand	993	1,266	1,539	1,812	2,086
	Subtotal Central Sub-Area Demand Multi-Dry Year	*1,415,900*	*1,418,901*	*1,429,219*	*1,440,720*	*1,453,130*
East	Urban Demand (M&I)	123,110	121,551	131,194	141,700	152,387
	Agricultural Demand Raw and M&I Water	434,961	434,961	434,961	434,961	434,961
	Agricultural Demand Produced Water	38,658	38,658	38,658	38,658	38,658
	Oil and Gas M&I Demand	381	414	448	481	515
	Oil and Gas Produced Water Demand	13,811	15,857	17,903	19,949	21,995
	Subtotal East Sub-Area Demand Multi-Dry Year	*610,921*	*611,441*	*623,164*	*635,749*	*648,516*
Total Multi-Dry Year Demands		**3,011,307**	**3,020,223**	**3,047,664**	**3,077,155**	**3,107,746**

6.3 Water Demand Data Gaps and Limitations

As with most hydrologic studies, there are inherent data limitations. Table 40 describes data limitations of this study as well as the approach used by the WSA to address the various limitations and uncertainty. Among the issues identified, the major data gap is the uncertainty related to agricultural groundwater demand. It is not possible to track detailed records of agricultural groundwater pumping within individual agency service areas, as the majority of water used for agriculture has not been reported. Agricultural demand in the Project Area was estimated based on land use acreages and crop consumptive use. Recent legislation requires the reporting of groundwater pumping in the future.

TABLE 40
APPROACH TO DATA LIMITATIONS AND UNCERTAINTY

Data Type	Approach to Data Limitation/Uncertainty
Agricultural Demand	Detailed records by individual agencies unavailable. Reported data are based on estimated calculations from land use acreages and crop consumptive use. The land use reflects 2006 conditions based on the latest DWR survey data for Kern County.
Future Projections of Agricultural Demand	While some changes in the land use could occur in the future, agricultural land use has been mostly stable; thus, future agricultural demand was assumed to be the same as the current estimate of agricultural demand.
2035 Urban Water Demand Projections	2035 demand projections were unavailable for some agencies with UWMPs and other smaller entities without UWMPs. Urban demand was projected from 2030 to 2035 based on the assumption that urban demand is the same as population growth rate.
Single-Dry Year and Multiple-Dry Year Urban Water Demand Projections	Single-dry year and multiple-dry year demand projections unavailable for agencies without UWMPs. As an assumption, normal year demands were assumed.
DOGGR Dataset Well Locations	Some inconsistencies were encountered with well locations in the DOGGR dataset. Wells were identified in the production/injection database listed as “Kern County” and specific well fields, but their spatial coordinates were well outside of Kern County or outside of the US boundary. Wells with inaccurate well locations were excluded from the dataset and analysis. This affected about 244 wells with minor injection volumes out of approximately 134,819 wells included in the database.

Section 7: Comparison of Supplies and Demands

This WSA compares total projected water use with the projected water supply over the next twenty years and beyond in 5 year increments and includes an assessment for a normal/average year, a single-dry year and a multiple-dry year period.

7.1 Normal/Average Water Year

Table 21 provides information on Sub-Area and Project Area water supplies during a normal year. Table 41 provides information on total demand for the Sub-Area and Project Areas. Table 41 provides a comparison of regional water supplies and demands for these sources. Table 41 demonstrates that adequate regional supplies are anticipated for 2015 to 2035 under normal/average conditions. However, Table 41 does illustrate the fact that supplies in the Central Sub-Area are insufficient, meaning that demands in the Central Sub-Area could be served by bringing in supplies from the other Sub-Areas or pumping groundwater (which may result in potentially unsustainable levels).

TABLE 41
COMPARISON OF SUPPLIES AND DEMANDS, NORMAL YEAR 2015 TO 2035 (AF)

Sub-Area	2015	2020	2025	2030	2035
West					
Supplies	1,041,993	1,047,065	1,052,136	1,057,208	1,062,279
Demands	981,984	987,370	992,761	998,157	1,003,561
Difference (supplies - demands)	*60,009*	*59,695*	*59,375*	*59,051*	*58,718*
Central					
Supplies	736,991	737,103	737,216	737,328	737,441
Demands	1,418,587	1,420,422	1,430,889	1,442,536	1,455,123
Difference (supplies - demands)	-681,596	-683,319	-693,673	-705,208	-717,682
East					
Supplies	1,378,897	1,380,969	1,383,041	1,385,113	1,387,184
Demands	607,911	608,518	620,019	632,357	644,912
Difference (supplies - demands)	*770,986*	*772,451*	*763,022*	*752,756*	*742,272*
Project Area					
Supplies	3,157,881	3,165,137	3,172,393	3,179,649	3,186,904
Demands	3,008,482	3,016,310	3,043,669	3,073,050	3,103,596
Difference (supplies - demands)	*149,399*	*148,827*	*128,724*	*106,599*	*83,308*

7.2 Single-Dry Water Year

The single-dry year is generally the lowest annual runoff for a watershed since the water-year beginning in 1903 (DWR 2011b). The single-dry year may differ for various sources. This section summarizes regional water supplies available to meet demands over the 25-year planning period during a single-dry year and compares them to demands for the same period. Table 42 anticipates inadequate regional water supplies for the period 2015 to 2035 under single-dry year conditions. This means that in a single-dry year, some demands cannot be met with available supplies, and may require taking water out of water banks, and/or pumping groundwater at potentially unsustainable levels.

TABLE 42
COMPARISON OF SUPPLIES AND DEMANDS, SINGLE-DRY YEAR
2015 TO 2035 (AF)

Sub-Area	2015	2020	2025	2030	2035
West					
Supplies	971,693	976,765	981,836	986,908	991,979
Demands	984,682	990,078	995,479	1,000,885	1,006,299
Difference (supplies - demands)	*-12,989*	*-13,313*	*-13,643*	*-13,977*	*-14,320*
Central					
Supplies	462,791	462,903	463,016	463,128	463,241
Demands	1,415,341	1,418,364	1,428,641	1,440,098	1,452,461
Difference (supplies - demands)	*-952,550*	*-955,461*	*-965,625*	*-976,970*	*-989,220*
East					
Supplies	821,197	823,269	825,341	827,413	829,484
Demands	606,368	607,072	618,463	630,689	643,071
Difference (supplies - demands)	*214,829*	*216,197*	*206,878*	*196,724*	*186,413*
Project Area					
Supplies	2,255,681	2,262,937	2,270,193	2,277,449	2,284,704
Demands	3,006,391	3,015,514	3,042,583	3,071,672	3,101,831
Difference (supplies - demands)	*-750,710*	*-752,577*	*-772,390*	*-794,223*	*-817,127*

7.3 Multiple-Dry Water Year

A multiple-dry year period is generally the lowest average runoff for a consecutive period of three or more years (DWR 2011b). The multiple-dry year period may differ for various sources. This section summarizes regional water supplies available to meet demands over the 25-year planning period during a multiple-dry year period and compares them to demands for the same time frame. Table 43 anticipates inadequate regional supplies for the period 2015 to 2035 under multiple-dry year conditions. While supplies in a multiple-dry year period are sufficient in the West and East sub-areas, the shortage is severe in the Central Sub-Area, meaning that in a multiple-dry year period some demands cannot be met with available supplies, which may require recovering water from water banks, and/or pumping groundwater at potentially unsustainable levels.

TABLE 43
COMPARISON OF SUPPLIES AND DEMANDS, MULTIPLE-DRY YEARS
2015 TO 2035 (AF)

Sub-Area	2015	2020	2025	2030	2035
West					
Supplies	1,053,993	1,059,065	1,064,136	1,069,208	1,074,279
Demands	984,486	989,881	995,281	1,000,686	1,006,100
Difference (supplies - demands)	*69,507*	*69,184*	*68,855*	*68,522*	*68,179*
Central					
Supplies	643,891	644,003	644,116	644,228	644,341
Demands	1,415,900	1,418,901	1,429,219	1,440,720	1,453,130
Difference (supplies - demands)	-772,009	-774,898	-785,103	-796,492	-808,789
East					
Supplies	997,797	999,869	1,001,941	1,004,013	1,006,084
Demands	610,921	611,441	623,164	635,749	648,516
Difference (supplies - demands)	*386,876*	*388,428*	*378,777*	*368,264*	*357,568*
Project Area					
Supplies	2,695,681	2,702,937	2,710,193	2,717,449	2,724,704
Demands	3,011,307	3,020,223	3,047,664	3,077,155	3,107,746
Difference (supplies - demands)	*-315,626*	*-317,286*	*-337,471*	*-359,706*	*-383,042*

THIS PAGE INTENTIONALLY LEFT BLANK

Section 8: Findings

Assessment of the documents reviewed as part of this WSA establishes that there is no surplus water in the Project Area. Other studies have also come to similar conclusions. A summary of other references documenting potential water supply shortage in the Project Area follows.

8.1 California Water Plan Update 2013

In July 2014, DWR released the California Water Plan (CWP) Update 2013. In Volume 2 - Regional Reports for the Tulare Lake Hydrologic Region, the following is stated:

> *During years of normal or above normal precipitation, or during periods of low groundwater extraction, aquifer systems tend to recharge and respond with rising groundwater levels. As groundwater levels rise, they reconnect to surface water systems, contributing to surface water baseflow or wetlands, seeps, and springs. However, for much of the Tulare Lake Hydrologic Region, due to extensive pumping over the years the groundwater table has been disconnected from the surface water system for decades and provides no contribution to baseflow.*

CWP Volume 2 continues with that assessment stating that "in 1980, DWR Bulletin 118-80 (DWR 1980) identified five of the seven southern San Joaquin Valley groundwater subbasins (Kings, Kaweah, Tulare Lake, Tule, and Kern County) as being subject to conditions of critical overdraft. Thirty years later, things do not appear to have changed much. Although efforts have been made by local groundwater management agencies to reduce overdraft conditions in the region, a number of the groundwater management plans and more recent studies of these five key groundwater subbasins acknowledge that groundwater overdraft continues."

Figure 27 shows an overall decline in groundwater levels for much of the region. Isolated locations showing 40- to 50-foot increases in 2005-2010 groundwater levels largely correspond to nearby recharge basins within the Kaweah and Tule subbasins. The largest decline in groundwater levels is along the axis of the valley, in the western Kings, Kaweah, Tule, and Kern County subbasins. The maximum decline in 2005-2010 groundwater levels in these areas ranges from 40 to 90 feet (CWP Update 2013 Volume 2 Tulare Lake Hydrologic Region 2014).

Groundwater levels in wells can be influenced by myriad factors, such as pumping rates, surface water allocations, nearby recharge structures, and climate. Groundwater levels in some parts of the Project Area have dropped sharply since the start of the most recent drought. KCWA reports groundwater level declines of approximately 60 feet from spring 2012 to spring 2013 in some parts of ID4 (KCWA 2014), in the Central Sub-area (northwest and southeast of Bakersfield) and West Sub-area (southwest of Bakersfield). The water levels in each well behave uniquely but general trends include:

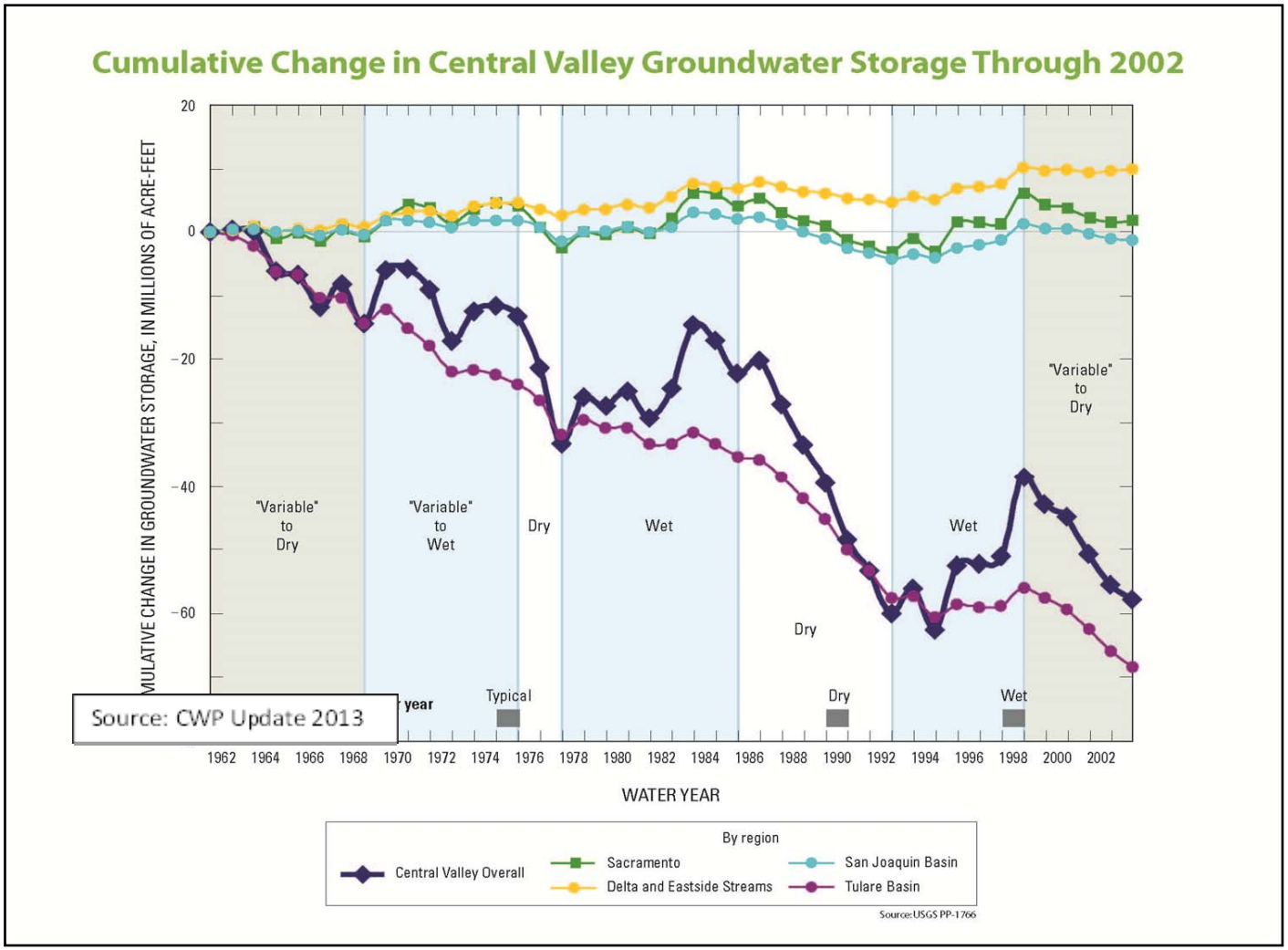


Figure 27. Central Valley Groundwater Storage Change

- Declining levels in most of the Central Sub-area, over two feet per year in some cases. The hydrographs commonly show significant declines (followed by recovery) in the early 1980s, early 1990s, 2009-2010, and 2014. In many wells the lowest levels were reached in 2009-2010.
- Relatively stable or even increasing levels in some parts of the Central Sub-area, and in the East Sub-area that includes the area east of Mettler and near Arvin.
- Relatively stable levels in most of the monitored West Sub-area wells

8.2 Groundwater Basin Prioritization

DWR implemented the California Statewide Groundwater Elevation Monitoring (CASGEM) Program in response to legislation enacted in California's 2009 Comprehensive Water package. As part of the CASGEM Program and pursuant to the California Water Code (CWC §10933), DWR is required to prioritize California groundwater basins, so as to help identify, evaluate, and determine the need for additional groundwater level monitoring.

The CWC requires a statewide prioritization of California's groundwater basins using the following eight criteria:

1. Overlying population;
2. Projected growth of overlying population;
3. Public supply wells;
4. Total wells;
5. Overlying irrigated acreage;
6. Reliance on groundwater as the primary source of water;
7. Impacts on the groundwater; including overdraft, subsidence, saline intrusion, and other water quality degradation; and
8. Any other information determined to be relevant by the Department.

The CASGEM Groundwater Basin Prioritization (Basin Prioritization) is a statewide ranking of groundwater basin importance that incorporates groundwater reliance and focuses on basins producing greater than 90% of California's annual groundwater.

According to the new DWR CASGEM basin prioritization, two “high priority” basins in the Kern Region are listed below:

Hydrologic Region	Sub Basin	Basin Number
Tulare Lake	Kern County	5-22.14
Tulare Lake	Tulare Lake	5-22.12

Notes: Source: DWR California Statewide Groundwater Elevation Monitoring (CASGEM).

DWR also prepared the “Public Update for Drought Response, Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring” report as required by Governor's January 17, 2014 Emergency Drought Proclamation (Order Action Number 11).

The proclamation required that DWR describe basins with potential water shortages and gaps in groundwater monitoring.

Figure 28 presents data for an observation well in the Kern County Subbasin (San Joaquin Valley) near the Friant-Kern Canal in northern Kern County. Due to increased surface water deliveries from the Friant-Kern Canal and reduced demand on groundwater, water levels generally increased from the mid-1960s. Water levels declined slightly during 1977 and 1978 and then increased more than 30 feet during the wet years of the mid-1980s. From 1990 to 2006, the water levels remained relatively stable. Water levels declined in 2008 and 2009 then stabilized during the above average water years of 2010 and 2011; however, between 2007 and 2013, water levels declined a total of almost 60 feet.

8.3 IRWM Plans

The 2011 Tulare Lake Basin Portion of Kern County IRWM Plan included the following statement on the Tulare Lake Basin Portion of Kern County groundwater overdraft:

> *One of the longest-standing issues in the Kern Region is groundwater overdraft. Groundwater pumping in the Region has been high since the area was settled in the late 1800s, and today groundwater provides approximately 39 percent of local water needs. Certain portions of the groundwater basin underlying the Region have experienced overdraft conditions. According to DWR Bulletin 118, the basin generally underlying the Region experiences a net loss to storage of approximately 325,000 AFY. Key components to recovering from overdrafted conditions are the many conjunctive use and groundwater recharge and banking programs in the Region. However, as urban demand increases and imported water supplies decrease, the ability of these programs to successfully ameliorate groundwater overdraft will be challenged.*

In an effort to eliminate the potential for overdraft conditions in the Greater Bakersfield subregion, surface water was made available to former groundwater users via the Friant-Kern Canal and the SWP. As is well known to the Region, recharge of groundwater supplies is very dependent on surface water. The sources of surface water available to Greater Bakersfield are the Kern River, the SWP and the CVP. Also, the wet period/dry period cycle can have a significant impact on recharge, with groundwater banking being the most noticeably impacted source of recharge (page 3-9, Kern County IRWM Plan).

The 2014 Poso Creek IRWM Plan does not use the term “overdraft,” but it does present the following: “The present utilization of water supplies in the southern San Joaquin Valley is predominantly for irrigated agriculture, which is also true for the Poso Creek Regional Water Management Group (RWMG). Most of the lands in the Poso Creek RWMG are underlain by useable groundwater and, as a result, most of the irrigated agriculture was developed in reliance on pumped groundwater and some lands continue to rely exclusively on pumped groundwater. Accordingly, to the extent that surface water supplies are inadequate to meet irrigation water requirements, groundwater is used to make up the shortfall.”

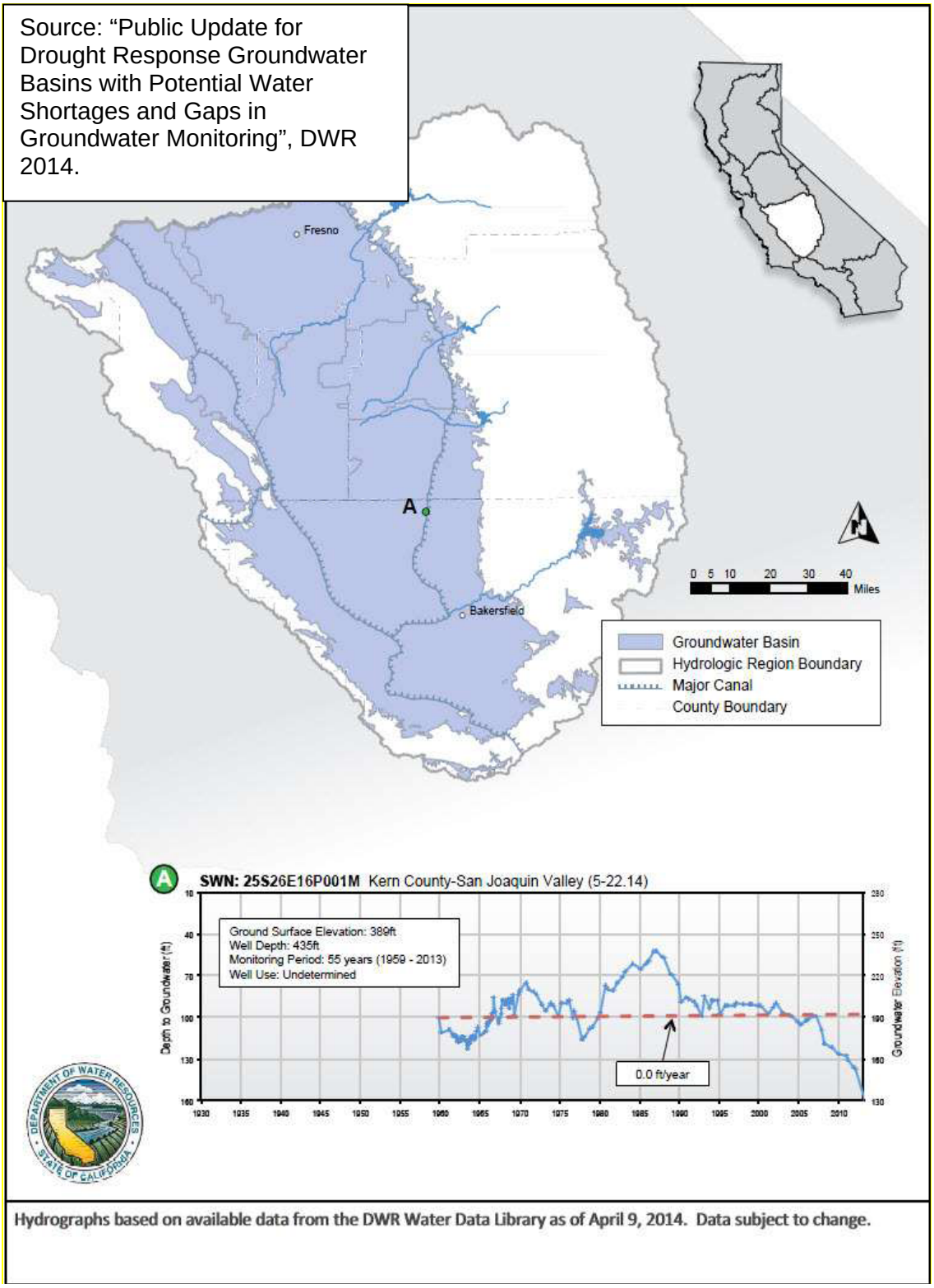


Figure 28. Selected Hydrographs – Tulare Lake Hydrologic Region

8.4 NASA Mapping

New observations from space reveal that since October 2003, the aquifers for California's primary agricultural region - the Central Valley - and its major mountain water source - the Sierra Nevada - have lost nearly enough water combined to fill Lake Mead, America's largest reservoir. The findings, based on data from the NASA/German Aerospace Center Gravity Recovery and Climate Experiment (GRACE), reflect California's extended drought and increased rates of groundwater being pumped for human uses, such as irrigation (NASA 2009).

In short, it can be extremely difficult to compile an accurate picture of groundwater storage changes from ground-based well data alone. In 2009, the University of California Center For Hydrologic Modeling completed a report, “Water Storage Changes in California’s Sacramento and San Joaquin River Basins, Including Groundwater Depletion in the Central Valley” using GRACE and supplementary data from 2003 to 2009. Following are some published results from the report:

- In the 66 month period analyzed, the water stored in the combined Sacramento-San Joaquin River Basin decreased by over 31 km^3 (7.4 $miles^3$), or nearly the volume of Lake Mead.
- Nearly two-thirds of this, or roughly 20 km^3 (4.8 $miles^3$), came from changes in groundwater storage, primarily from the Central Valley.
- Preliminary analyses suggest that as much as 75% of the groundwater loss is occurring in the San Joaquin River Basin, including the Tulare Lake basin, which is consistent with ground-based observations and other studies.
- Drought conditions since 2006 have minimized groundwater recharge and have resulted in constraints on surface water allocations to the Central Valley, triggering a reliance on groundwater resources, particularly in the San Joaquin Valley.
- Groundwater is being used for irrigation at unsustainable rates, leading to declining water tables, decreasing crop sizes and continued land subsidence.
- In the long term, continued reliance on groundwater will deplete critical reserves that buffer cuts to surface water allocations. Continued depletions pose significant threats to food production in the US and the state’s economy.
- Note that the trends are for the specified time period (October, 2003-March, 2009). This time period was selected because it maximized the overlap with the other datasets used in the study (University of California Center For Hydrologic Modeling, 2009).

Section 9: References

Documents and Studies

California Department of Finance, Demographic Research Unit. 2014. Population Estimates for California and Counties. Last accessed December 12 2014 at http://www.dof.ca.gov/research/demographic/.

California Department of Water Resources (DWR). 2014. Kern County Land use survey. Last accessed March 12 2014 at http://www.usbr.gov/mp/cvo/07deliv.html.

_____.2014b. Public Update for Drought Response Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring.

_____.2014c. *California* Water Plan Update 2013 Volume 2 Tulare Lake Hydrologic Region.

_____.2014d. State Water Project Final Reliability Report 2013. December.

_____. 2013b. Notice to State Water Project Contractors. March.

_____. 2011a. State Water Project Delivery Reliability Report 2011.

_____. 2011b. Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan. March.

_____. 2009. State Water Project Delivery Reliability Report 2009.

_____. 2003. California's Groundwater – Bulletin 118 Updated 2003.

_____. 1977. Kern County Ground Water Model; prepared by the San Joaquin District and the Kern County Water Agency, 138 p.

California Department of Water Resources (DWR), San Joaquin District. 1995. Internal computer spreadsheet for 1990 normal computation of net water demand used in preparation of DWR Bulletin 160-93.

California Water Service Company. 2011. 2010 Urban Water Management Plan Bakersfield District. June.

Cawelo Water District. 2014. Agricultural Water Management Plan. February

City-data.com Advameg. Web. 2009.

City of Bakersfield, 2003. The Kern River Purchase. December.

City of Bakersfield and County of Kern. August 2007. The Kern River Plan Element.

City of Bakersfield, 2014. 2010 Urban Water Management Plan. February.

City of Delano, 2011. 2010 Urban Water Management Plan. June.

City of Shafter, 2011. Urban Water Management Plan Update for 2010. November.

City of Wasco. 2013. 2010 Urban Water Management Plan. June 2011. Revised January 2013.

Croft, M.G. 1972. Subsurface Geology of the Late Tertiary and Quaternary Water-Bearing Deposits of the Southern Part of the San Joaquin Valley, California; US Geological Survey Water Supply Paper 199H, 29p, and plates and maps.

Department of Agriculture and Measurement Standards, 2013. 2012 Kern County Agricultural Crop. August.

Fryer, Lloyd. 2002. Kern County Water Agency, Policy and Administration Manager. E-mail Correspondence with C. Hauge of DWR.

Hilton, G.S., and others. 1963. Geology, Hydrology, and Quality of Water in the Terra Bella-Lost Hills Area San Joaquin Valley, California. USGS Open-File Report, 158 p.

Luhdorff and Scalmanini Consulting Engineers, James Borchers and Michael Carpenter. 2014. Land Subsidence in California. April.

Kern, County of. 1985. The Kern River Plan Element. July.

Kern, County of. 2009. Tejon Mountain Village by TMV, Draft Environmental Impact Report. May.

Kern County Assessor Recorder. 2014. Kern's Property Valued At $92.3 Billion for Coming Fiscal Year. www.recorder.co.kern.ca.us. Accessed November 12, 2014.

Kern County Water Agency. 2011a. Water Supply Report 2011.

_____. 2011b. Kern County Water Agency Improvement District No. 4. 2010 Urban Water Management Plan.

Kern Integrated Regional Water Management Plan. Tulare Lake Portion of Kern County Integrated Regional Management Plan Final Update. November.

NASA. 2009. *Nasa Data Reveal Major Groundwater Loss In California's Heartland,* American Geophysical Union Press Conference, December.

Oildale Mutual Water Company. 2011. 2010 Urban Water Management Plan.

Poso Creek Integrated Regional Water Management Plan. Adopted July 2007.

_____. 2014. Poso Creek Integrated Regional Water Management Plan 2014 Update, June.

University of California Center For Hydrologic Modeling. 2009. "Water Storage Changes in California's Sacramento and San Joaquin River Basins, Including Groundwater Depletion in the Central Valley", by Jay Famiglietti, UC Irvine, Sean Swenson,

National Center for Atmospheric Research (NCAR), Matt Rodell, NASA's Goddard Space Flight Center.

U.S. Army Corps of Engineers. 2009. Lake Isabella Situation Report March 6, 2009. Website: www.spk.usace.army.mil/organizations/cespk-pao/lakeisabelladam/.

U.S. Bureau of Reclamation (USBR). 2014. San Joaquin River Restoration Program, Interim and Restoration Flows. Last accessed February 26, 2014 at http://restoresjr.net/activities/if/index.html.

U.S. Bureau of Reclamation (USBR). 2014. Central Valley Operations Office, Report of Operations Delivery Tables for Friant-Kern Canal and Cross Valley Canal Deliveries. Last accessed March 3 2014 at http://www.usbr.gov/mp/cvo/07deliv.html.

US Geological Survey. 2009. Geological Survey Professional Paper 1766, *USGS Groundwater Availability of the Central Valley Aquifer*.

Vaughn Water Company. 2011. 2010 Urban Water Management Plan.

West Kern Water District. 2011. West Kern Water District 2010 Urban Water Management Plan. June 2011.

Wood, P.R. and Davis, G.H. 1959. Ground Water Conditions in the Avenal-McKittrick Area, Kings and Kern Counties, California; U.S. Geological Survey Water Supply Paper 1457, 141 p.

Wood, P.R. and Dale, R.H. 1964. Geology and Ground-Water Features of the Edison-Maricopa Area, Kern County, California; U.S. Geological Survey Water Supply Paper 1656, 108 p.

Personal Communication

Personal communication Chad Hathaway, Hathaway LLC provided to Jonathan Lilien, Chevron Inc. August 18, 2015.

Appendix V-1

Revised Noise Assessment

This page intentionally left blank.

ENVIRONMENTAL NOISE ASSESSMENT

OIL AND GAS DEVELOPMENT EIR
KERN COUNTY, CALIFORNIA

BBA Report No. 14-057



PREPARED BY

BROWN-BUNTIN ASSOCIATES, INC.
VISALIA, CALIFORNIA

SEPTEMBER 4, 2015

113 North Church Street, Suite 203 · Visalia, CA 93291 · (559) 627-4923

INTRODUCTION

Project Description:

This is a noise analysis of oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County and includes recommendations to update development standards and conditions to address environmental impacts of pre-drilling exploration, well drilling, and the operation of wells, including the exploration, production, completion, stimulation, reworking, injection, monitoring, plugging and abandonment.

Location:

The project area generally includes the unincorporated areas of Kern County, California where oil and gas development and production has historically occurred or is likely to occur in the future. The project area has been subdivided into three sub-areas as shown by Figure 1.

Environmental Noise Assessment:

This environmental noise assessment has been prepared by Brown-Buntin Associates, Inc. (BBA) to determine if significant noise impacts would occur as a result of the project and to describe mitigation measures for noise if significant impacts are determined.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

REGULATORY SETTING

Appendix G (Environmental Checklist Form) of the CEQA Guidelines indicates that significant noise impacts may be assumed to occur when a project will expose people to noise levels in excess of standards established in local noise ordinances or general plans, or causes a substantial permanent or temporary increase in noise levels above levels existing without the project.

Noise Level Standards:

The project area does not include incorporated cities within Kern County. However, project-related activity results are relevant to the incorporated cities within the County if such activities occur near or adjacent to incorporated city boundaries. The project area also includes land that is under the jurisdiction of the U.S. Bureau of Land Management (BLM). Noise standards for the County, certain cities within the project area and the BLM are therefore addressed by this study.

It is noted that most jurisdictions within Kern County and the BLM utilize the Day-Night Average Level (DNL) or Community Noise Equivalent Level (CNEL) to describe noise exposure for noise compatibility planning purposes. Both the DNL and CNEL represent the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The CNEL includes an

additional penalty of 5 dB (technically 4.77 dB) that is added to noise levels occurring during the evening hours between 7:00 p.m. and 10:00 p.m. The CNEL is utilized to describe aircraft noise exposure as required by the State of California. Both the DNL and CNEL represent cumulative exposure to noise over an extended period of time and are therefore calculated based upon *annual average* conditions. The DNL and CNEL are considered to be equivalent descriptors of the community noise environment for the purposes of this study.

Some jurisdictions also apply hourly standards to noise from non-transportation sources that are not preempted from local regulation by existing state or federal standards. Transportation noise sources include traffic on public roadways, railroads and aircraft. Non-transportation (or stationary) noise sources generally include commercial and industrial activities.

Kern County

The Kern County Noise Element of General Plan[1] (2004) establishes a land use compatibility criterion of 65 dB DNL for exterior noise levels in outdoor activity areas of residential uses. Outdoor activity areas generally include backyards of single-family residences and individual patios or decks of multi-family developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

The noise element also requires that interior noise levels attributable to exterior noise sources not exceed 45 dB DNL. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

City of Delano

The City of Delano General Plan (2005) contains noise level standards applicable to transportation and non-transportation sources. For noise-sensitive uses exposed to noise from transportation noise sources, the exterior noise level standard (Table 7-2 of the noise element) is 65 dB DNL/CNEL. The interior noise level standard for noise-sensitive uses is 45 dB DNL/CNEL.

For non-transportation sources, the noise element establishes hourly noise level standards in terms of the equivalent sound level (L_{eq}) and maximum noise level (L_{max}) descriptors. The standards are more restrictive during the nighttime hours between 10:00 p.m. and 7:00 a.m. The hourly L_{eq} standards are 55 dB during the day and 50 dB during the night. The hourly L_{max} standards are 75 dB during the day and 70 dB during the night.

City of McFarland

The City of McFarland has adopted by reference the Noise Element of the Kern County General Plan. The exterior noise level standard is therefore 65 dB DNL for noise levels in outdoor activity areas of residential and other noise-sensitive uses. The interior noise level standard is 45 dB DNL within interior living spaces or other noise-sensitive interior spaces.

City of Wasco

The City of Wasco General Plan (2002) utilizes the same noise level standards as Kern County. The exterior noise level standard is 65 dB DNL for noise levels in outdoor activity areas of residential and other noise-sensitive uses. The interior noise level standard is 45 dB DNL within interior living spaces or other noise-sensitive interior spaces.

City of Shafter

The City of Shafter General Plan (2005) establishes noise objectives for different land uses in terms of the CNEL. The general plan noise objective for rear yards of single-family dwellings and open areas within multi-family developments is 60-65 dB CNEL. For school classrooms and play areas, the noise objectives are 60 dB and 70 dB CNEL, respectively. The noise objective for the interior of hospitals and libraries is 60 dB CNEL. For commercial and industrial uses the noise objective is 65-70 dB CNEL at the front setback. The general plan does not specifically establish an interior noise level standard for residential uses. However, the general plan makes reference to enforcing the California Noise Insulation Standards which require an interior noise exposure of 45 dB DNL/CNEL for new multi-family dwellings and transient lodging.

City of Arvin

The City of Arvin General Plan (1989) utilizes the same noise level standards as Kern County. The exterior noise level standard is therefore 65 dB DNL for noise levels in outdoor activity areas of residential and other noise-sensitive uses. The general plan does not specifically establish an interior noise level standard for residential uses. However, the general plan makes reference to enforcing the California Noise Insulation Standards which require an interior noise exposure of 45 dB DNL/CNEL for new multi-family dwellings and transient lodging.

City of Bakersfield

The Metropolitan Bakersfield General Plan (2002) establishes noise level standards for transportation and non-transportation sources. For transportation sources, the noise element sets a standard of 65 dB CNEL at the exterior of noise-sensitive uses. Noise-sensitive uses include residences, schools, hospitals and recreational areas. An interior noise standard of 45 dB CNEL applies within interior living spaces.

For non-transportation noise sources, the noise element applies hourly noise level performance standards at residential and other noise-sensitive uses. Table 1 summarizes the applicable hourly noise level standards.

TABLE I

HOURLY NOISE LEVEL PERFORMANCE STANDARDS
STATIONARY NOISE SOURCES
METROPOLITAN BAKERSFIELD GENERAL PLAN

Maximum Acceptable Noise Level, dB		
Min./Hr. (L_n)	**Day (7a-10p)**	**Night (10p-7a)**
30 (L_{50})	55	50
15 (L_{25})	60	55
5 ($L_{8.3}$)	65	60
1 ($L_{1.7}$)	70	65
0 (L_{max})	75	70

Note: L_n means the percentage of time the noise level is exceeded during an hour. L_{50} means the level exceed 50% of the hour (30 minutes), L_{25} is the level exceed 25% of the hour (15 minutes), etc.

Source: Metropolitan Bakersfield General Plan

City of Taft

The City of Taft General Plan (2009) contains a land use compatibility chart (Table 8.0-1) that specifies acceptable noise exposure for various land uses. The acceptable exterior noise exposure for noise-sensitive uses, including residential, transient lodging, mixed use, schools, libraries, churches, hospitals and nursing homes, is 65 dB DNL/CNEL. For playgrounds, neighborhood parks, office buildings and commercial buildings, the acceptable exterior noise exposure is 70 dB DNL/CNEL. For industrial, manufacturing and agricultural uses, the acceptable exterior noise exposure is 75 dB DNL/CNEL. The noise element also specifies an acceptable interior noise exposure for the above-described noise-sensitive uses of 45 dB DNL/CNEL or below.

City of Maricopa

The City of Maricopa noise standards are contained within its zoning ordinance. The standards are the same as those contained within the County's noise element. The exterior noise level standard is therefore 65 dB DNL for noise levels in outdoor activity areas of residential and other noise-sensitive uses. The interior noise level standard is 45 dB DNL within interior living spaces or other noise-sensitive interior spaces.

State of California

There are no known state noise standards that are applicable to the project.

Federal Noise Standards

The U.S. Department of the Interior, Bureau of Land Management (BLM) has jurisdiction over part of the land within the project area. The BLM does not employ specific noise level standards but historically has referred to guidelines contained with U.S. Environmental Protection Agency (EPA) document entitled "Information on Levels of Environmental Noise Requisite to Protect

the Public Health and Welfare with an Adequate Margin of Safety"[2] (1974 EPA Levels Document).

One of the purposes of the 1974 EPA Levels Document was to provide information for use by state and local governments in developing their own noise standards. It was intended that such information be utilized along with other factors such as the balance between costs and benefits when establishing noise level standards. Information contained within the document was taken into consideration by the State of California when it published guidelines for developing local general plan noise elements. The noise level standards of Kern County and its incorporated cities are based upon those guidelines.

The 1974 EPA Levels Document identified an exterior noise exposure of 55 dB DNL and an interior noise exposure of 45 dB DNL as sufficient to *prevent* activity interference and annoyance. As noted above, such recommendations do not take into account the balance between cost and benefit. The noise level standards adopted by Kern County and its incorporated cities are intended as a compromise to protect the public health and welfare while allowing for reasonable development and commerce.

Other federal standards that could be considered applicable to the project include the U.S. Department of Housing and Urban Development (HUD) standards. The HUD standards are the same as those of Kern County with an exterior noise standard of 65 dB DNL and an interior standard of 45 dB DNL. The HUD standards come into play when federal funds may be used for housing development projects.

Substantial Noise Increases:

CEQA does not define what constitutes a substantial increase in noise levels. Some guidance is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON) [3], which assessed changes in ambient noise levels resulting from transportation noise sources. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of the DNL (or CNEL). Annoyance is a summary measure of the general adverse reaction of people to noise that results in speech interference, sleep disturbance, or interference with other daily activities.

Although the FICON recommendations were specifically developed to address transportation noise impacts, they are used in this analysis for all noise sources that are described in terms of cumulative noise exposure metrics such as the DNL or CNEL. Table II summarizes the FICON recommendations.

TABLE II

MEASURES OF SUBSTANTIAL NOISE INCREASE FOR TRANSPORTATION SOURCES

Ambient Noise Level Without Project (DNL/CNEL)	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:
<60 dB	+ 5 dB or more
60-65 dB	+3 dB or more
>65 dB	+1.5 dB or more

Source: FICON, 1992, as applied by Brown-Buntin Associates, Inc.

Construction Noise and Vibration:

There are no known state or federal standards that specifically address construction noise or vibration.

Kern County does not specifically limit hours during which construction may occur. However, it is a common practice to limit hours of construction to minimize construction noise impacts in areas where sensitive uses are located during the early morning and late evening hours, and on weekends and holidays. Although not specifically stated in the noise element, it is also a standard requirement of many jurisdictions that all construction equipment be properly maintained and muffled to minimize noise generation at the source.

Kern County does not have regulations that define acceptable levels of vibration. One of the most recent references suggesting vibration guidelines is the California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual[4]. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table III and Table IV, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE III

GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Source: Caltrans

TABLE IV

GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans

EXISTING NOISE ENVIRONMENT

Major noise sources in the project area include state highways, railroads, airports and existing commercial/industrial operations including oil and gas production facilities. Existing ambient noise levels within the project area vary considerably depending upon distance from major noise sources and the noise generation characteristics of contributing noise sources at any given location. The noise environment in the project area has been characterized by conducting ambient noise level measurements at various locations within the project area and quantifying typical noise levels from the major sources that affect the project area.

Ambient Noise Level Measurements:

Ambient noise level measurements were conducted at eighteen (18) locations within the project area. Noise monitoring sites were selected to represent acoustic settings within the project area where project-related activities either occur or could occur in the future with the project. Noise monitoring was conducted using unattended automated equipment that measured ambient noise levels continuously for a minimum period of 24 hours at each site. Ambient noise monitoring was conducted during January 2015. Noise monitoring sites are shown in Figure 2.

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL 820 sound level analyzers equipped with Bruel & Kjaer (B&K) Type 4176 ½'' microphones. Microphones were located on tripods at approximately five (5) feet above the ground and were equipped with random incidence correctors so that noise levels from sources in all directions could be accurately measured. The monitors were calibrated with a B&K Type 4230 acoustical calibrator to ensure the accuracy of the measurements. The equipment complies with applicable specifications of the American National Standards Institute (ANSI) for Type 1 sound measurement systems.

Table V summarizes ambient noise monitoring results. Noise measurement data are described in terms of the equivalent energy (L_{eq}), maximum (L_{max}) and L_{90} noise level descriptors. The L_{eq} and L_{max} describe energy average and maximum noise levels measured during each hour of the sample periods, respectively. The L_{90} describes the noise level exceeded 90 percent of the time

during each hour, which is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources. The measured DNL for each of the 18 ambient noise monitoring sites is also included in Table V for comparison with the Kern County 65 dB DNL standard.

Reported maximum noise levels were most likely caused by localized activities near the microphone, agricultural, commercial or industrial activities, occasional aircraft over-flights or roadway traffic at the long-term sites. Since hourly L_{eq} values represent energy average noise levels, they can be significantly affected by occasional noise events in the vicinity of the monitoring site. Measured DNL values ranged from 44.8-67.8 dB at the ambient noise monitoring sites with an average of 54.7 dB. Generally, the highest ambient noise levels occurred at sites that were located relatively close to major transportation sources or commercial/industrial activities.

Appendix B provides a detailed description of the noise monitoring sites, aerial photographs showing the site locations, noise sources affecting the site and measured noise levels. An hourly noise level chart is included for each site that graphically depicts measured noise levels at the site over the 24-hour monitoring period.

TABLE V

MEASURED AMBIENT NOISE LEVELS
KERN COUNTY OIL AND GAS PRODUCTION EIR PROJECT AREA
JANUARY 2015

Measurement Site	Range of Hourly Noise Levels, dB			DNL, dB
	L_{eq}	L_{max}	L_{90}	
Site 1	42.9-58.4	54.8-76.5	34.2-39.4	58.5
Site 2	45.5-63.6	66.7-83.1	32.6-56.1	63.9
Site 3	52.9-66.5	71.4-89.9	44.4-59.6	67.8
Site 4	38.0-55.7	55.8-76.0	31.3-49.1	56.7
Site 5	40.6-68.4	57.8-94.2	32.0-48.3	59.0
Site 6	41.4-56.5	57.6-76.5	37.6-48.6	55.9
Site 7	40.1-57.0	55.8-86.8	34.5-51.4	56.6
Site 8	32.4-51.4	45.3-68.2	27.9-47.8	47.6
Site 9	42.2-56.0	47.3-74.4	39.9-50.3	55.1
Site 10	44.6-66.0	59.8-87.1	35.9-45.6	64.4
Site 11	38.7-53.4	47.9-72.3	35.7-46.1	51.8
Site 12	28.8-45.6	39.2-65.3	26.5-39.9	44.8
Site 13	29.7-55.6	43.6-72.6	25.1-51.0	50.7
Site 14	36.0-49.4	50.6-64.7	29.6-44.8	50.4
Site 15	43.0-56.9	54.8-80.1	33.1-47.7	55.4
Site 16	38.3-46.8	42.8-65.2	35.9-43.0	48.3
Site 17	34.0-50.8	48.5-72.4	30.8-44.6	50.7
Site 18	34.8-45.9	43.2-66.8	31.2-41.5	46.9
			Average DNL, dB	**54.7**

Source: Brown-Buntin Associates, Inc.

Traffic Noise Levels:

There are many roadways within the project area. It was beyond the scope of the study to calculate noise from traffic on every such roadway. Noise levels were therefore calculated for US 5 and all state highways within the project area to provide a representative sampling of the range of traffic-related noise levels along major roadways within the project area.

Traffic noise levels along state highways were calculated using the FHWA Highway Traffic Noise Prediction Model[5]. The FHWA Model is a standard methodology for traffic noise prediction. Annual average traffic volumes used in the noise modeling process were determined by reference to the Caltrans website for 2013 traffic conditions. Other inputs into the FHWA Model were estimated based upon studies completed by BBA for other projects along similar roadways within the project area. Appendix C summarizes traffic data used for noise modeling.

Table VI summarizes existing annual average traffic noise exposure in terms of the distances from the center of the roadway to the 60 and 65 dB DNL contours for each roadway analyzed. A total of 270 roadways segments were analyzed for existing traffic noise exposure. Traffic noise exposure described in Table VI represents the segment with the highest calculated noise level for each individual roadway. Appendix D provides traffic noise exposure data for each of the 270 analyzed roadways segments. The reported distances are generalized in that they do not take into account local terrain, sound walls, buildings or other site-specific factors that could influence noise levels at a given location.

TABLE VI

EXISTING TRAFFIC NOISE EXPOSURE
US AND STATE HIGHWAYS
KERN COUNTY OIL AND GAS PRODUCTION EIR PROJECT AREA

Roadway	Roadway Segment	Distance (feet) to DNL Contour[1]	
		60 dB DNL	65 dB DNL
US-5	Wheeler Ridge Road	2,444	1,135
SR-14	Rosamond Boulevard	898	417
SR-33	Sixth Street, Taft	485	225
SR-41	San Luis Obispo/Kern County Line	327	152
SR-43	East Lerdo Highway, Shafter	546	253
SR-46	Palm Avenue, Wasco	655	304
SR-58	South Chester Avenue	1760	817
SR-65	SR 99 Junction	579	269
SR-99	California Avenue, Bakersfield	3,241	1504
SR-119	Tupman Road	538	250
SR-155	High Street, Delano	584	271
SR-166	Old River Road	300	139
SR-178	Union Avenue, Bakersfield	1,489	691
SR-184	Kimber Avenue	686	318
SR-202	Tucker Road	554	257
SR-204	Brundage Lane	1,154	536
SR-223	Comanche Drive, Arvin	442	205

[1]From center of roadway.

Source: Brown-Buntin Associates, Inc.

Railroad Noise Levels:

There are three railroads that currently serve the project area. The Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe Railway (BNSF) mainlines traverse the project area in a generally north-south direction. The UPRR generally follows the alignment of SR 99 north of Bakersfield and SR 58 east of Bakersfield. The BNSF generally follows the SR 43 alignment north of Bakersfield and has track-age rights over the UPRR east of Bakersfield. Amtrak operates passenger trains over the BNSF north of Bakersfield. The San Joaquin Valley Railroad SJVRR operates low-speed branch-line railroads from Bakersfield to the community of Oildale, City of Arvin, community of Buttonwillow, and to industrial facilities east of Taft.

Table VII summarizes railroad operational data as obtained from the Federal Railroad Administration (FRA) website. The noise levels generated by the UPRR and BNSF are similar in that the locomotives and rail cars utilized and maximum track speeds are comparable. The primary difference is that Amtrak operates 12 passenger trains per day over the BNSF mainline north of Bakersfield.

Noise levels generated by railroad operations were calculated based upon noise levels measured by Brown-Buntin Associates, Inc. (BBA) for various development projects in Kern County over the past few years. Since train engineers are required to sound the warning horn when approaching an at-grade roadway crossing, noise levels are higher in the proximity of a grade crossing. For high-speed mainlines, such as the UPRR and BNSF, engineers generally start sounding the warning horn when within approximately 1,000 feet of the crossing. For low-speed branch-line operations, the warning horn is typically sounded relatively close to the crossing. Calculated distances from the center of the track to the DNL 65 dB contours are summarized in Table VII for each railroad. The reported distances are generalized in that they do not take into account local terrain, sound walls, buildings or other site-specific factors that could influence noise levels at a given location.

TABLE VII

RAILROAD OPERATIONS DATA AND NOISE EXPOSURE
KERN COUNTY OIL AND GAS PRODUCTION EIR PROJECT AREA

Railroad	Route	Average # Daily Trains	Maximum Speed (mph)	Distance (feet) to 65 dB DNL Contour	
				Within 1,000 feet of Crossings	More than 1,000 feet from Crossings
UPRR	North of Bakersfield	23	70	912	284
BNSF	North of Bakersfield	34/12[1]	70/79[1]	1184	369
UPRR/BNSF	East of Bakersfield	28	60	1047	326
SJVRR	Bakersfield-Arvin	2	25	49	38
SJVRR	Bakersfield-Oildale	2	20	49	38
SJVRR	Bakersfield-Mullix	2	30	49	38
SJVRR	Bakersfield-Buttonwillow	4	10	78	60

[1]Amtrak operations
Sources: Federal Railroad Administration website
Brown-Buntin Associates, Inc.

Aircraft Noise Levels:

There are a number of private and public use airports within the study area. Noise level and aircraft operations information are available for public use airports in the Kern County Airport Land Use Compatibility Plan[6] adopted in 2012. The public use airports addressed by the plan that are within the project area include Meadows Field, Bakersfield Municipal, Delano Municipal, Elk Hills-Buttonwillow, Poso Kern County, Taft Kern County, Shafter-Minter Field, Wasco Kern County and Lost Hills Airports.

With the exception of Meadows Field in Bakersfield, aircraft operations at airports within the project area consist of relatively infrequent flights by small general aviation propeller aircraft. There are occasional corporate jet aircraft operations at the Bakersfield Municipal, Delano Municipal and Shafter-Minter Field Airports. Meadows Field is an air carrier airport with scheduled airline service by turboprop and jet aircraft and relatively frequent operations by general aviation propeller and jet aircraft.

The 65 dB CNEL contours for airports within the project area are confined to the airport property with the exception of Bakersfield Municipal Airport and Meadows Field where the 65 dB CNEL contours extend slightly to the northwest of airport property.

High Speed Rail Noise Levels:

Although the high speed train (HST) line proposed by the California High Speed Rail Authority (CHSRA) has not yet been constructed, it is reasonable to assume that HST operations could eventually be a major source of noise in portions of the project area.

The final alignment of the proposed HST line has not yet been determined. However, most of the alternative alignments under consideration by CHSRA generally follow the existing alignment of the BNSF Railway north of Bakersfield and the existing alignment of the UPRR east of Bakersfield. According to the Revised DEIR/Supplemental DEIS (DEIR/SDEIS)[7] for the Fresno-Bakersfield section of the HST project, the HST will use electrically powered trains capable of operating up to 220 mph over a fully grade-separated, dedicated track alignment. The HST line passing through the project area would consist of a double track on a ballasted roadbed 5-6 feet higher than the surrounding terrain. The HST line would be elevated in some areas and would utilize grade-separated crossings with roadways.

There are three major sources of noise associated with HST movements. At speeds up to 160 mph, the electric propulsion system and wheel/rail interaction are the predominant sources. At speeds above 160 mph, aerodynamic sound produced by the airflow moving past the train becomes the dominant source. The DEIR/SDEIS analyzed potential noise and vibration impacts from the HST line using the Federal Railroad Administration (FRA) *High-Speed Ground Transportation Noise and Vibration Impact Assessment Report* prepared in 2005 (FRA Guidance Manual). The FRA Guidance Manual is based upon comprehensive noise and vibration measurements conducted in Asia and Europe. The DEIR/SDEIS presents a series of tables that summarize projected HST noise levels along the proposed line in terms of the Day-Night Average Level (DNL).

The DEIR/SDEIS assumed that there would be 188 trains per day during the daytime hours (7:00 a.m.-10:00 p.m.) and 37 trains during the nighttime hours (10:00 p.m.-7:00 a.m.). For the section of the HST line that would pass through the project area, the projected DNL is 72 dB at distance of 150 feet from the center of the tracks. Noise from the HST line would be expected to decrease with distance from the tracks at the rate of 3.0-4.5 dB for each doubling of distance. That means that the 65 dB DNL contour could be located in the range of 400-750 feet from the center of the tracks.

PROJECT-RELATED NOISE IMPACTS AND MITIGATION

Thresholds of Significance:

The existing noise level standards of Kern County and its incorporated cities within the project area have been developed based upon guidelines established by the State of California and research conducted by the federal government (EPA) on how excessive noise exposure may adversely affect people. The standards are intended to protect the health and well-being of local citizens without being overly restrictive and thereby inhibiting reasonable commerce.

As previously noted, the project area does not include incorporated cities within Kern County. However, project-related activities could affect certain incorporated cities within the County if such activities occur near or adjacent to incorporated city boundaries. For that reason, existing noise standards for certain cities within the project area have also been considered by this study for comparison purposes. The noise level standards adopted by the County and its incorporated cities within the project area are summarized in Table VIII.

TABLE VIII

SUMMARY OF NOISE LEVEL STANDARDS
KERN COUNTY OIL AND GAS PRODUCTION EIR PROJECT AREA

Jurisdiction	DNL/CNEL		Hourly Noise Standards (Exterior)[1]			
			Leq, dB		Lmax, dB	
	Exterior[1]	Interior[1]	7a-10p	10p-7a	7a-10p	10p-7a
Kern County	65	45	---	---	---	---
Delano	65	45	55	50	75	70
McFarland	65	45	---	---	---	---
Wasco	65	45	---	---	---	---
Shafter	65	45	---	---	---	---
Bakersfield	65	45	55[2]	50[2]	75	70
Arvin	65	45	---	---	---	---
Taft	65	45	---	---	---	---
Maricopa	65	45	---	---	---	---

[1]Standards are for noise-sensitive receiving properties such as residential uses, schools, libraries, hospitals, churches and long-term care facilities. Some jurisdictions also have less-restrictive standards for receiving uses not considered noise-sensitive.

[2]The Bakersfield hourly noise standards are based upon the statistical distribution of noise over time. The L_{50} descriptor (30 minutes/hour) is comparable to the L_{eq} for most noise sources.

Source: Brown-Buntin Associates, Inc.

From Table VIII it may be determined that Kern County and its incorporated cities within the project area all apply an exterior noise level standard of 65 dB DNL/CNEL for noise-sensitive receptors and an interior noise level standard of 45 dB DNL/CNEL for interior spaces of noise-sensitive buildings. Table VIII also shows that the cities of Bakersfield and Delano have hourly noise level standards. Such standards are only applicable to non-transportation (or stationary) noise sources that may be regulated by a local jurisdiction. Stationary noise sources include most project-related activities that could affect nearby noise-sensitive uses.

The precedent for using cumulative noise exposure metrics such as the DNL and CNEL has been well established for land use compatibility planning purposes. However, from a CEQA standpoint, it has been successfully argued that the DNL or CNEL do not by themselves adequately define the potential noise impacts resulting from intermittent sources of noise that may occur at different times of the day or night. For that reason, hourly noise level standards are recommended to determine if a project-related activity will result in a significant impact and the need for noise mitigation.

For consistency with local jurisdictions in Kern County and elsewhere in the San Joaquin Valley, hourly equivalent sound level (Leq) standards of 55 dB during the daytime hours (7:00 a.m.-10:00 p.m.) and 50 dB during the nighttime hours (10:00 p.m.-7:00 a.m.) are applied. Additionally, hourly maximum noise level (L_{max}) standards of 75 dB during the daytime hours and 70 dB during the nighttime hours are applied.

Compliance with the above-described hourly noise level standards will ensure compliance with the 65 dB DNL standard that has been adopted by Kern County, even if the source were to operate 24 hours per day. A constant noise level of 50 dB for 24 hours per day would result in a DNL/CNEL of approximately 57 dB. A constant noise level of 55 dB for 24 hours per day would result in a DNL/CNEL of approximately 62 dB.

Noise levels generated by the project are considered a significant impact if any of the following conditions would be expected to occur:

1. The project will cause noise levels exterior to any existing or planned noise-sensitive receptor to exceed 65 dB DNL. Noise-sensitive uses include residential, transient lodging, churches and other places of worship, schools, libraries, hospitals, long-term care facilities, and any other use deemed noise-sensitive by Kern County.

2. The project will cause noise levels exterior to any existing or planned noise-sensitive receptor to exceed an hourly equivalent sound level (L_{eq}) of 55 dB during the daytime hours (7:00 a.m.-10:00 p.m.) or 50 dB during the nighttime hours (10:00 p.m.-7:00 a.m.).

3. The project will cause noise levels exterior to any existing or planned noise-sensitive receptor to exceed an hourly maximum sound level (L_{max}) of 75 dB during the daytime hours (7:00 a.m.-10:00 p.m.) or 70 dB during the nighttime hours (10:00 p.m.-7:00 a.m.).

4. The project will cause a 5 dB or greater increase in the ambient noise level, as defined by the annual average DNL, at the location of any existing or planned noise-sensitive receptor. The annual average DNL may be estimated from noise exposure information

contained within the general plan of the affected jurisdiction, or from the findings of a project-specific noise analysis performed by a qualified individual.

Project-Related Noise Impacts:

Noise levels associated with various oil and gas production activities were measured at several locations throughout Kern County in December, 2014 and January, 2015. For each activity, noise level measurements were taken in a minimum of four different directions from the activity to document the loudest direction of noise. The activities measured included production well drilling (during both well advancement and pulling out of the borehole), exploratory well drilling, hydraulic fracturing, well workover activities and active production wells (both electric and diesel powered).

Noise measurements were conducted using a Larson Davis Model 824 Sound Level Meter to document the spectral (frequency) components of each source. The meter was calibrated prior to use with a Larson Davis CA250 calibrator to ensure the accuracy of the measurements. A windscreen was used over the microphone to avoid interference resulting from wind sources during outdoor measurements.

Project-related noise levels were calculated using the SoundPLAN noise model. SoundPLAN utilizes measured spectral sound power levels to determine noise exposure from a noise source. Inputs to the model include noise source spectral sound power levels, topography, atmospheric conditions, ground absorption factors, shielding from existing walls or buildings, noise source height and receiver height. Since this analysis is not site specific, some assumptions and generalities were made in order to calculate potential project-related noise levels. Table IX summarizes the assumptions used for the model. These assumptions represent a worst-case assessment in regards to noise propagation from individual sources.

TABLE IX

NOISE MODELING ASSUMPTIONS
KERN COUNTY OIL AND GAS PRODUCTION EIR

Topography	Flat
Ground Absorption Factor	0.5 (a mixture of hard ground, water, vegetation, loose soils, etc.)
Shielding	None
Temperature	40° Fahrenheit
Relative Humidity	50%
Receiver Height	5 feet
Noise Source Height	10 feet

Source: BBA

The oil production activities calculated using SoundPLAN are described briefly below. For each modeled activity, the loudest observed measurement was utilized as a basis for modeling potential project-related noise exposure for future activities.

Well Drilling: Well drilling is the process by which a machine (drill rig) is used to drill a well bore. Major components of a drill rig include the mud tanks, mud pumps, rig mast, rotary table, drillstring and power generation equipment. Drill rigs can vary widely in size and configuration. BBA staff conducted noise measurements of multiple types of drill rigs. Measurements were conducted from multiple directions in order to document the loudest level produced while operating. Typically, the loudest source of noise associated with a drill rig is the power generation equipment, which is typically a diesel powered internal combustion engine.

Additionally, BBA staff conducted measurements of Kenai Drilling's Rig #7. The Kenai rig is one of the largest operating drill rigs in the United States, and is used for exploratory drilling at depths up to 25,000 feet below surface elevation. Noise levels produced by such drill rigs are substantially higher than those produced by "typical" rigs utilized in the project area. It is not expected that a rig of this size would be commonly used within the project area; however, noise exposure related to the Kenai #7 is presented in this analysis.

Well Workover: Well workover involves repair or maintenance of an existing production well for the purpose of restoring, prolonging or enhancing the production of the well. Well workover includes the process of performing maintenance or remedial treatments on an oil or gas well. In some cases well workover includes the removal and replacement of the well casing. Typically, the loudest source of noise associated with a drill rig is the power generation equipment, which is typically a diesel powered internal combustion engine.

Hydraulic Fracturing: Hydraulic fracturing is the stimulation treatment commonly performed on oil and gas wells that have been established in regions of lower permeability substrates. Fluids are pumped at high pressures into the reservoir. Grains of sand are mixed with the treatment fluid to keep the fracture open after the process has occurred. The process is intended to increase production of existing wells. Typically, the loudest source of noise associated with hydraulic fracturing is the power generation equipment, which is typically a diesel powered internal combustion engine. Hydraulic fracturing operations utilize several different pieces of equipment simultaneously, and noise level measurements obtained included noise from multiple equipment sources. Noise levels utilized for this study were the loudest observed measurements during the monitoring period, and therefore represent a worst-case assessment of typical hydraulic fracturing activities.

Oil Well Operation: Oil well operation is the ongoing production of a well for extraction purposes. Operating oil wells are typically powered by either electricity and less frequently by a diesel powered internal combustion engine. Electric powered wells produce significantly less noise than a diesel powered well. BBA conducted noise measurements of each.

Using the noise levels measured of the above-described activities as well as the assumptions provided in Table IX, distances from individual project-related noise sources to the 50 dB 55 dB Leq contours were calculated using SoundPLAN. The results of the calculations are provided in Table X. It should be noted that at increased distances from a modeled noise source (distances greater than 1000 feet), the modeled results should be considered with tolerance limitations of +/- 5 dB. At such distances from the noise source variables such as atmospheric conditions (including wind speeds and direction), topography and ground absorption could cause modeled results to vary significantly from modeled results.

TABLE X

PROJECT-RELATED NOISE EXPOSURE
KERN COUNTY OIL AND GAS PRODUCTION EIR
SHORT-TERM Leq LEVEL

Activity	Distance (feet) to Leq Contour	
	50 dB	**55 dB**
Drilling (Well Advancement)	3,550	2,270
Drilling (Pull Out Of Well/Borehole)	2,130	1,300
Large-Scale Exploratory Drilling[1]	7,250	4,750
Well Workover	2,150	1,350
Hydraulic Fracturing	2,700	1,650
Well Production (Electric Power)	180	110
Well Production (Diesel Power)	580	330

[1]Kenai Drill Rig #7. This rig is not typically used in Kern County.

Source: Brown-Buntin Associates, Inc.

Table XI provides the distances to the 60 dB DNL and 65 dB DNL contours for individual project-related noise sources. The distances were calculated based upon modeled noise levels that represent not only the loudest direction from the equipment, but also while each piece of equipment was being operated at a maximum noise level. Over any given period of time, noise levels from drilling operations can vary widely. Noise levels are typically at a maximum during active well advancement. Noise levels reduce while additional lengths of drill pipe are added, the drillstring is being retracted, or during times of rig maintenance. Because the contour distances provided in Table XI are based upon measurements obtained at the loudest location during the loudest periods of operation, they should be considered a worst-case assessment of actual DNL noise levels. The contour distances assume maximum noise levels, continuously, over a 24-hour period.

TABLE XI

PROJECT-RELATED NOISE EXPOSURE
KERN COUNTY OIL AND GAS PRODUCTION EIR
DAY-NIGHT AVERAGE SOUND LEVEL (DNL)

Activity	Distance (feet) to DNL Contour	
	60 dB	**65 dB**
Drilling (Well Advancement)	2500	**1550**
Drilling (Pull Out Of Well/Borehole)	1320	**820**
Large-Scale Exploratory Drilling[1]	5270	**3270**
Well Workover	1500	**930**
Hydraulic Fracturing	1760	**1090**
Well Production (Electric Power)	130	**80**
Well Production (Diesel Power)	340	**210**

[1]Kenai Drill Rig #7. This rig is not typically used in Kern County.

Source: Brown-Buntin Associates, Inc.

Prescriptive Noise Mitigation Measures

Tables X and XI summarize the project-related activities that have been analyzed and provide distances from each activity to various noise levels for the L_{eq} and DNL metrics. Table X provides the distances between the activity and a noise-sensitive use where an applicable threshold of significance will not be exceeded (50 and 55 dB Leq contours) such as in the cities of Delano and Bakersfield. The distances provided in Table X can be used when statistical (L_{eq} or L_{50}) standards are applicable.

Table XI provides the distances between the activity and noise-sensitive uses that must be achieved when DNL noise level standards are applicable. The Noise Element of the Kern County General Plan establishes a land use compatibility criterion of 65 dB DNL for exterior noise levels in outdoor activity areas of residential uses. Additionally, the 65 dB DNL exterior noise level criterion is commonly applied throughout incorporated areas of Kern County, and therefore should be used to determine project compliance in most instances.

Compliance with the distances summarized by Table X and Table XI should be interpreted to mean that a significant noise impact would not be expected as a result of the project and additional noise mitigation will not be required. However, determination of whether the project could result in a 5 dB or greater increase in the existing annual average DNL will require that noise exposure information for the project site be analyzed by reference to appropriate documents or a site-specific analysis be conducted.

Additionally, if more than one of the above-described activities are occurring in close proximity to each other, the distances to the contours described in Tables X and XI would likely increase. Tables X and XI do not address the additive nature of multiple noise sources. Decibels are logarithmic units that cannot be added linearly. For example, if two identical noise sources are added together, noise levels would increase by 3 dB over the individual source levels (65 dB + 65 dB=68 dB). It is not possible to quantify or describe every potential scenario of combinations.

It should be noted; distances described in Tables X and XI for "Large-Scale Exploratory Drilling" should not be applied to common or typical drilling operations performed in Kern County. The Kenai Drill Rig #7 (and similar large-scale exploratory drill rigs), utilized for reference noise measurements and noise modeling are used very infrequently in Kern County, and are not typically used in proximity to noise-sensitive uses. Noise setback analysis distances described in Tables X and XI for "Drilling (Well Advancement)" represent noise levels that are to be expected from commonly used drill rigs throughout the county.

It is recognized that there may be instances where the noise level data and distances presented in Tables X and XI may not adequately define the potential for significant noise impacts. The determination of such circumstances should be made by Kern County. Factors that should be considered in making such a determination should include the noise generation potential of the project due to modified or specialized equipment or processes that were not analyzed as a part of this study, the topographical relationship between the source and affected noise-sensitive receptors, the duration and proposed hours of operation of the project, and the potentially unique

character of the receiving land use or existing ambient noise levels. Under such circumstances, an acoustical analysis may be required to determine project-related noise levels and required mitigation measures. Potential additional noise mitigation measures are described below.

1. Limits on hours of operation: Since the hourly noise level standards are 5 dB more restrictive at night between the hours of 10:00 p.m. and 7:00 a.m., a particular activity could occur closer to a sensitive receiver if hours of operation were restricted to the daytime hours between 7:00 a.m. and 10:00 p.m.

2. Temporary or permanent noise barriers: Depending upon site-specific conditions, noise barriers could be used to reduce project-related noise levels at nearby sensitive receivers. For projects that could operate for an extended period of time, sound walls or earthen berms may be an effective form of mitigation. Temporary noise barriers, such as sound blankets, plywood or other portable materials, could be used to mitigate noise from temporary sources or construction activities. Most temporary noise barriers are effective noise reduction if properly positioned without gaps that could create sound flanking paths.

3. Use of "quiet technology" equipment: If equipment is modified or equipment with special sound reduction capabilities is utilized, and it may be demonstrated that such equipment is quieter than the equipment analyzed for this study, potential significant noise impacts may be mitigated. Examples of such measures include use of electric motors in place of internal combustion engines and the use of equipment with special sound attenuation equipment.

4. Implementation of a quiet mode drilling plan or other sound reduction technology or practices.

5. Arranging for temporary relocation of sensitive receptors during the high noise period.

6. Or other methods that prevent or reduce noise exposure to sensitive receptors.

Construction Noise Impacts:

Construction noise could occur at various locations within the project area. During construction, noise from construction activities could potentially impact noise-sensitive land uses if such uses are located in the immediate area. Activities involved in construction would generate noise levels at 50 and 100 feet as indicated by Table XII.

TABLE XII

TYPICAL CONSTRUCTION EQUIPMENT
MAXIMUM NOISE LEVELS, dBA

Type of Equipment	50 Ft.	100 Ft.
Backhoe	80	72
Concrete Saw	90	84
Crane	85	79
Excavator	85	79
Front End Loader	80	73
Jackhammer	85	79
Paver	85	79
Pneumatic Tools	85	79
Dozer	85	79
Rollers	85	79
Trucks	84	78
Pile Drivers	95	89
Rock Drills	85	79
Pumps	77	71
Scrapers	85	79
Portable Generators	82	76
Front Loader	80	73
Backhoe	80	73
Excavator	85	79
Grader	85	79

Source: FHWA 2006

Construction Noise Mitigation

Construction noise is not usually considered to be a significant impact if construction occurring near noise-sensitive land uses is limited to the daytime hours, extraordinary noise-producing activities (e.g., pile driving) are not anticipated, and construction equipment is adequately maintained and muffled. It is therefore recommended that construction activities be limited to the daytime hours and that nearby residents be notified prior to construction activities that could produce abnormally high noise levels.

Construction Vibration Impacts:

Vibration from construction activities could be detected if there are sensitive uses located near a construction site. Typical vibration levels at a reference distance of 100 feet are summarized by Table XIII. The vibration levels described below at a distance of 100 feet are below the thresholds of annoyance or damage, as described in Table III and Table IV.

TABLE XIII

TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

	PPV (in/sec)
Equipment	**@ 100´**
Bulldozer (Large)	0.011
Bulldozer (Small)	0.0004
Loaded Truck	0.01
Jackhammer	0.005
Vibratory Roller	.03
Caisson Drilling	.01
Source: *Caltrans*	

Construction Vibration Mitigation

Construction vibration is usually not considered to be significant for the same reasons as construction noise. However, it is recommended that construction activities be limited to the daytime hours and that nearby residents be notified prior to construction activities that could produce abnormally high vibration levels.

REFERENCES

1. Kern County, *Noise Element of the General Plan,* adopted June 15, 2004.
2. *Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety,* U.S. Environmental Protection Agency, Office of Noise Abatement and Control, March 1974.
3. *Federal Agency Review of Selected Airport Noise Analysis Issues,* Federal Interagency Committee on Noise, August, 1992.
4. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual,* September 2013.
5. Federal Highway Administration, *Traffic Noise Model, Version 2.5,* April 14, 2004.
6. County of Kern, *Airport Land Use Compatibility Plan,* November 13, 2012.
7. California High Speed Rail Authority, *Revised DEIR/Supplemental DEIS (DEIR/SDEIS) for High Speed Train: Fresno to Bakersfield,* August 2012.

FIGURE 1: PROPOSED PROJECT SUB-AREAS

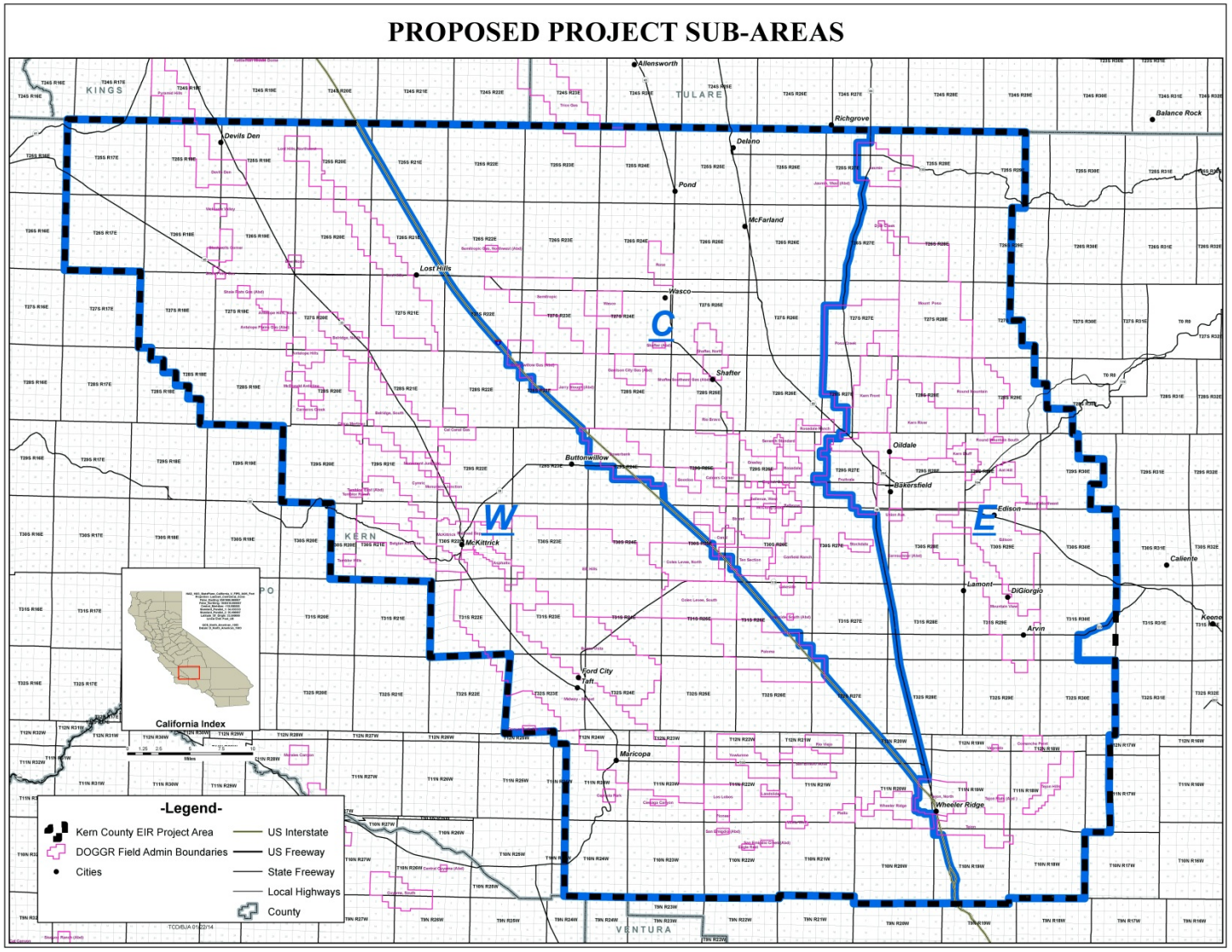
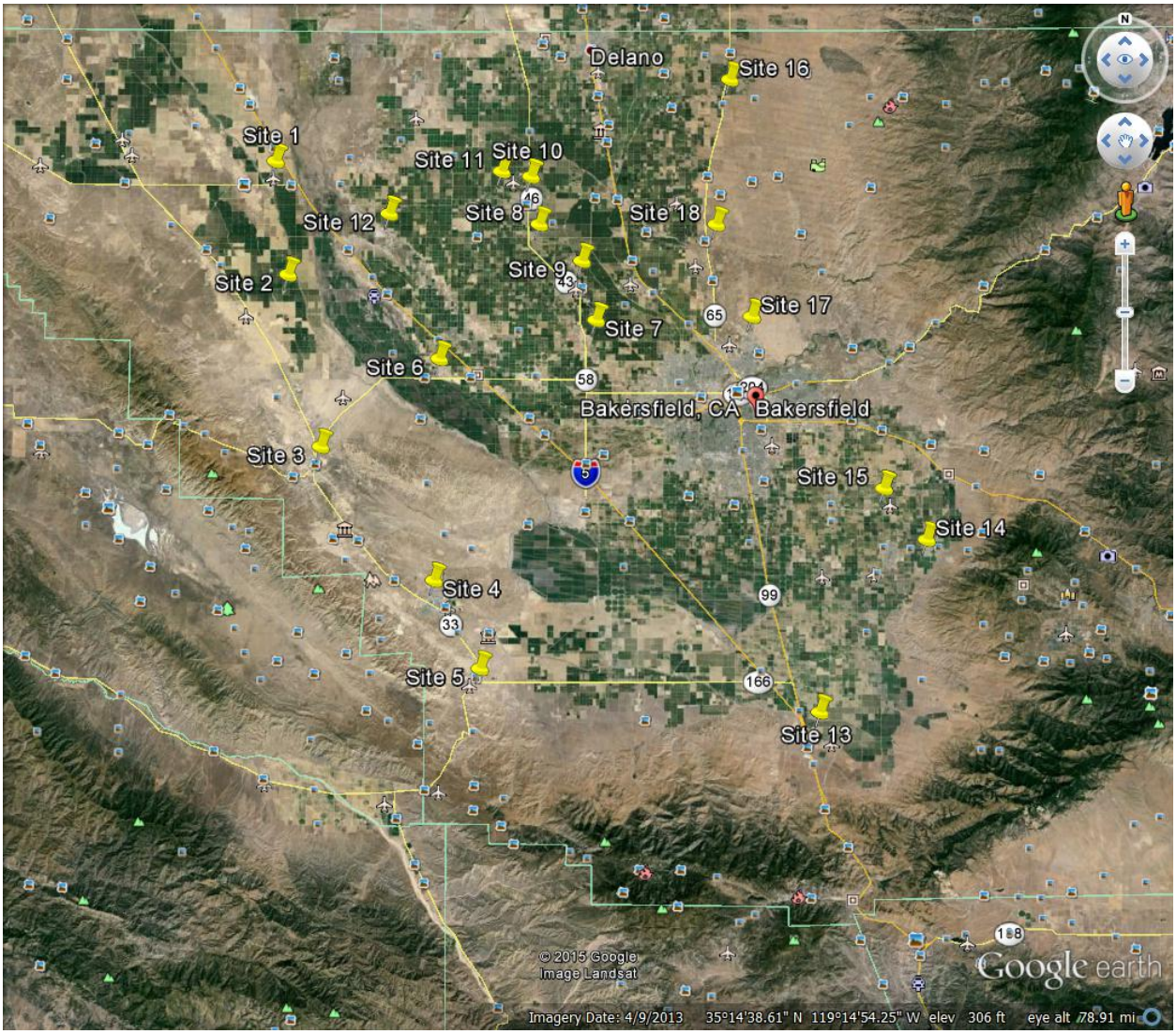


FIGURE 2: AMBIENT NOISE MONITORING SITE LOCATIONS



APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

NOTE: The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.

L_{max}: The maximum noise level recorded during a noise event.

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

APPENDIX A (concluded)

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC): The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

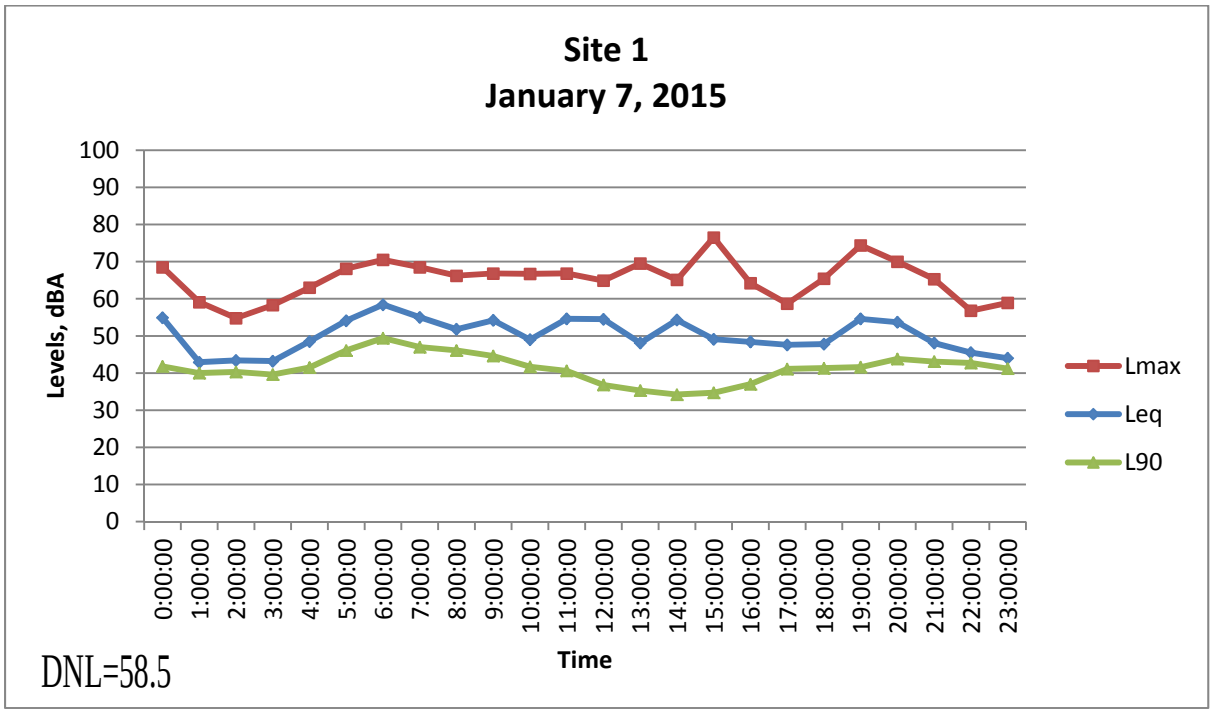
APPENDIX B

AMBIENT NOISE MONITORING SITES

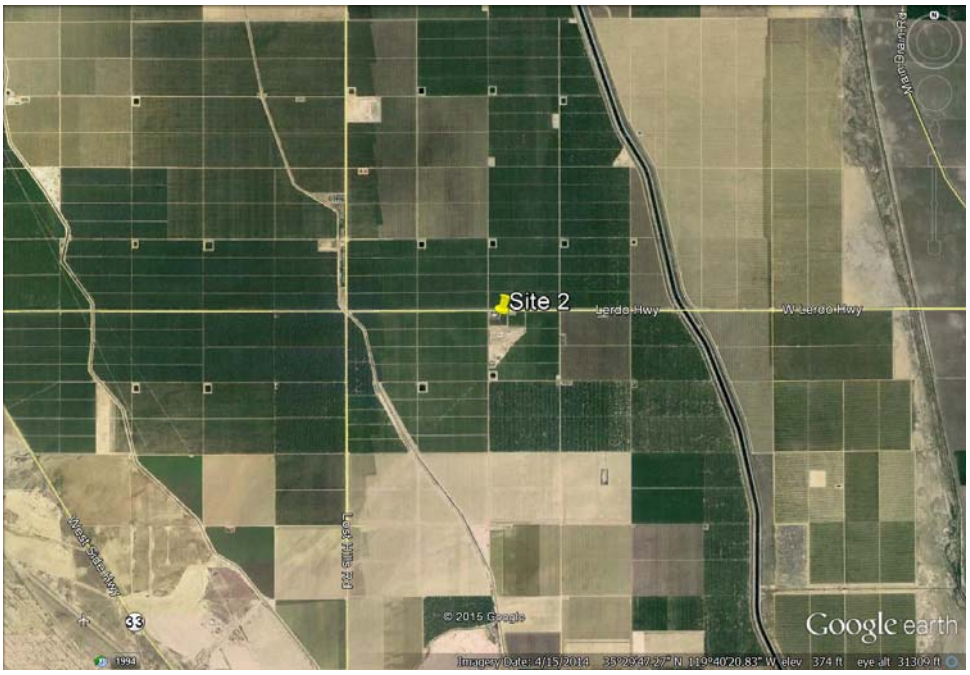
Site 1



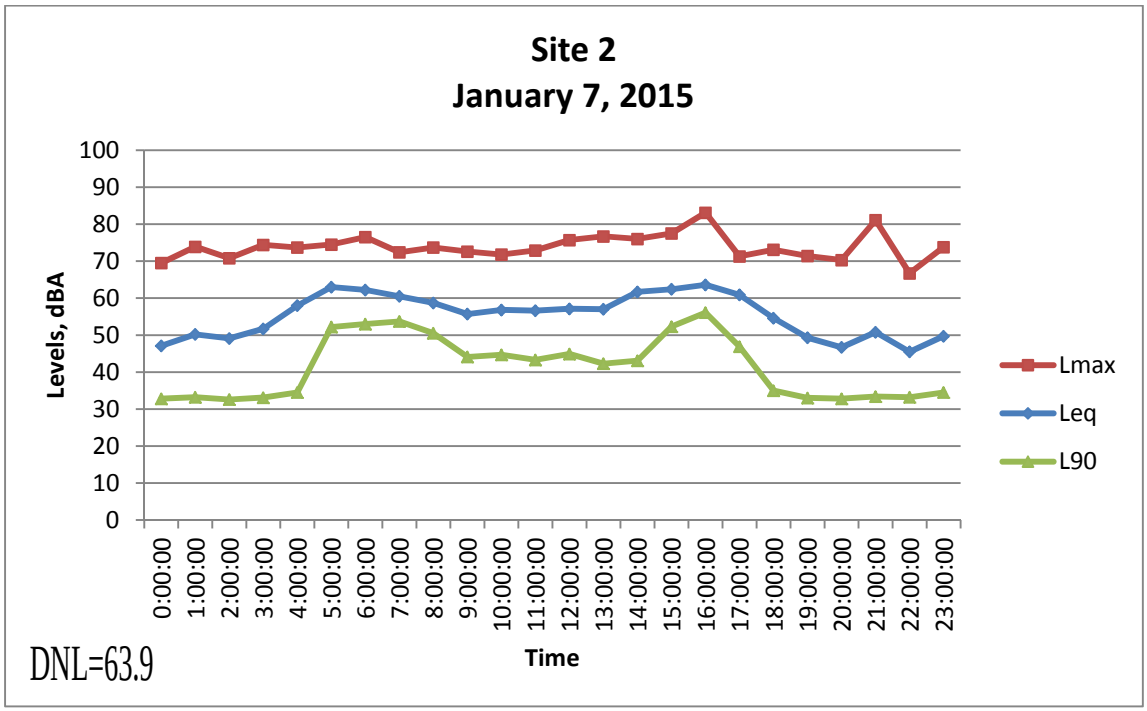
Site 1 was located north of the community of Lost Hills. The noise monitor was located in an open field west of Lost Hills Road. Audible sources of noise at Site 1 included traffic on Lost Hills Road, nearby commercial activities and birds. Noise measurements were taken over a 24-hour period on January 7, 2015. The measured DNL value for the 24-hour monitoring period was 58.5 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 42.9 dB to 58.4 dB. Measured hourly maximum (L_{max}) values ranged from 54.8 dB to 76.5 dB. Measured hourly L_{90} values ranged from 34.2 dB to 39.4 dB.



Site 2



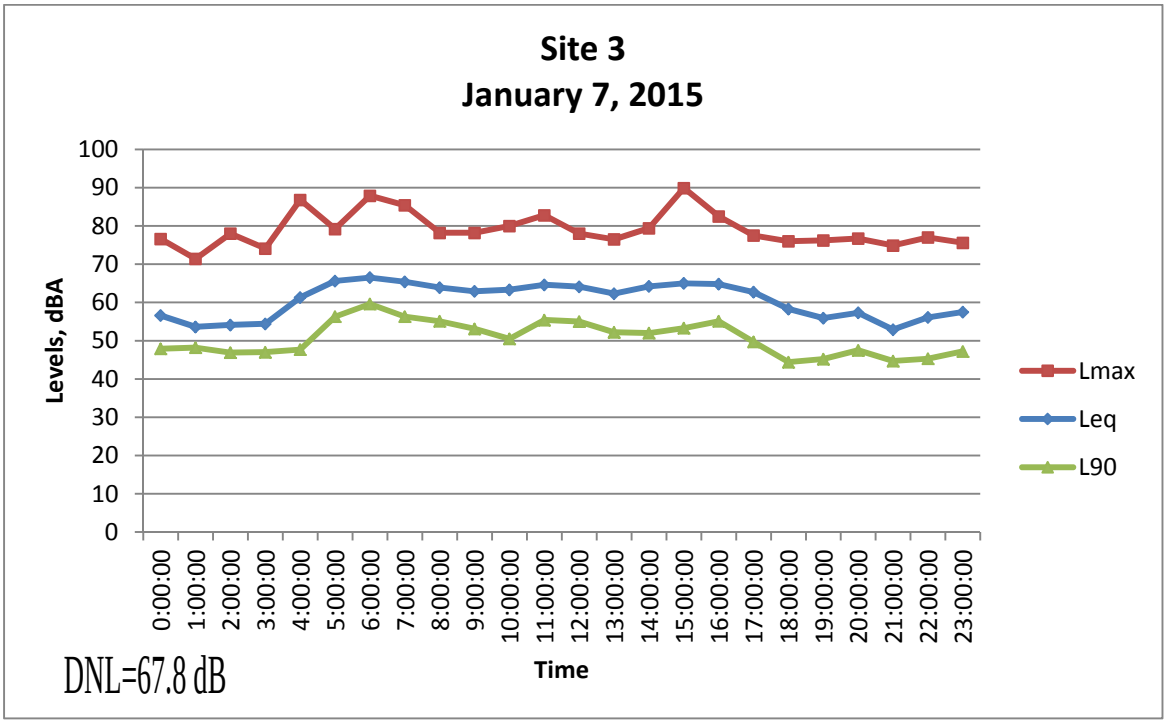
Site 2 was located approximately 1 mile east of the intersection of Lerdo Highway and Lost Hills Road. The noise monitor was located along the east side of an agricultural office facility, at a distance of approximately 250 feet from Lerdo Highway. Audible sources of noise at Site 2 included traffic on Lerdo Highway, nearby agricultural activities and birds. Long-term noise measurements were taken over a 24-hour period on January 7, 2015. The measured DNL value for the 24-hour monitoring period was 63.9 dB. The chart below shows hourly noise monitoring data during the study period. Measured hourly L_{eq} values ranged from 45.5 dB to 63.6 dB. Measured hourly maximum (L_{max}) values ranged from 66.7 dB to 83.1 dB. Measured hourly L_{90} values ranged from 32.6 dB to 56.1 dB.



Site 3



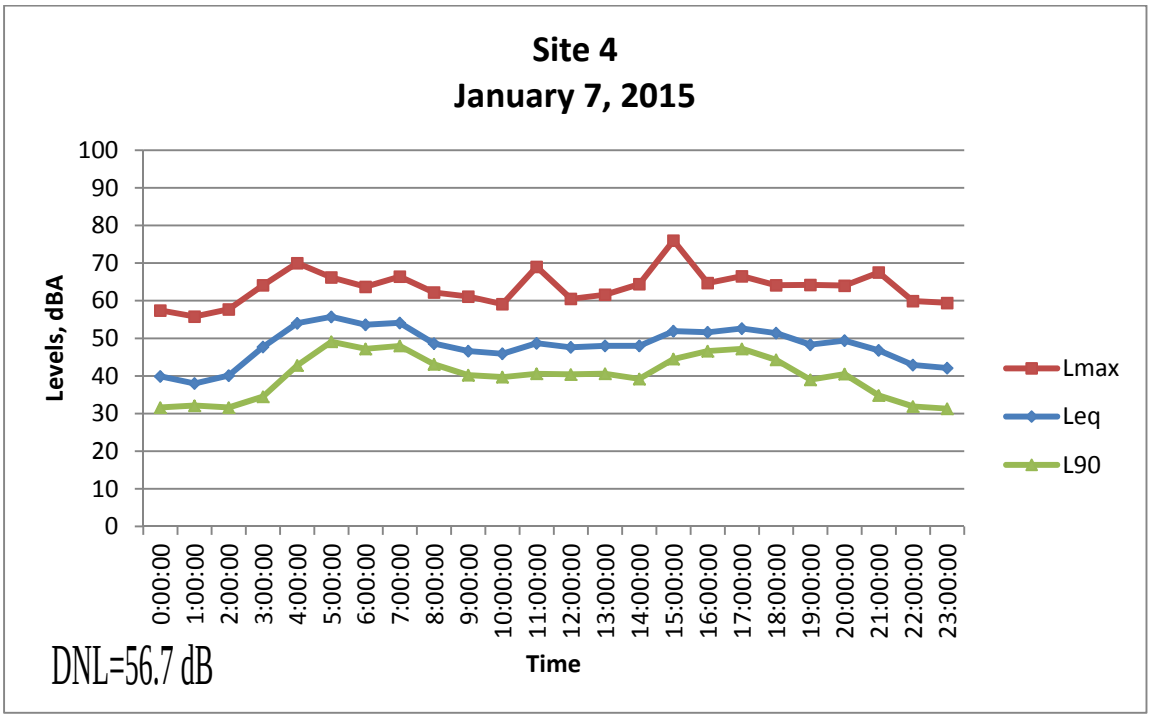
Site 3 was located within the community of McKittrick, near the intersection of Reward Road and 2nd Street. The noise monitor was located in an open field behind 33 & E Market. Audible sources of noise at Site 3 included traffic on Reward Road and 2nd Street, voices from nearby commercial activities and activities associated with nearby residential land uses. Noise measurements were taken over a 24-hour period on January 7, 2015. The measured DNL value for the 24-hour monitoring period was 67.8 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 52.9 dB to 66.5 dB. Measured hourly maximum (L_{max}) values ranged from 71.4 dB to 89.9 dB. Measured hourly L_{90} values ranged from 44.4 dB to 59.6 dB.



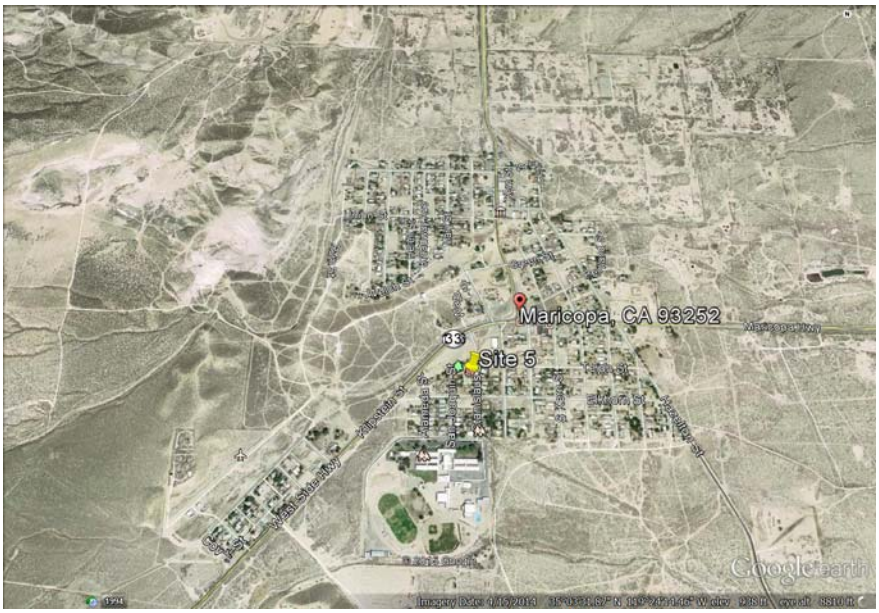
Site 4



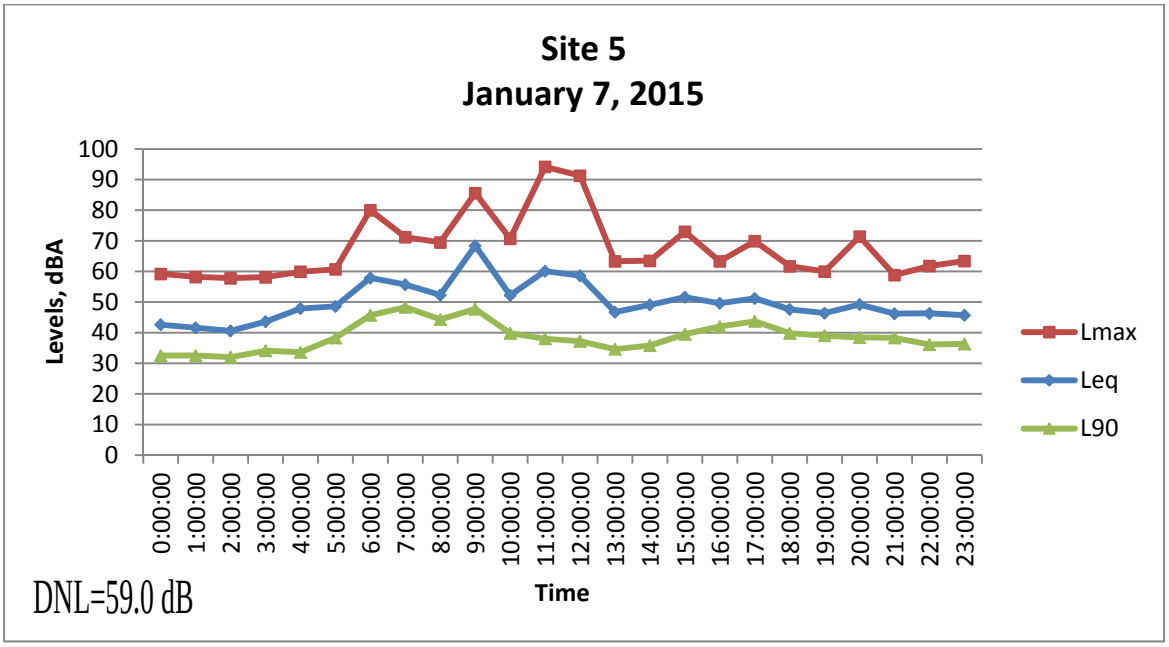
Site 4 was located along Division Street, north of Cedar Street, northwest of the City of Taft. The noise monitor was located in an open field behind the Kern County Sheriff's substation office, at a distance of approximately 500 feet from Division Street. Audible sources of noise at Site 4 included traffic on Lerdo Highway Road, nearby agricultural activities and birds. Noise measurements were taken over a 24-hour period on January 7, 2015. The measured DNL value for the 24-hour monitoring period was 56.7 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 38.0 dB to 55.7 dB. Measured hourly maximum (L_{max}) values ranged from 55.8 dB to 76.0 dB. Measured hourly L_{90} values ranged from 31.3 dB to 49.1 dB.



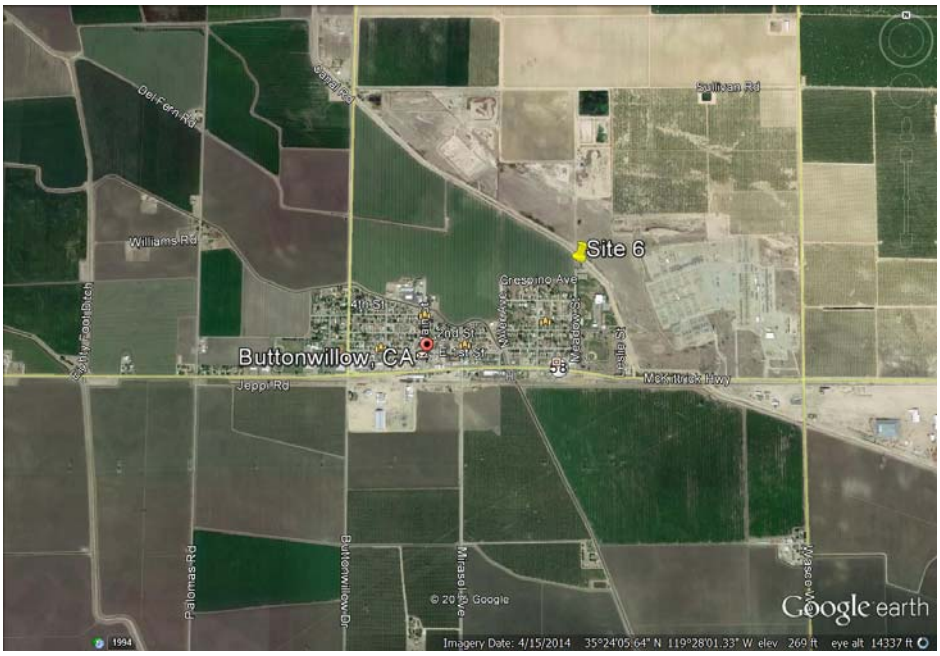
Site 5



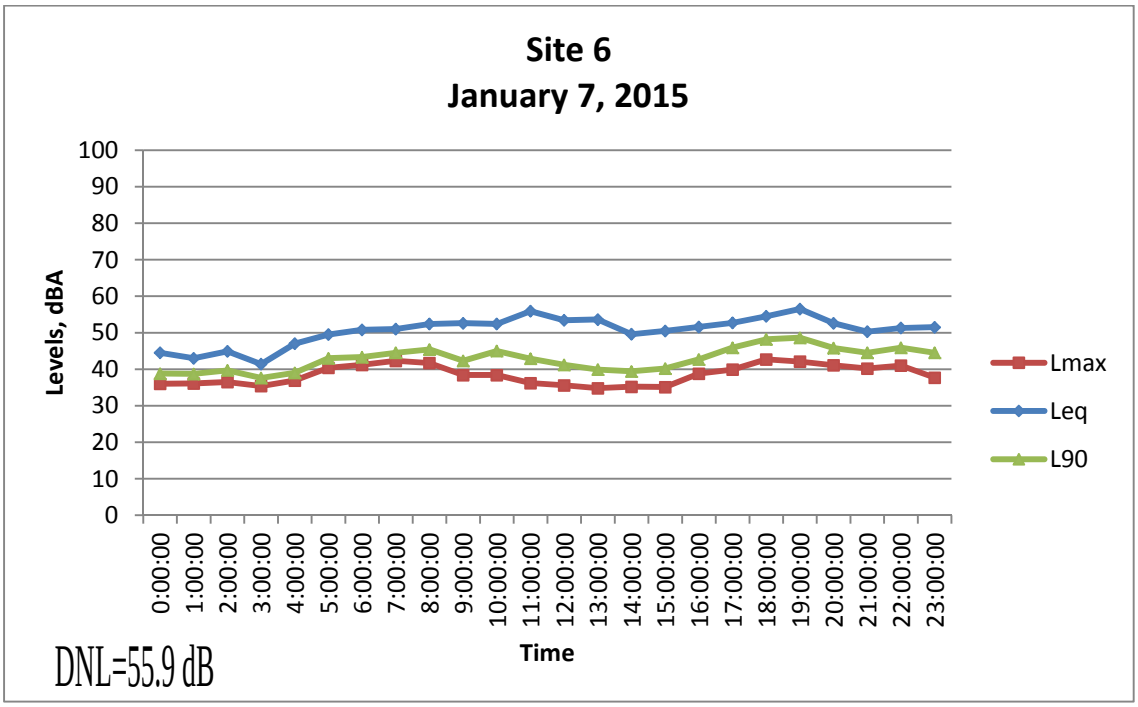
Site 5 was located near the City of Maricopa, approximately 500 feet from State Route 33. The noise monitor was located in the rear area of the Kern County Fire Department station. Audible sources of noise at Site 5 included traffic on SR 33, traffic on other local roadways and birds. Although not observed at the time of set up or take down of the equipment, it is expected that maximum levels measured at Site 5 were the result of sirens from fire station activities. Noise measurements were taken over a 24-hour period on January 7, 2015. The measured DNL value for the 24-hour monitoring period was 59.0 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 40.6 dB to 68.4 dB. Measured hourly maximum (L_{max}) values ranged from 57.8 dB to 94.2 dB. Measured hourly L_{90} values ranged from 32.0 dB to 48.3 dB.



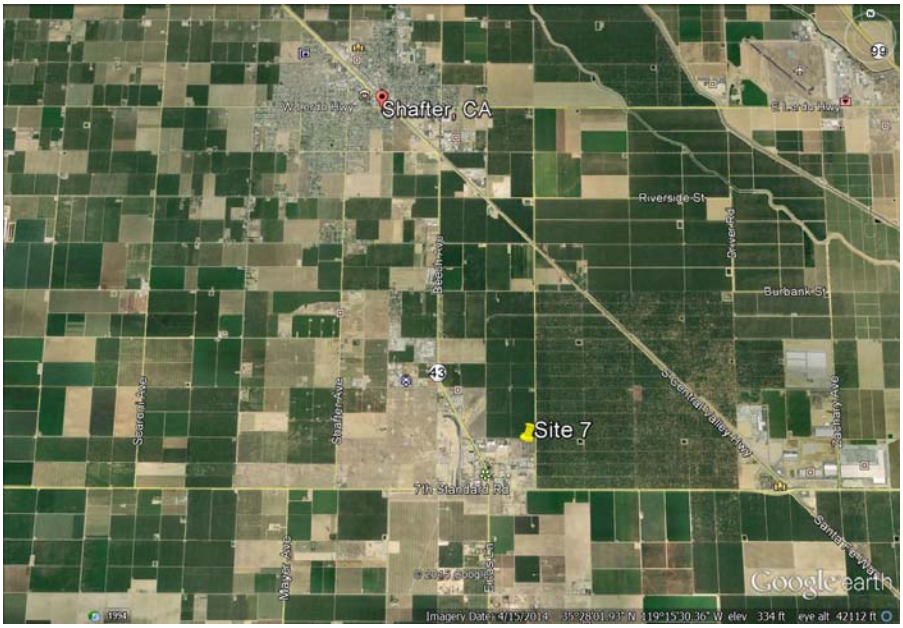
Site 6



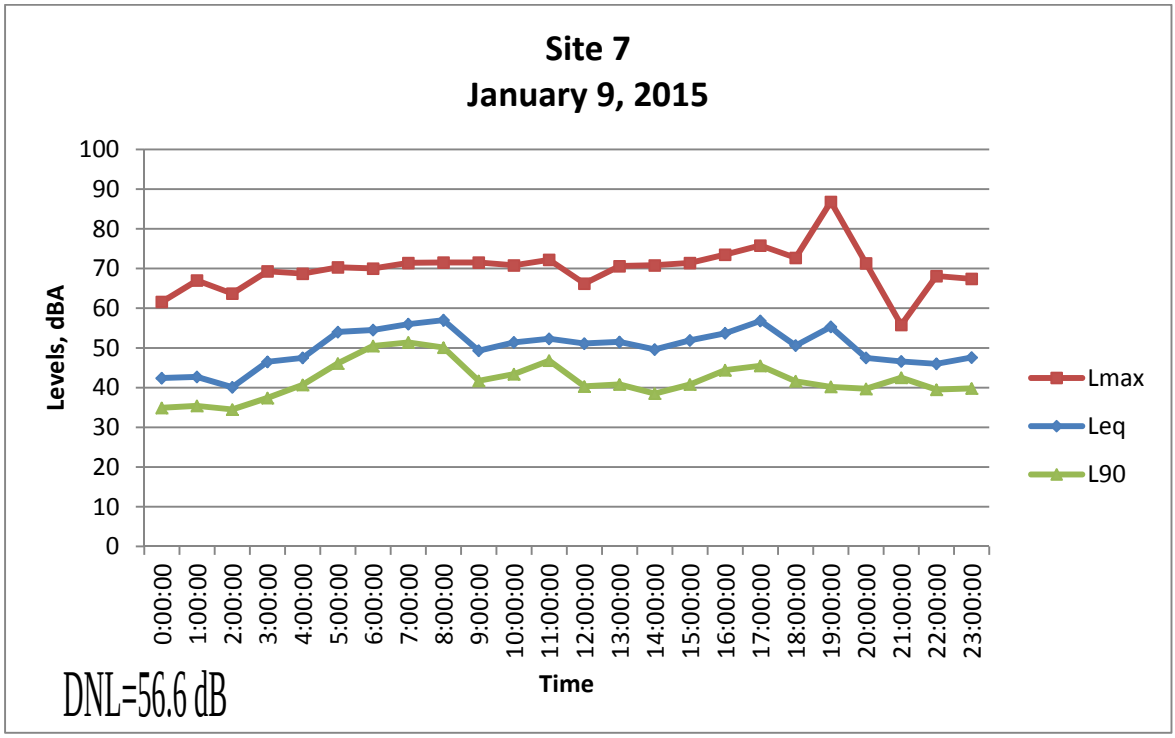
Site 6 was located near the community of Buttonwillow, near the northern Terminus of Meadow Street. The noise monitor was located near open agricultural land along an irrigation ditch. Audible sources of noise at Site 6 included traffic from local roadways, noise related to nearby residential land uses, agricultural activities and birds. Long-term noise measurements were taken over a 24-hour period on January 7, 2015. The measured DNL value for the 24-hour monitoring period was 55.9 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 41.4 dB to 56.5 dB. Measured hourly maximum (L_{max}) values ranged from 57.6 dB to 76.5 dB. Measured hourly L_{90} values ranged from 37.6 dB to 48.6 dB.



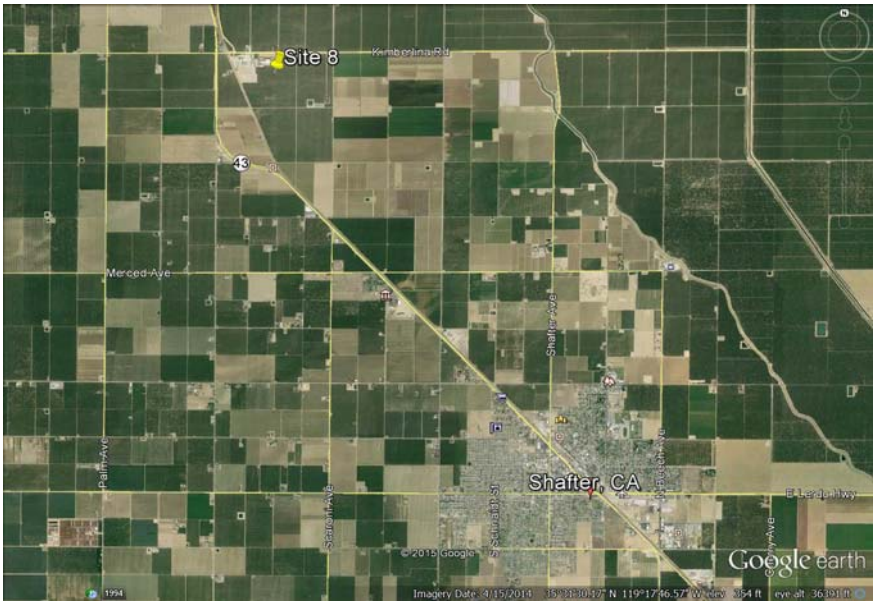
Site 7



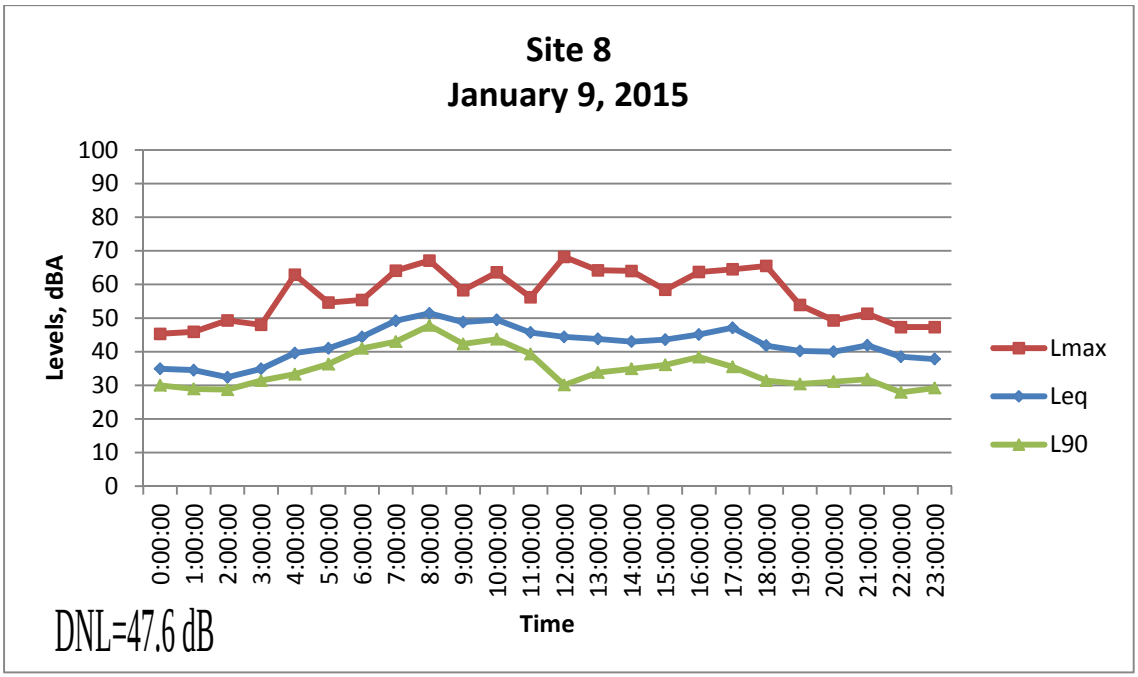
Site 7 was located south of the City of Shafter, approximately ½ mile northeast of the intersection of 7th Standard Road and Enos Lane. The noise monitor was located in an open field. Audible sources of noise at Site 7 included traffic on local roadways, noise from nearby commercial and industrial activities, and noise related to nearby agricultural activities. Noise measurements were taken over a 24-hour period on January 9, 2015. The measured DNL value for the 24-hour monitoring period was 56.6 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 40.1 dB to 57.0 dB. Measured hourly maximum (L_{max}) values ranged from 55.8 dB to 86.8 dB. Measured hourly L_{90} values ranged from 34.5 dB to 51.4 dB.



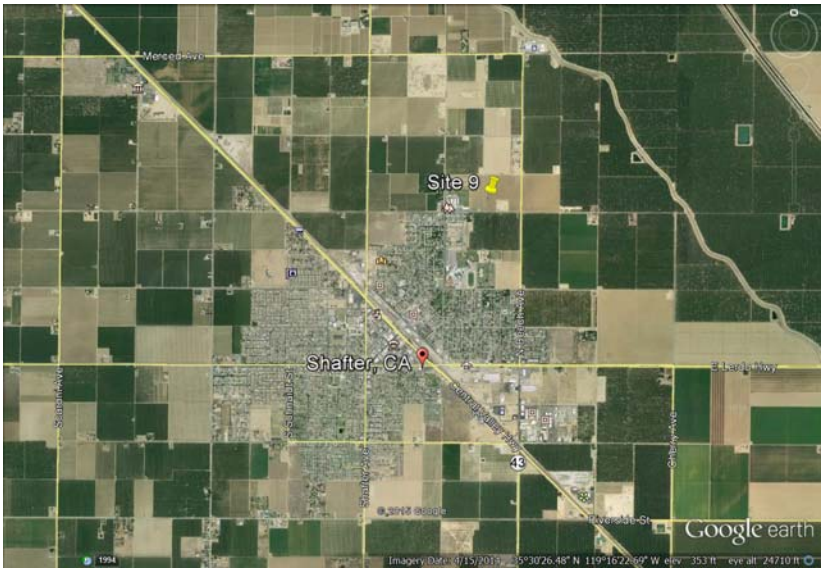
Site 8



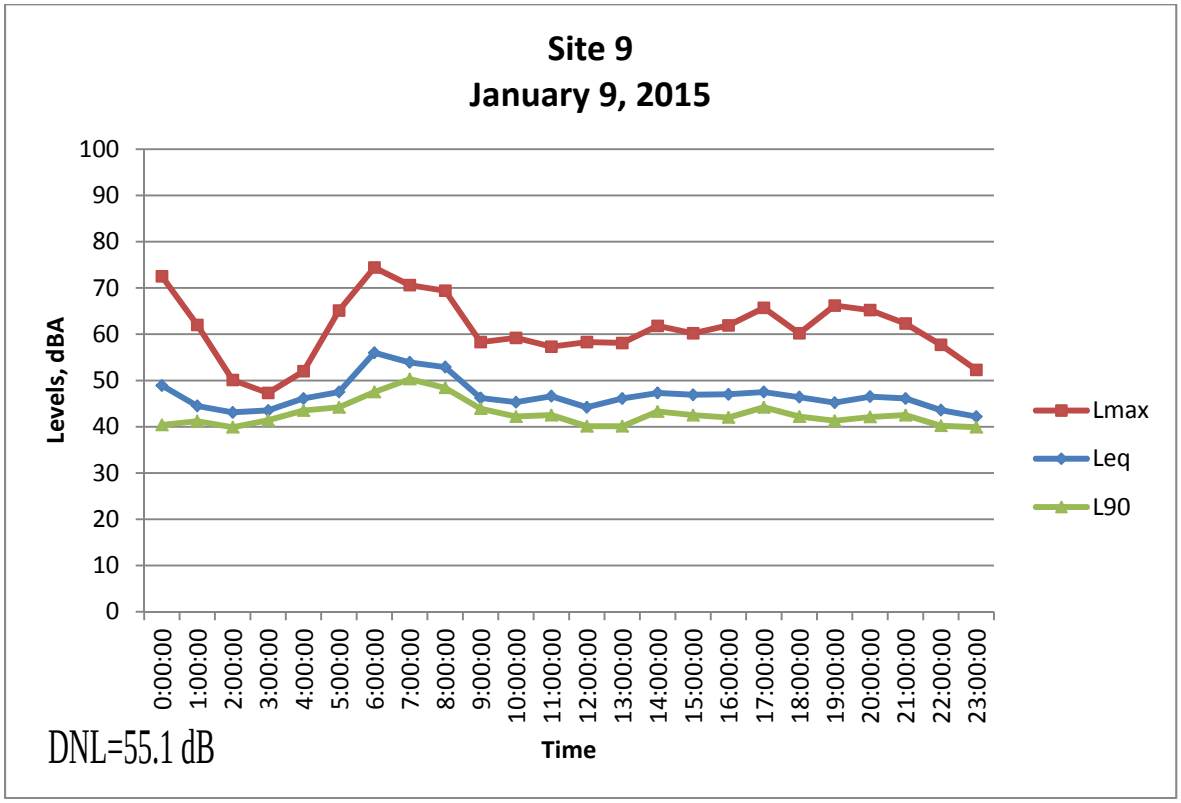
Site 8 was located between the City of Wasco and City of Shafter. The noise monitor was located in a field. Audible sources of noise at Site 8 included traffic from local roadways, noise related to agricultural activities and birds. Noise measurements were taken over a 24-hour period on January 9, 2015. The measured DNL value for the 24-hour monitoring period was 47.6 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 32.4 dB to 51.4 dB. Measured hourly maximum (L_{max}) values ranged from 45.3 dB to 68.2 dB. Measured hourly L_{90} values ranged from 27.9 dB to 47.8 dB.



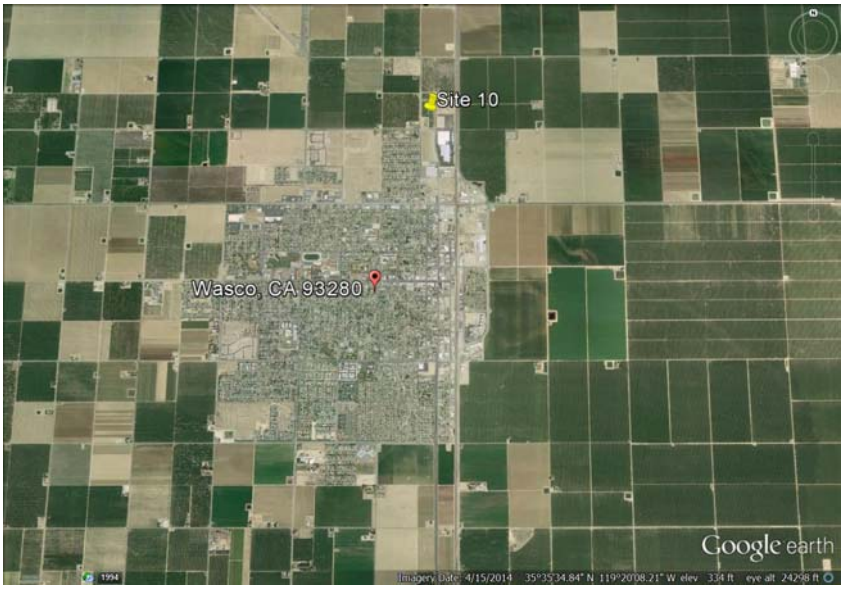
Site 9



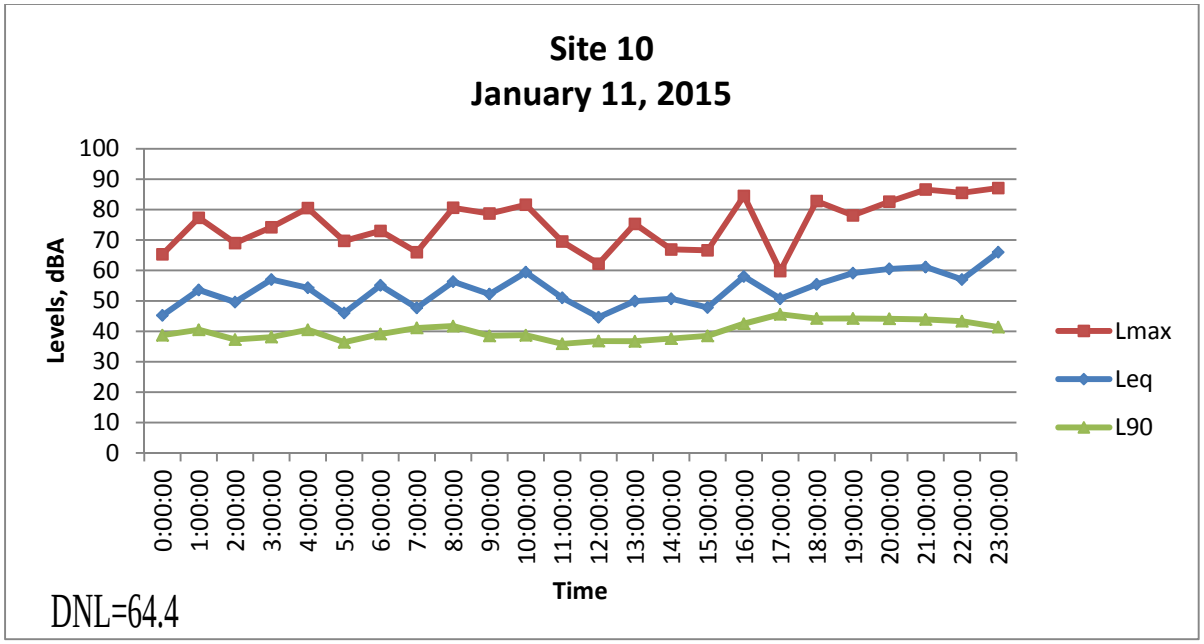
Site 9 was located northeast of City of Shafter, near Sequoia Elementary School. The noise monitor was located in an open field near an existing oil well. Audible sources of noise at Site 9 included traffic on local roadways, noise from nearby agricultural activities and noise from the nearby oil well. Noise measurements were taken over a 24-hour period on January 9, 2015. The measured DNL value for the 24-hour monitoring period was 55.1 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 42.2 dB to 56.0 dB. Measured hourly maximum (L_{max}) values ranged from 47.3 dB to 74.4 dB. Measured hourly L_{90} values ranged from 39.9 dB to 50.3 dB.



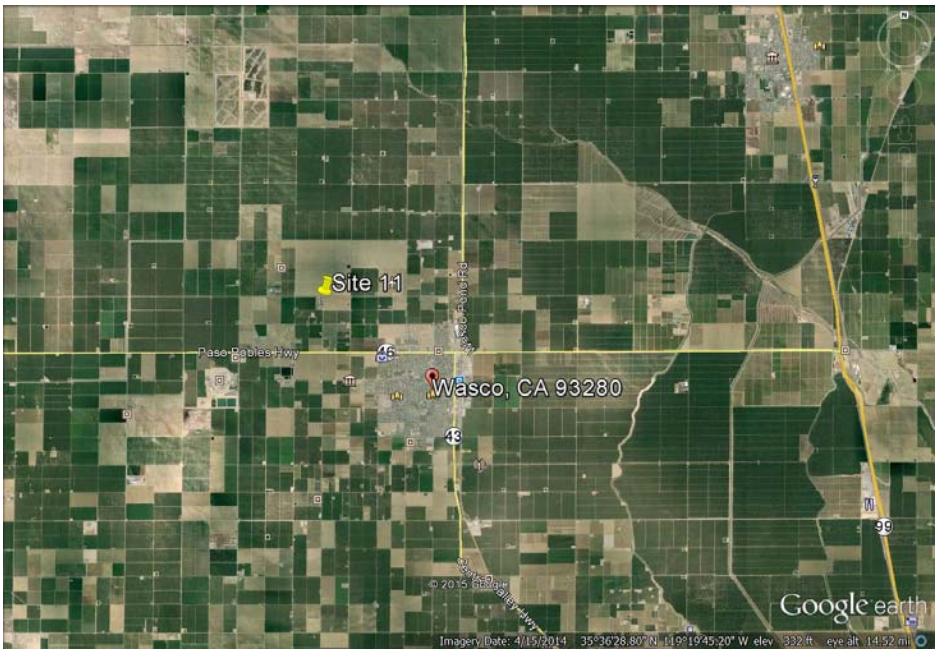
Site 10



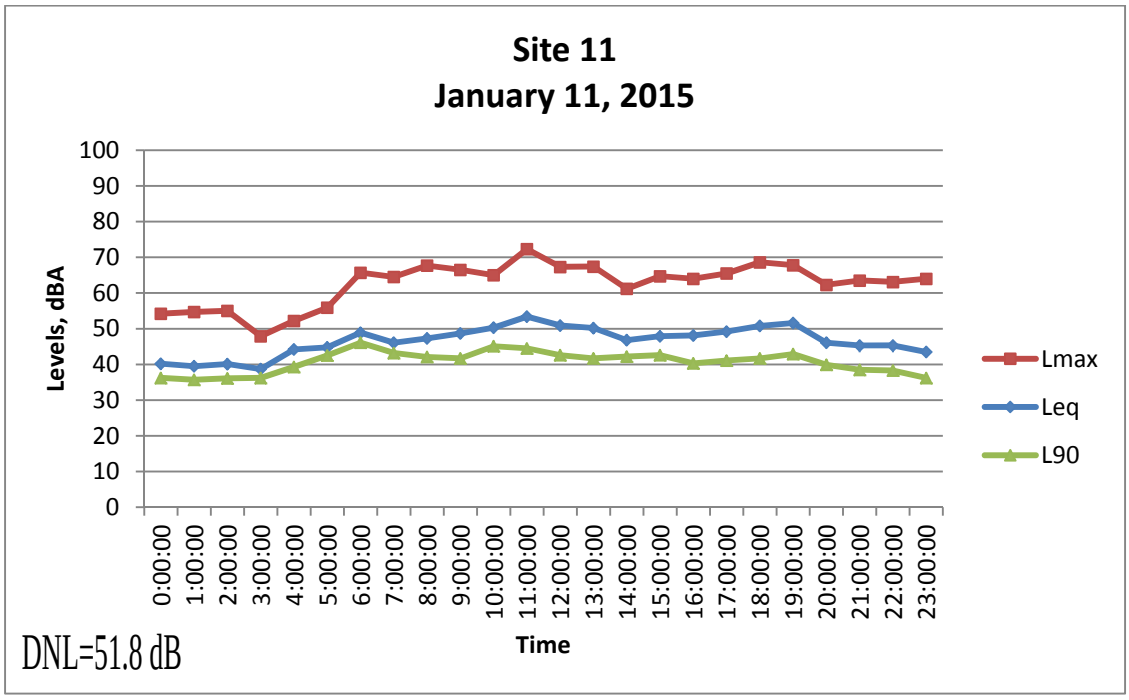
Site 10 was located northeast of the City of Wasco. The noise monitor was located in a public park. Audible sources of noise at Site 10 included traffic from local roadways, noise related to agricultural activities and noise from trains along the BNSF Railway line. Noise measurements were taken over a 24-hour period on January 11, 2015. The measured DNL value for the 24-hour monitoring period was 64.4 dB. Hourly average and maximum noise levels at Site 10 were greatly influenced by train noise along the BNSF Railway line. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 44.6 dB to 66.0 dB. Measured hourly maximum (L_{max}) values ranged from 59.8 dB to 87.1 dB. Measured hourly L_{90} values ranged from 35.9 dB to 45.6 dB.



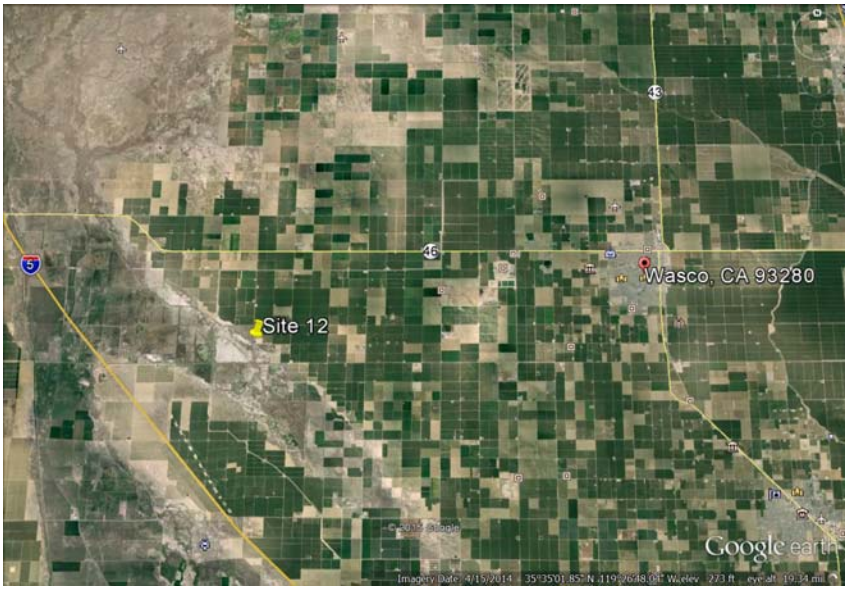
Site 11



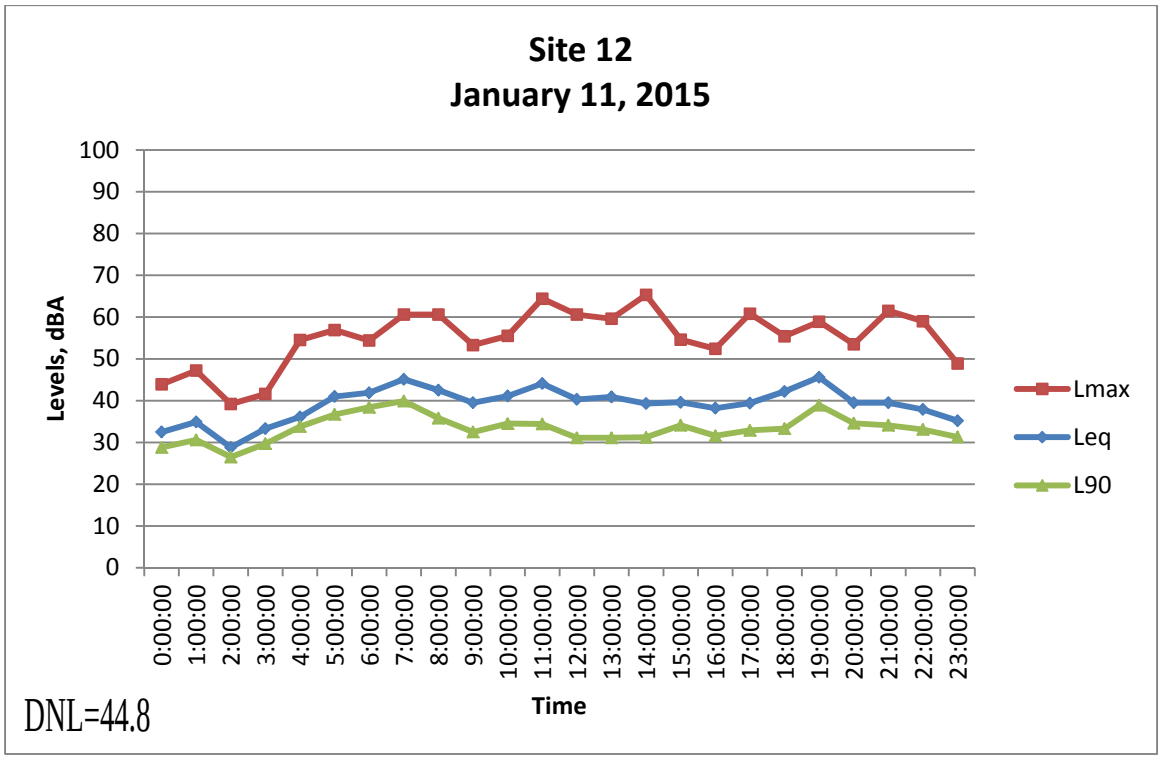
Site 11 was located northwest of City of Wasco, southwest of the intersection of McCombs Road and Western Avenue. The noise monitor was located in an open field behind rural residential land use. Audible sources of noise at Site 11 included traffic on local roadways and noise from nearby agricultural activities. Noise measurements were taken over a 24-hour period on January 11, 2015. The measured DNL value for the 24-hour monitoring period was 51.8 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 38.7 dB to 53.4 dB. Measured hourly maximum (L_{max}) values ranged from 47.9 dB to 72.3 dB. Measured hourly L_{90} values ranged from 35.7 dB to 46.1 dB.



Site 12



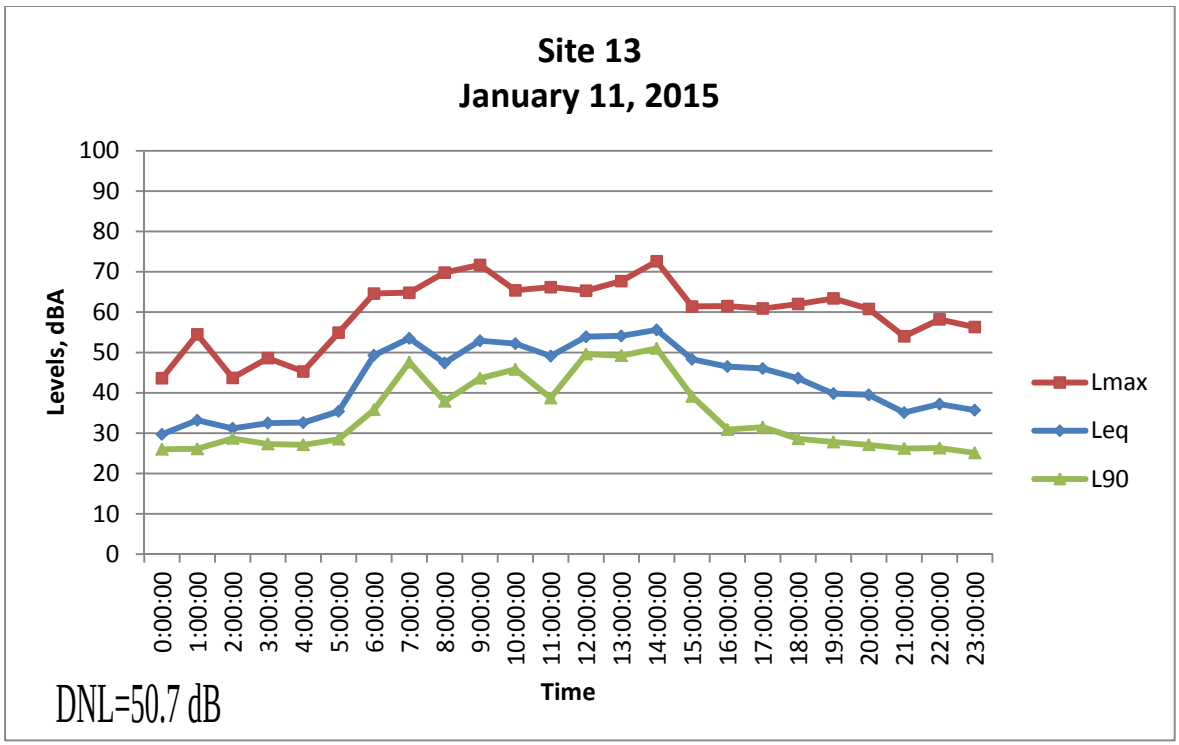
Site 12 was located in a rural area approximately 5 miles east of Interstate 5 and 2 miles south of State Road 46. The noise monitor was located in an a field near a retaining pond. Audible sources of noise at Site 12 included noise related to agricultural activities, birds and wind. The noise measurements were taken over a 24-hour period on January 11, 2015. The measured DNL value for the 24-hour monitoring period was 44.8 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 28.8 dB to 45.6 dB. Measured hourly maximum (L_{max}) values ranged from 39.2 dB to 65.3 dB. Measured hourly L_{90} values ranged from 26.5 dB to 39.9 dB.



Site 13



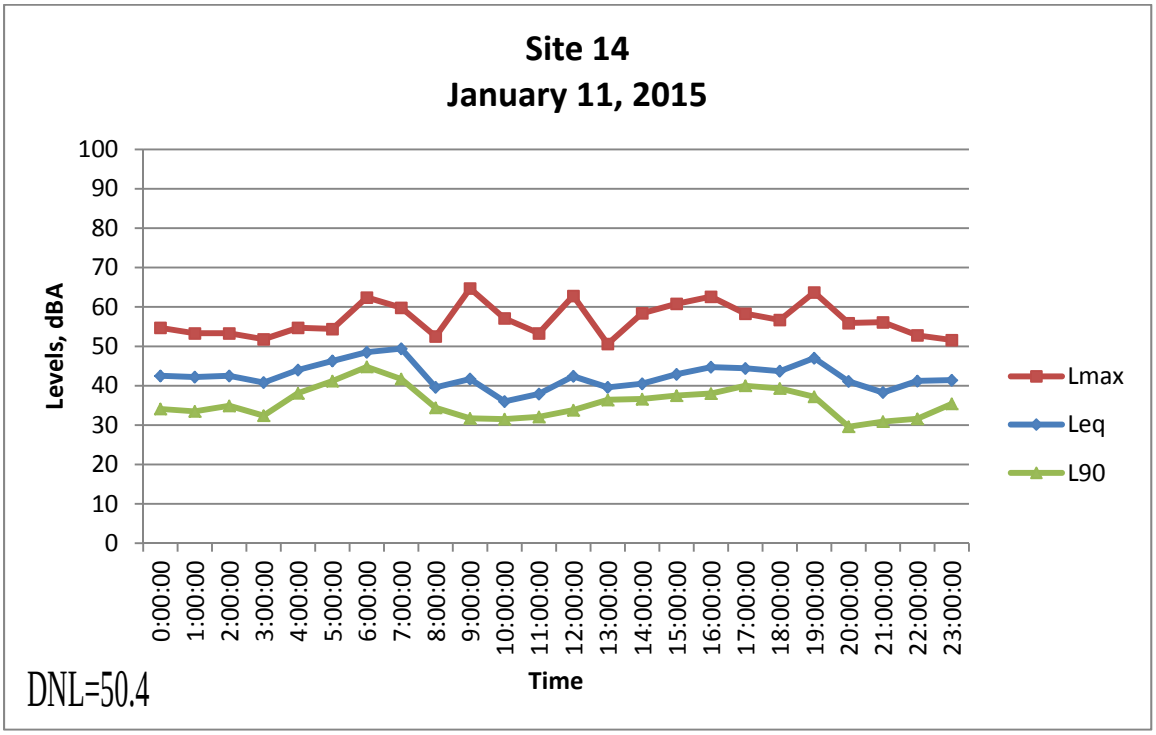
Site 13 was located approximately 1 mile east of the junction of Interstate 5 and State Route 99. The noise monitor was located in an orchard. Audible sources of noise at Site 13 included traffic on I-5/SR 99 and noise related to agricultural activities. The noise measurements were taken over a 24-hour period on January 11, 2015. The measured DNL value for the 24-hour monitoring period was 50.7 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 29.7 dB to 55.6 dB. Measured hourly maximum (L_{max}) values ranged from 43.6 dB to 72.6 dB. Measured hourly L_{90} values ranged from 25.1 dB to 51.0 dB.



Site 14



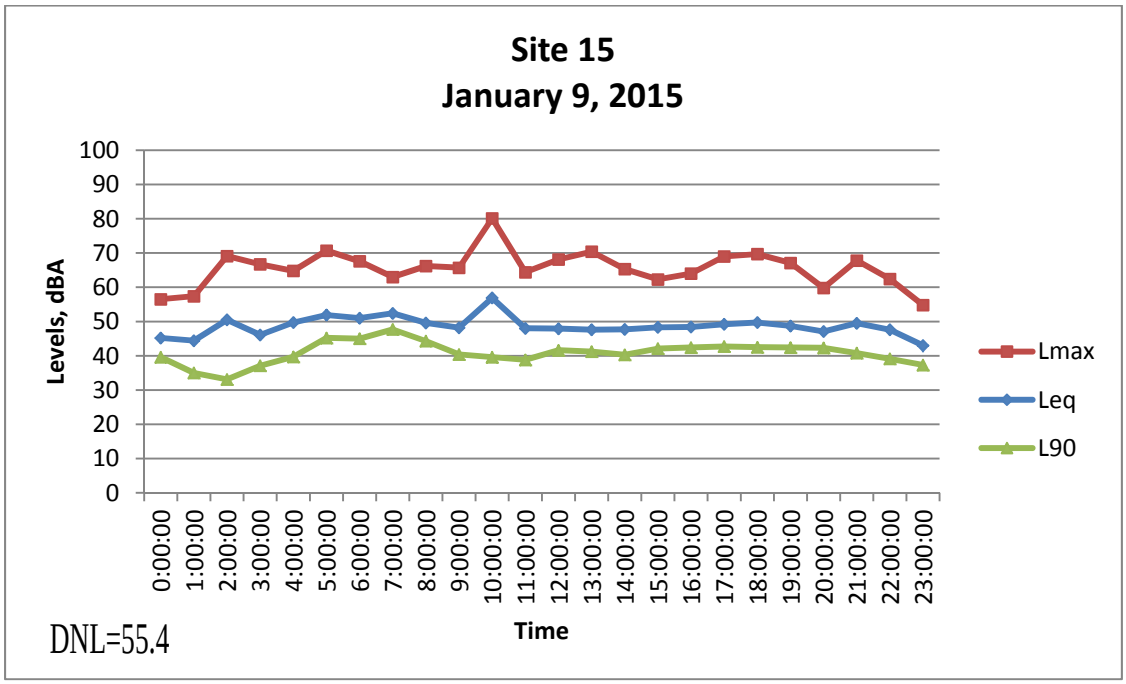
Site 14 was located east of the City of Arvin, approximately ¼ south of Bear Mountain Boulevard. The noise monitor was located in a field near a retaining pond. Audible sources of noise at Site 14 included traffic noise from Bear Mountain Boulevard, noise related to agricultural activities, birds, and wind. The noise measurements were taken over a 24-hour period on January 11, 2015. The measured DNL value for the 24-hour monitoring period was 50.4 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 36.0 dB to 49.4 dB. Measured hourly maximum (L_{max}) values ranged from 50.6 dB to 64.7 dB. Measured hourly L_{90} values ranged from 29.6 dB to 44.8 dB.



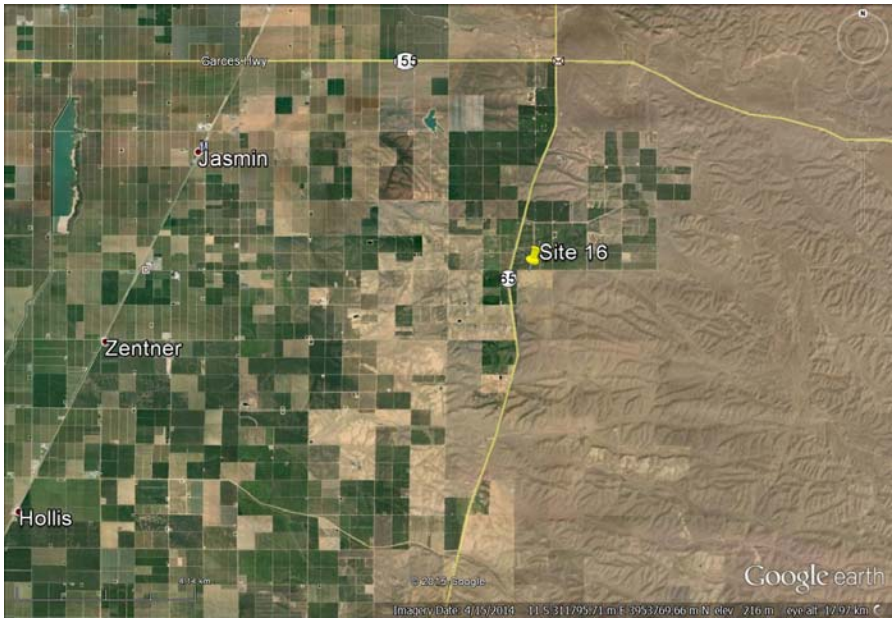
Site 15



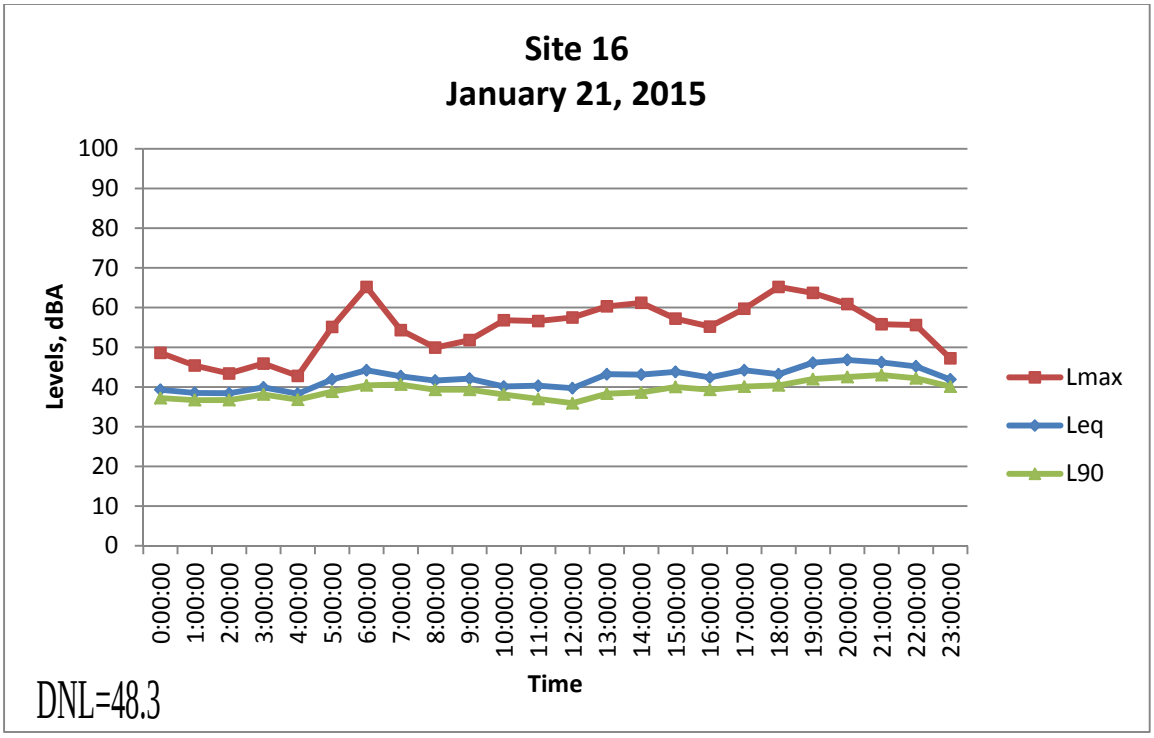
Site 15 was located approximately 3 miles east of the community of Lamont. The noise monitor was located in a field near agricultural land uses. Audible sources of noise at Site 15 included traffic on local roadways and noise related to agricultural activities. Noise measurements were taken over a 24-hour period on January 9, 2015. The measured DNL value for the 24-hour monitoring period was 55.4 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 43.0 dB to 56.9 dB. Measured hourly maximum (L_{max}) values ranged from 54.8 dB to 80.1 dB. Measured hourly L_{90} values ranged from 33.1 dB to 47.7 dB.



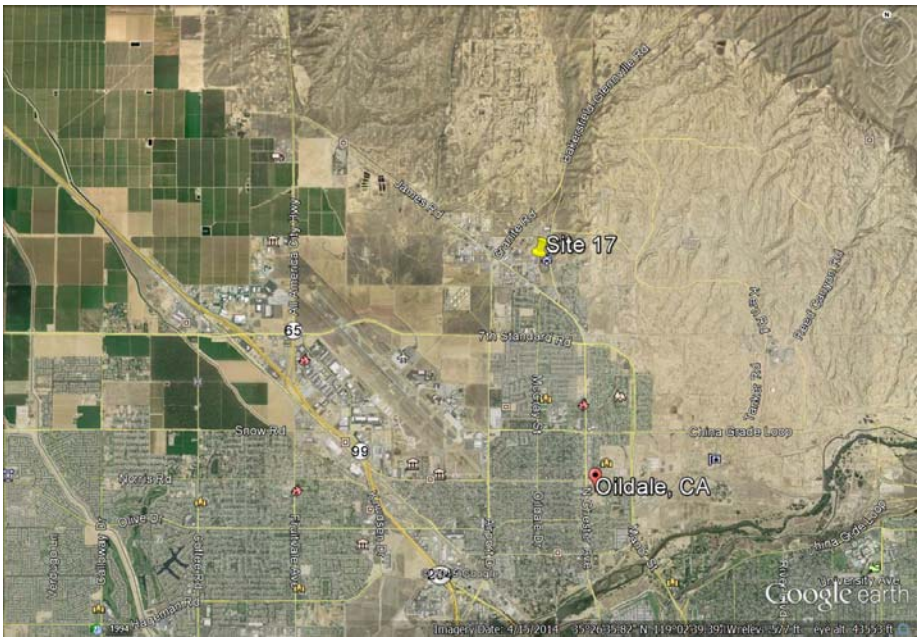
Site 16



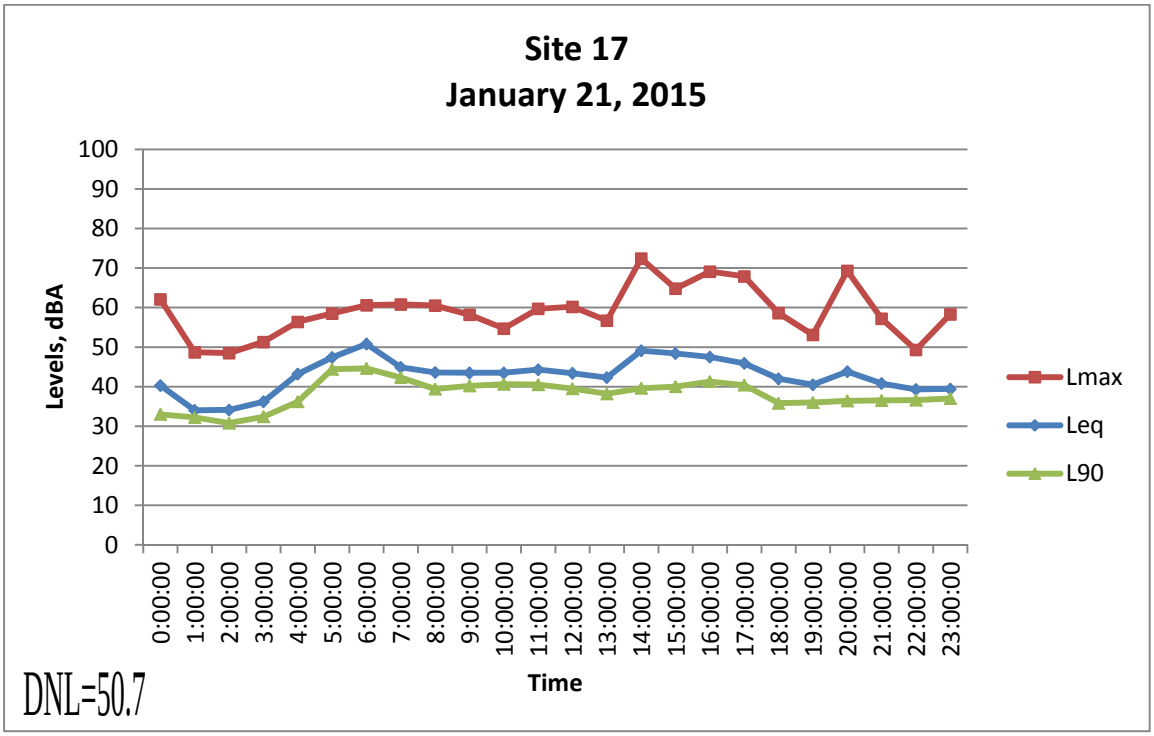
Site 16 was located east of the City of Arvin, approximately ¼ mile east of State Route 65. The noise monitor was located in an open field near agricultural land uses. Audible sources of noise at Site 16 included traffic noise from SR 65, noise related to agricultural activities, birds, and wind. Noise measurements were taken over a 24-hour period on January 21, 2015. The measured DNL value for the 24-hour monitoring period was 48.3 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 38.3 dB to 46.8 dB. Measured hourly maximum (L_{max}) values ranged from 42.8 dB to 65.2 dB. Measured hourly L_{90} values ranged from 35.9 dB to 43.0 dB.



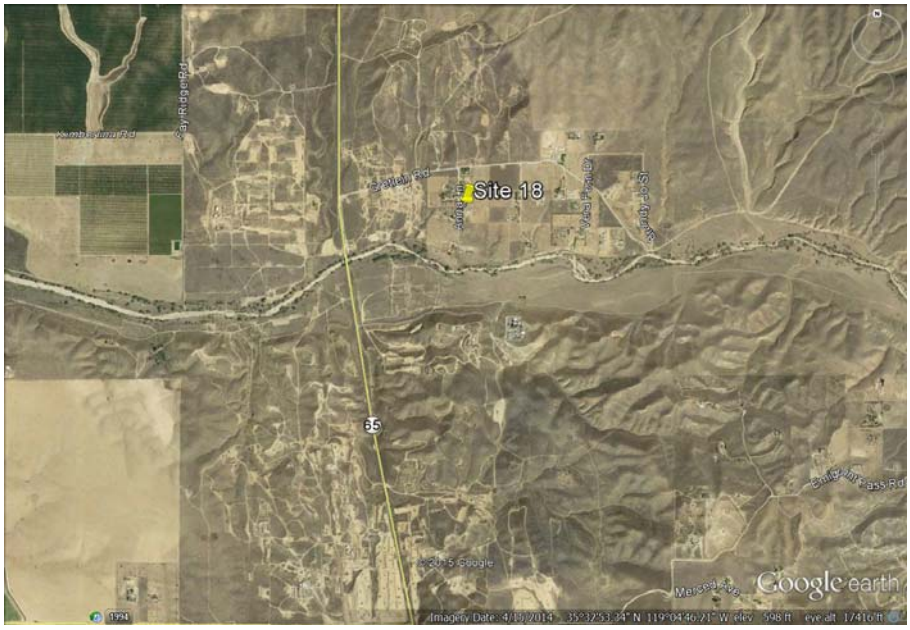
Site 17



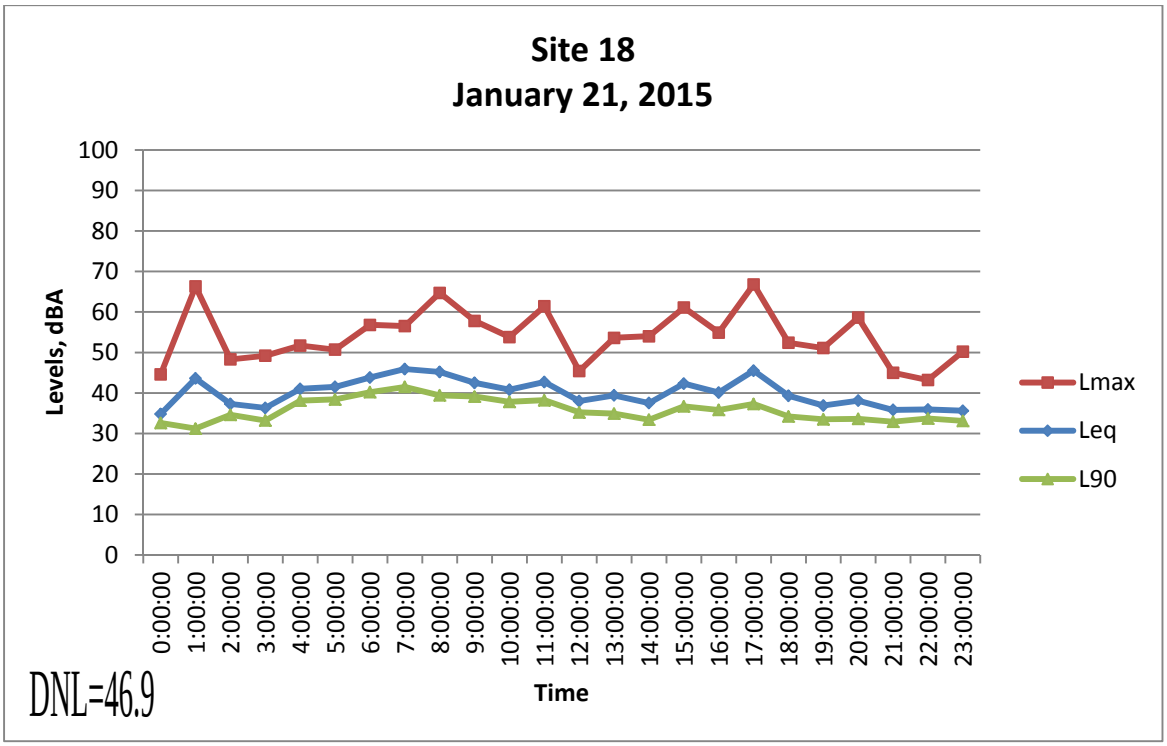
Site 17 was located north of the community of Oildale. The noise monitor was located in a storage lot located at the rear of a mobile home complex. Audible sources of noise at Site 17 included noise related to the mobile home complex and noise from nearby commercial activities. Noise measurements were taken over a 24-hour period on January 21, 2015. The measured DNL value for the 24-hour monitoring period was 50.7 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 34.0 dB to 50.8 dB. Measured hourly maximum (L_{max}) values ranged from 48.5 dB to 72.4 dB. Measured hourly L_{90} values ranged from 30.8 dB to 44.6 dB.



Site 18



Site 18 was located on a residential property along Anna Lane. Audible sources of noise at Site 18 included local traffic on public roadways, noise related to nearby oil operations, birds and wind. Noise measurements were taken over a 24-hour period on January 21, 2015. The measured DNL value for the 24-hour monitoring period was 46.9 dB. The chart below shows hourly noise monitoring data during the monitoring period. Measured hourly L_{eq} values ranged from 34.8 dB to 45.9 dB. Measured hourly maximum (L_{max}) values ranged from 43.2 dB to 66.8 dB. Measured hourly L_{90} values ranged from 31.2 dB to 41.5 dB.



APPENDIX C

TRAFFIC NOISE MODELING ASSUMPTIONS

Brown-Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
February 16, 201

Project #:	14-057
Description:	Kern Oil and Gas
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB) 60 65 70 75

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
5	LOS ANGELES/KERN COUNTY LINE		67000	80		20	6.4	25.5	65	75	
5	LEBEC ROAD		74000	80		20	6.4	25.5	65	75	
5	FORT TEJON/DIGIER ROAD		74000	80		20	6.4	25.5	65	75	
5	GRAPEVINE		74000	80		20	6.4	25.5	65	75	
5	WHEELER RIDGE ROAD		74000	80		20	6.4	25.5	65	75	
5	JCT. RTE. 99 NORTH		70000	80		20	6.4	25.5	65	75	
5	JCT. RTE. 166		30500	80		20	6.4	25.5	65	75	
5	OLD RIVER ROAD		30500	80		20	6.4	25.5	65	75	
5	JCT. RTE. 223		31500	80		20	6.4	25.5	65	75	
5	JCT. RTE. 119		32000	80		20	6.4	25.5	65	75	
5	JCT. RTE. 43		32500	80		20	6.4	25.5	65	75	
5	STOCKDALE ROAD		34000	80		20	6.4	25.5	65	75	
5	JCT. RTE. 58		35000	80		20	6.4	25.5	65	75	
5	7TH STANDARD ROAD		35000	80		20	6.4	25.5	65	75	
5	ROWLEE ROAD		37500	80		20	6.4	25.5	65	75	
5	LERDO AVENUE		37500	80		20	6.4	25.5	65	75	
5	JCT. RTE. 46		37000	80		20	6.4	25.5	65	75	
5	TWISSELMAN ROAD		34000	80		20	6.4	25.5	65	75	
5	KERN/KINGS COUNTY LINE		33500	80		20	6.4	25.5	65	75	
14	AVENUE A, LOS ANGELES/KERN COUNTY LI		29500	85		15	6.5	12	65	75	
14	ROSAMOND BOULEVARD		29500	85		15	6.5	12	65	75	
14	SILVER QUEEN ROAD		15900	85		15	6.5	12	65	75	
14	MOJAVE, SOUTH JCT. RTE. 58		16900	85		15	6.5	12	65	75	
14	MOJAVE, NORTH JCT RTE 58		16100	85		15	6.5	12	65	75	
14	RANDSBURG CUT-OFF,CALIF CITY/BAKERSFI		9600	85		15	6.5	12	65	75	
14	RANDSBURG ROAD		5900	85		15	6.5	12	65	75	
14	FREEMAN JUNCTION, JCT. RTE. 178 WEST		5100	85		15	6.5	12	65	75	
14	HOMESTEAD SOUTH JCT., JCT. RTE. 178 EAST		5050	85		15	6.5	12	65	75	
14	HOMESTEAD NORTH JCT., JCT. RTE. 395		2750	85		15	6.5	12	65	75	
33	SAN LUIS OBISPO/KERN COUNTY LINE		2900	85		15	6.5	12	65	75	
33	MARICOPA, JCT. RTE. 166 EAST		4100	85		15	6.5	12	65	75	
33	COUNTY ROAD P263		5100	85		15	6.5	12	65	75	
33	TAFT, JCT. RTE. 119 EAST		5800	85		15	6.5	12	65	75	
33	TAFT, FIRST STREET		8800	85		15	6.5	12	65	75	
33	TAFT, SIXTH STREET		11700	85		15	6.5	12	65	75	
33	LINCOLN/10TH STREETS		11700	85		15	6.5	12	65	75	
33	MIDWAY ROAD		4400	85		15	6.5	12	65	75	
33	JCT. RTE. 58 WEST		4400	85		15	6.5	12	65	75	
33	JCT. RTE. 58 EAST		3600	85		15	6.5	12	65	75	
33	LOKERN ROAD (COUNTY ROAD P208		4800	85		15	6.5	12	65	75	
33	LOST HILLS ROAD (COUNTY ROAD P213		4600	85		15	6.5	12	65	75	
33	DEVILS DEN ROAD (BARKER ROAD)		1800	85		15	6.5	12	65	75	
33	KERN/KINGS COUNTY LINE		1800	85		15	6.5	12	65	75	
41	SAN LUIS OBISPO/ KERN COUNTY LINE		6500	85		15	6.5	12	65	75	

41	KERN COUNTY/KINGS COUNTY LINE	6500	85		15	6.5	12	65	75	
43	JCT. RTE. 119	6000	85		15	6.5	12	65	75	
43	JCT. RTE. 5	8400	85		15	6.5	12	65	75	
43	JCT. RTE. 58 EAST	5700	85		15	6.5	12	65	75	
43	JCT. RTE. 58 WEST	5500	85		15	6.5	12	65	75	
43	SEVENTH STANDARD ROAD	6500	85		15	6.5	12	65	75	
43	CENTRAL VALLEY HIGHWAY	9600	85		15	6.5	12	65	75	
43	SHAFTER, EAST LERDO HIGHWAY	14000	85		15	6.5	12	65	75	
43	SHAFTER, CENTRAL AVENUE	14000	85		15	6.5	12	65	75	
43	SHAFTER, SHAFTER AVENUE	14000	85		15	6.5	12	65	75	
43	FRESNO AVENUE	14000	85		15	6.5	12	65	75	
43	WASCO AVENUE	10400	85		15	6.5	12	65	75	
43	WASCO, POSO AVENUE	10000	85		15	6.5	12	65	75	
43	JCT. RTE. 46	5900	85		15	6.5	12	65	75	
43	POND ROAD	3300	85		15	6.5	12	65	75	
43	KERNELL, GARCES HIGHWAY	3100	85		15	6.5	12	65	75	
43	KERN/TULARE COUNTY LINE	2700	85		15	6.5	12	65	75	
46	SAN LUIS OBISPO/KERN COUNTY LINE	5900	85		15	6.5	12	65	75	
46	KECKS CORNER, COALINGA ROAD	6800	85		15	6.5	12	65	75	
46	BLACKWELLS CORNER, JCT. RTE. 3	6800	85		15	6.5	12	65	75	
46	BROWN MATERIAL ROAD	7900	85		15	6.5	12	65	75	
46	WARREN DRIVE	10100	85		15	6.5	12	65	75	
46	JCT. RTE. 5	10200	85		15	6.5	12	65	75	
46	BUFORD STREET	6100	85		15	6.5	12	65	75	
46	CORCORAN ROAD	5800	85		15	6.5	12	65	75	
46	ROWLEE ROAD	9000	85		15	6.5	12	65	75	
46	WASCO, PALM AVENUE	18400	85		15	6.5	12	65	75	
46	WASCO, JCT. RTE. 43 SOUTH	12000	85		15	6.5	12	65	75	
46	WASCO, JCT. RTE. 43 NORTH	12000	85		15	6.5	12	65	75	
46	SMITH AVENUE	9700	85		15	6.5	12	65	75	
46	FAMOSO, JCT. RTE. 99	7200	85		15	6.5	12	65	75	
58	SAN LUIS OBISPO/KERN COUNTY LINE	350	85		15	6.5	12	65	75	
58	KER/SLO CO LINE	350	85		15	6.5	12	65	75	
58	SLO/KER CO LINE	350	85		15	6.5	12	65	75	
58	REWARD ROAD (ROAD 230)	620	85		15	6.5	12	65	75	
58	JCT. RTE. 33	2550	85		15	6.5	12	65	75	
58	LOKERN ROAD	5700	85		15	6.5	12	65	75	
58	CORN CAMP ROAD	5900	85		15	6.5	12	65	75	
58	BUTTONWILLOW AVENUE	6800	85		15	6.5	12	65	75	
58	WASCO WAY (ROAD 267)	7200	85		15	6.5	12	65	75	
58	SOUTHBOUND I-5 RAMPS	15000	85		15	6.5	12	65	75	
58	TRACY AVENUE	9700	85		15	6.5	12	65	75	
58	JCT. RTE. 43	7700	85		15	6.5	12	65	75	
58	BAKERSFIELD, REAL ROAD	49500	85		15	6.5	12	65	75	
58	BAKERSFIELD, SOUTH JCT. RTE. 99	79000	85		15	6.5	12	65	75	
58	H STREET	79000	85		15	6.5	12	65	75	
58	SOUTH CHESTER AVENUE	81000	85		15	6.5	12	65	75	
58	SOUTH UNION AVENUE	81000	85		15	6.5	12	65	75	
58	COTTONWOOD ROAD	78000	85		15	6.5	12	65	75	
58	MT. VERNON AVENUE	76000	85		15	6.5	12	65	75	
58	OSWELL STREET	63000	85		15	6.5	12	65	75	
58	FAIRFAX ROAD	52000	85		15	6.5	12	65	75	
58	JCT. RTE. 184	40500	85		15	6.5	12	65	75	
58	EDISON ROAD	27500	85		15	6.5	12	65	75	
58	COMANCHE DRIVE	25500	85		15	6.5	12	65	75	

58	TOWER LINE ROAD	21100	85		15	6.5	12	65	75	
58	GENERAL BEALE ROAD	20300	85		15	6.5	12	65	75	
58	JCT RTE 223	20100	85		15	6.5	12	65	75	
58	BEAR MOUNTAIN RANCH	22000	85		15	6.5	12	65	75	
58	JCT. RTE. 202 SOUTHWEST	20700	85		15	6.5	12	65	75	
58	TEHACHAPI, MILL STREET	20700	85		15	6.5	12	65	75	
58	SUMMIT	20500	85		15	6.5	12	65	75	
58	SAND CANYON OH	20100	85		15	6.5	12	65	75	
58	CAMERON ROAD	20000	85		15	6.5	12	65	75	
58	RANDSBURG CUT-OFF ROAD	19600	85		15	6.5	12	65	75	
58	BUSINESS 58	19900	85		15	6.5	12	65	75	
58	JCT. RTE. 14	14050	85		15	6.5	12	65	75	
58	BUSINESS 58 OC	17000	85		15	6.5	12	65	75	
58	CALIFORNIA CITY BOULEVARD	17000	85		15	6.5	12	65	75	
58	EDWARDS (MUROC ROAD)	17000	85		15	6.5	12	65	75	
58	CLAY MINE ROAD	15700	85		15	6.5	12	65	75	
58	BORON AVENUE	14800	85		15	6.5	12	65	75	
58	KERN/SAN BERNARDINO COUNTY LINE	13500	85		15	6.5	12	65	75	
65	JCT. RTE. 99	15300	85		15	6.5	12	65	75	
65	JAMES ROAD	14300	85		15	6.5	12	65	75	
65	LERDO HIGHWAY	14300	85		15	6.5	12	65	75	
65	WOODY/FAMOSO ROAD	9400	85		15	6.5	12	65	75	
65	JCT. RTE. 155	8100	85		15	6.5	12	65	75	
65	KERN/TULARE COUNTY LINE	8100	85		15	6.5	12	65	75	
99	JCT. RTE. 5	38500	80		20	5	17.6	65	75	
99	METTLER, JCT. RTE. 166 WEST	40500	80		20	5	17.6	65	75	
99	DAVID ROAD	43000	80		20	5	17.6	65	75	
99	OLD U. S. 99 (SO. END BAKERSFIELD BYPASS	43500	80		20	5	17.6	65	75	
99	JCT. RTE. 223 EAST	47500	80		20	5	17.6	65	75	
99	HOUGHTON ROAD	50000	80		20	5	17.6	65	75	
99	JCT. RTE. 119 WEST	60000	80		20	5	17.6	65	75	
99	PANAMA LANE	88000	80		20	5	17.6	65	75	
99	BAKERSFIELD, WHITE LANE	114000	80		20	5	17.6	65	75	
99	BAKERSFIELD, MING AVENUE	114000	80		20	5	17.6	65	75	
99	JCT. RTE. 58 EAST	140000	80		20	5	17.6	65	75	
99	BAKERSFIELD, CALIFORNIA AVENUE	143000	80		20	5	17.6	65	75	
99	JCT. RTE. 58 WEST, JCT. RTE. 178 EAST	143000	80		20	5	17.6	65	75	
99	BUCK OWENS BOULEVARD	111000	80		20	5	17.6	65	75	
99	JCT. RTE. 204/AIRPORT DRIVE	111000	80		20	5	17.6	65	75	
99	OLIVE DRIVE	106000	80		20	5	17.6	65	75	
99	OIL JUNCTION	80000	80		20	5	17.6	65	75	
99	JCT. RTE. 65	80000	80		20	5	17.6	65	75	
99	SEVENTH STANDARD ROAD	65000	80		20	5	17.6	65	75	
99	CAWELO, LERDO HIGHWAY	65000	80		20	5	17.6	65	75	
99	MERCED AVENUE	58000	80		20	5	17.6	65	75	
99	KIMBERLINA ROAD	58000	80		20	5	17.6	65	75	
99	JCT. RTE. 46	56000	80		20	5	17.6	65	75	
99	WHISLER ROAD	52000	80		20	5	17.6	65	75	
99	MC FARLAND, SHERWOOD AVENUE	52000	80		20	5	17.6	65	75	
99	MC FARLAND, PERKINS AVENUE	52000	80		20	5	17.6	65	75	
99	MC FARLAND, ELMO HIGHWAY	54000	80		20	5	17.6	65	75	
99	POND ROAD	54000	80		20	5	17.6	65	75	
99	WOOLOMES AVENUE	54000	80		20	5	17.6	65	75	
99	DELANO, JCT. RTE. 155	47500	80		20	5	17.6	65	75	
99	DELANO, 13TH AVENUE	47000	80		20	5	17.6	65	75	

99	DELANO, CECIL AVENUE	47000	80		20	5	17.6	65	75	
99	KER/TUL CO LINE (DELANO, NORTH CITY LIM	47000	80		20	5	17.6	65	75	
119	TAFT, JCT. RTE. 33	4500	85		15	6.5	12	65	75	
119	TAFT, EAST KERN STREET	5000	85		15	6.5	12	65	75	
119	TAFT, SECOND STREET	5400	85		15	6.5	12	65	75	
119	HARRISON STREET	7000	85		15	6.5	12	65	75	
119	TUPMAN ROAD	13700	85		15	6.5	12	65	75	
119	JCT. RTE. 43 NORTH	11800	85		15	6.5	12	65	75	
119	JCT. RTE. 5	7500	85		15	6.5	12	65	75	
119	BUENA VISTA ROAD	8000	85		15	6.5	12	65	75	
119	EAST LIMITS OLD RIVER	9300	85		15	6.5	12	65	75	
119	WIBLE ROAD	11200	85		15	6.5	12	65	75	
119	JCT. RTE. 99	11200	85		15	6.5	12	65	75	
155	DELANO, FREMONT STREET/9th AVE/NB RTE 9	2050	85		15	6.5	12	65	75	
155	DELANO, FREMONT STREET/6TH AVENUE	2150	85		15	6.5	12	65	75	
155	DELANO, ELLINGTON ST/9TH AVE RAMPS SB	3000	85		15	6.5	12	65	75	
155	DELANO, ELLINGTON ST/9TH AVE/RAMPS SB	4650	85		15	6.5	12	65	75	
155	DELANO, ELLINGTON STREET/ 4TH AVE	12700	85		15	6.5	12	65	75	
155	DELANO, JCT. RTE. 99	15500	85		15	6.5	12	65	75	
155	DELANO, HIGH STREET	15500	85		15	6.5	12	65	75	
155	DELANO, LEXINGTON AVENUE	12100	85		15	6.5	12	65	75	
155	DELANO, EAST CITY LIMITS, BROWNING ROA	4750	85		15	6.5	12	65	75	
155	ZACHARY AVENUE	2200	85		15	6.5	12	65	75	
155	FAMOSO-PORTERVILLE HIGHWAY	1600	85		15	6.5	12	65	75	
155	JCT. RTE. 65	400	85		15	6.5	12	65	75	
155	JUNCTION OLD ROUTE 155 AT WOODY ROAD	195	85		15	6.5	12	65	75	
155	GLENVILLE, GRANITE ROAD	650	85		15	6.5	12	65	75	
155	EAST LIMITS GLENVILLE	340	85		15	6.5	12	65	75	
155	ALTA SIERRA, VIA EVANS ROAD	310	85		15	6.5	12	65	75	
155	WOFFORD BOULEVARD	6300	85		15	6.5	12	65	75	
155	JUNCTION OLD ROUTE 155	6300	85		15	6.5	12	65	75	
155	JCT. RTE. 178	5800	85		15	6.5	12	65	75	
166	MARICOPA, JCT. RTE. 33	2850	85		15	6.5	12	65	75	
166	PENTLAND ROAD	2750	85		15	6.5	12	65	75	
166	OLD RIVER ROAD	5700	85		15	6.5	12	65	75	
166	JCT. RTE. 5	2500	85		15	6.5	12	65	75	
166	METTLER, JCT. RTE. 99	1800	85		15	6.5	12	65	75	
178	JCT RTE 178	1550	85		15	6.5	12	65	75	
178	BAKERSFIELD, 23RD & "O" ST	2000	85		15	6.5	12	65	75	
178	24TH & "N" ST	2000	85		15	6.5	12	65	75	
178	END WB INDEPENDENT ALIGN @24TH AND Q	2000	85		15	6.5	12	65	75	
178	BAKERSFIELD, 24TH AND Q STREET	2000	85		15	6.5	12	65	75	
178	NORTH JCT RTE 204	2000	85		15	6.5	12	65	75	
178	JCT. RTES. 99/58	52000	85		15	6.5	12	65	75	
178	BAKERSFIELD, NEAR O STREET	49600	85		15	6.5	12	65	75	
178	BAKERSFIELD, NEAR O STREET (END WB COU	49600	85		15	6.5	12	65	75	
178	BAKERSFIELD, NEAR O STREET	49600	85		15	6.5	12	65	75	
178	BAKERSFIELD, JCT. RTE. 204	54000	85		15	6.5	12	65	75	
178	BAKERSFIELD, UNION AVENUE	63000	85		15	6.5	12	65	75	
178	BAKERSFIELD, BEALE AVENUE	63000	85		15	6.5	12	65	75	
178	HALEY STREET	60500	85		15	6.5	12	65	75	
178	MOUNT VERNON AVENUE	52500	85		15	6.5	12	65	75	
178	BAKERSFIELD, OSWELL STREET	40500	85		15	6.5	12	65	75	
178	FAIRFAX ROAD	30000	85		15	6.5	12	65	75	
178	JCT. RTE. 184	16500	85		15	6.5	12	65	75	

178	COTTONWOOD CREEK	4000	85		15	6.5	12	65	75	
178	DEMOCRAT SPRINGS ROAD	4000	85		15	6.5	12	65	75	
178	CHINA GARDEN ROAD	3500	85		15	6.5	12	65	75	
178	KERN CANYON ROAD	4200	85		15	6.5	12	65	75	
178	BODFISH	4200	85		15	6.5	12	65	75	
178	JCT. RTE. 155	4200	85		15	6.5	12	65	75	
178	ISABELLA BOULEVARD	3700	85		15	6.5	12	65	75	
178	SIERRA WAY	3500	85		15	6.5	12	65	75	
178	KELSO VALLEY ROAD	3500	85		15	6.5	12	65	75	
178	JCT. RTE. 14	2200	85		15	6.5	12	65	75	
178	JCT. RTE. 395	6300	85		15	6.5	12	65	75	
178	RIDGECREST, WEST CITY LIMITS	6300	85		15	6.5	12	65	75	
178	NORTH CHINA LAKE BOULEVARD	13800	85		15	6.5	12	65	75	
178	RIDGECREST BOULEVARD	19500	85		15	6.5	12	65	75	
178	RIDGECREST, RICHMOND ROAD	7000	85		15	6.5	12	65	75	
178	SAN BERNARDINO/KERN COUNTY LINE	2400	85		15	6.5	12	65	75	
184	JCT. RTE. 223	3900	85		15	6.5	12	65	75	
184	WEEDPATCH LOOP	8600	85		15	6.5	12	65	75	
184	DI GIORGIO ROAD	14600	85		15	6.5	12	65	75	
184	LAMONT, SEGRUE ROAD	18000	85		15	6.5	12	65	75	
184	LAMONT; PANAMA ROAD	16200	85		15	6.5	12	65	75	
184	PANAMA LANE	10500	85		15	6.5	12	65	75	
184	KIMBER AVENUE	19700	85		15	6.5	12	65	75	
184	JCT. RTE. 58	19700	85		15	6.5	12	65	75	
184	BRUNDAGE LANE	19700	85		15	6.5	12	65	75	
184	TEHACHAPI ROAD/ EDISON HIGHWAY	16900	85		15	6.5	12	65	75	
184	BAKERSFIELD, NILES STREET	11100	85		15	6.5	12	65	75	
184	BAKERSFIELD, JCT. RTE. 178	4500	85		15	6.5	12	65	75	
202	TEHACHAPI MENS PRISON	2400	85		15	6.5	12	65	75	
202	CUMMINGS VALLEY RD-W	8850	85		15	6.5	12	65	75	
202	OLD TOWN ROAD	9200	85		15	6.5	12	65	75	
202	WOODFORD ROAD	12750	85		15	6.5	12	65	75	
202	TUCKER ROAD	14300	85		15	6.5	12	65	75	
202	JCT. RTE. 58	12000	85		15	6.5	12	65	75	
204	BAKERSFIELD, JCT. RTE. 58	43000	85		15	6.5	12	65	75	
204	BRUNDAGE LANE	43000	85		15	6.5	12	65	75	
204	BAKERSFIELD, CALIFORNIA AVENUE	32500	85		15	6.5	12	65	75	
204	BAKERSFIELD, 21ST STREET	36000	85		15	6.5	12	65	75	
204	BAKERSFIELD, 22ND STREET	12900	85		15	6.5	12	65	75	
204	BAKERSFIELD, 24TH STREET	12900	85		15	6.5	12	65	75	
204	BAKERSFIELD, JCT. RTE. 178	26500	85		15	6.5	12	65	75	
204	BAKERSFIELD, F STREET	36500	85		15	6.5	12	65	75	
204	PIERCE ROAD INTERCHANGE	36500	85		15	6.5	12	65	75	
204	BAKERSFIELD, JCT. RTE. 99	25000	85		15	6.5	12	65	75	
223	JCT. RTE. 5	1400	85		15	6.5	12	65	75	
223	OLD RIVER ROAD	3750	85		15	6.5	12	65	75	
223	WIBLE ROAD	3850	85		15	6.5	12	65	75	
223	JCT. RTE. 99	5900	85		15	6.5	12	65	75	
223	UNION AVENUE	5950	85		15	6.5	12	65	75	
223	JCT. RTE. 184 NORTH	7050	85		15	6.5	12	65	75	
223	ARVIN, COMANCHE DRIVE	10200	85		15	6.5	12	65	75	
223	ARVIN, A STREET	10200	85		15	6.5	12	65	75	
223	ARVIN, DERBY STREET (EL TEJON HIGHWAY)	7900	85		15	6.5	12	65	75	
223	TOWERLINE ROAD	3800	85		15	6.5	12	65	75	
223	ARVIN, EAST	2000	85		15	6.5	12	65	75	

223	JCT. RTE. 58	1250	85		15	6.5	12	65	75	
395	SAN BERNARDINO/KERN COUNTY LINE	3900	85		15	6.5	12	65	75	
395	REDROCK, RANDSBURG ROAD	4200	85		15	6.5	12	65	75	
395	CHINA LAKE ROAD	4100	85		15	6.5	12	65	75	
395	JCT. RTE. 178	2850	85		15	6.5	12	65	75	
395	JCT. RTE. 14 SOUTH	5650	85		15	6.5	12	65	75	
395	KERN/INYO COUNTY LINE	5700	85		15	6.5	12	65	75	

APPENDIX D

TRAFFIC NOISE EXPOSURE

Brown-Buntin Associates, Inc
FHWA-RD-77-108
Calculation Sheets
February 16, 2015

Project #: 14-057
Description: Kern Oil and Gas
Ldn/Cnel: Ldn
Site Type: Soft

			Distance to Traffic Noise Contours			
Segment	**Roadway Name**	**Segment Description**	**60.0**	**65.0**	**70.0**	**75.0**
	5	LOS ANGELES/KERN COUNTY LINE	2288	1062	493	229
	5	LEBEC ROAD	2444	1135	527	244
	5	FORT TEJON/DIGIER ROAD	2444	1135	527	244
	5	GRAPEVINE	2444	1135	527	244
	5	WHEELER RIDGE ROAD	2444	1135	527	244
	5	JCT. RTE. 99 NORTH	2355	1093	507	236
	5	JCT. RTE. 166	1354	628	292	135
	5	OLD RIVER ROAD	1354	628	292	135
	5	JCT. RTE. 223	1383	642	298	138
	5	JCT. RTE. 119	1398	649	301	140
	5	JCT. RTE. 43	1412	656	304	141
	5	STOCKDALE ROAD	1455	676	314	146
	5	JCT. RTE. 58	1484	689	320	148
	5	7TH STANDARD ROAD	1484	689	320	148
	5	ROWLEE ROAD	1554	721	335	155
	5	LERDO AVENUE	1554	721	335	155
	5	JCT. RTE. 46	1540	715	332	154
	5	TWISSELMAN ROAD	1455	676	314	146
	5	KERN/KINGS COUNTY LINE	1441	669	310	144
	14	AVENUE A, LOS ANGELES/KERN COUNTY LINE	898	417	193	90
	14	ROSAMOND BOULEVARD	898	417	193	90
	14	SILVER QUEEN ROAD	594	276	128	59
	14	MOJAVE, SOUTH JCT. RTE. 58	619	287	133	62
	14	MOJAVE, NORTH JCT RTE 58	599	278	129	60
	14	RANDSBURG CUT-OFF,CALIF CITY/BAKERSFIELD RD	425	197	91	42
	14	RANDSBURG ROAD	307	142	66	31
	14	FREEMAN JUNCTION, JCT. RTE. 178 WEST	279	129	60	28
	14	HOMESTEAD SOUTH JCT., JCT. RTE. 178 EAST	277	128	60	28
	14	HOMESTEAD NORTH JCT., JCT. RTE. 395	185	86	40	18
	33	SAN LUIS OBISPO/KERN COUNTY LINE	191	89	41	19
	33	MARICOPA, JCT. RTE. 166 EAST	241	112	52	24
	33	COUNTY ROAD P263	279	129	60	28
	33	TAFT, JCT. RTE. 119 EAST	304	141	65	30
	33	TAFT, FIRST STREET	401	186	86	40
	33	TAFT, SIXTH STREET	485	225	104	48
	33	LINCOLN/10TH STREETS	485	225	104	48

33	MIDWAY ROAD	252	117	54	25
33	JCT. RTE. 58 WEST	252	117	54	25
33	JCT. RTE. 58 EAST	221	103	48	22
33	LOKERN ROAD (COUNTY ROAD P208)	268	124	58	27
33	LOST HILLS ROAD (COUNTY ROAD P213)	260	121	56	26
33	DEVILS DEN ROAD (BARKER ROAD)	139	65	30	14
33	KERN/KINGS COUNTY LINE	139	65	30	14
41	SAN LUIS OBISPO/ KERN COUNTY LINE	327	152	71	33
41	KERN COUNTY/KINGS COUNTY LINE	327	152	71	33
43	JCT. RTE. 119	310	144	67	31
43	JCT. RTE. 5	389	180	84	39
43	JCT. RTE. 58 EAST	300	139	65	30
43	JCT. RTE. 58 WEST	293	136	63	29
43	SEVENTH STANDARD ROAD	327	152	71	33
43	CENTRAL VALLEY HIGHWAY	425	197	91	42
43	SHAFTER, EAST LERDO HIGHWAY	546	253	118	55
43	SHAFTER, CENTRAL AVENUE	546	253	118	55
43	SHAFTER, SHAFTER AVENUE	546	253	118	55
43	FRESNO AVENUE	546	253	118	55
43	WASCO AVENUE	448	208	97	45
43	WASCO, POSO AVENUE	436	203	94	44
43	JCT. RTE. 46	307	142	66	31
43	POND ROAD	208	97	45	21
43	KERNELL, GARCES HIGHWAY	200	93	43	20
43	KERN/TULARE COUNTY LINE	182	85	39	18
46	SAN LUIS OBISPO/KERN COUNTY LINE	307	142	66	31
46	KECKS CORNER, COALINGA ROAD	337	157	73	34
46	BLACKWELLS CORNER, JCT. RTE. 33	337	157	73	34
46	BROWN MATERIAL ROAD	373	173	80	37
46	WARREN DRIVE	439	204	95	44
46	JCT. RTE. 5	442	205	95	44
46	BUFORD STREET	314	146	68	31
46	CORCORAN ROAD	304	141	65	30
46	ROWLEE ROAD	407	189	88	41
46	WASCO, PALM AVENUE	655	304	141	66
46	WASCO, JCT. RTE. 43 SOUTH	493	229	106	49
46	WASCO, JCT. RTE. 43 NORTH	493	229	106	49
46	SMITH AVENUE	428	198	92	43
46	FAMOSO, JCT. RTE. 99	351	163	76	35
58	SAN LUIS OBISPO/KERN COUNTY LINE	47	22	10	5
58	KER/SLO CO LINE	47	22	10	5
58	SLO/KER CO LINE	47	22	10	5
58	REWARD ROAD (ROAD 230)	68	32	15	7
58	JCT. RTE. 33	175	81	38	18
58	LOKERN ROAD	300	139	65	30
58	CORN CAMP ROAD	307	142	66	31
58	BUTTONWILLOW AVENUE	337	157	73	34

58	WASCO WAY (ROAD 267)	351	163	76	35
58	SOUTHBOUND I-5 RAMPS	572	265	123	57
58	TRACY AVENUE	428	198	92	43
58	JCT. RTE. 43	367	170	79	37
58	BAKERSFIELD, REAL ROAD	1268	588	273	127
58	BAKERSFIELD, SOUTH JCT. RTE. 99	1731	803	373	173
58	H STREET	1731	803	373	173
58	SOUTH CHESTER AVENUE	1760	817	379	176
58	SOUTH UNION AVENUE	1760	817	379	176
58	COTTONWOOD ROAD	1716	797	370	172
58	MT. VERNON AVENUE	1687	783	363	169
58	OSWELL STREET	1489	691	321	149
58	FAIRFAX ROAD	1310	608	282	131
58	JCT. RTE. 184	1109	515	239	111
58	EDISON ROAD	857	398	185	86
58	COMANCHE DRIVE	815	378	175	81
58	TOWER LINE ROAD	718	333	155	72
58	GENERAL BEALE ROAD	700	325	151	70
58	JCT RTE 223	695	323	150	70
58	BEAR MOUNTAIN RANCH	738	343	159	74
58	JCT. RTE. 202 SOUTHWEST	709	329	153	71
58	TEHACHAPI, MILL STREET	709	329	153	71
58	SUMMIT	704	327	152	70
58	SAND CANYON OH	695	323	150	70
58	CAMERON ROAD	693	322	149	69
58	RANDSBURG CUT-OFF ROAD	683	317	147	68
58	BUSINESS 58	690	320	149	69
58	JCT. RTE. 14	547	254	118	55
58	BUSINESS 58 OC	622	289	134	62
58	CALIFORNIA CITY BOULEVARD	622	289	134	62
58	EDWARDS (MUROC ROAD)	622	289	134	62
58	CLAY MINE ROAD	589	274	127	59
58	BORON AVENUE	567	263	122	57
58	KERN/SAN BERNARDINO COUNTY LINE	533	247	115	53
65	JCT. RTE. 99	579	269	125	58
65	JAMES ROAD	554	257	119	55
65	LERDO HIGHWAY	554	257	119	55
65	WOODY/FAMOSO ROAD	419	194	90	42
65	JCT. RTE. 155	379	176	82	38
65	KERN/TULARE COUNTY LINE	379	176	82	38
99	JCT. RTE. 5	1351	627	291	135
99	METTLER, JCT. RTE. 166 WEST	1398	649	301	140
99	DAVID ROAD	1455	675	313	145
99	OLD U. S. 99 (SO. END BAKERSFIELD BYPASS)	1466	680	316	147
99	JCT. RTE. 223 EAST	1555	722	335	155
99	HOUGHTON ROAD	1609	747	347	161
99	JCT. RTE. 119 WEST	1817	843	391	182

99	PANAMA LANE	2345	1088	505	234
99	BAKERSFIELD, WHITE LANE	2787	1293	600	279
99	BAKERSFIELD, MING AVENUE	2787	1293	600	279
99	JCT. RTE. 58 EAST	3196	1483	688	320
99	BAKERSFIELD, CALIFORNIA AVENUE	3241	1504	698	324
99	JCT. RTE. 58 WEST, JCT. RTE. 178 EAST	3241	1504	698	324
99	BUCK OWENS BOULEVARD	2738	1271	590	274
99	JCT. RTE. 204/AIRPORT DRIVE	2738	1271	590	274
99	OLIVE DRIVE	2655	1232	572	265
99	OIL JUNCTION	2201	1021	474	220
99	JCT. RTE. 65	2201	1021	474	220
99	SEVENTH STANDARD ROAD	1916	889	413	192
99	CAWELO, LERDO HIGHWAY	1916	889	413	192
99	MERCED AVENUE	1776	824	383	178
99	KIMBERLINA ROAD	1776	824	383	178
99	JCT. RTE. 46	1735	805	374	173
99	WHISLER ROAD	1651	766	356	165
99	MC FARLAND, SHERWOOD AVENUE	1651	766	356	165
99	MC FARLAND, PERKINS AVENUE	1651	766	356	165
99	MC FARLAND, ELMO HIGHWAY	1693	786	365	169
99	POND ROAD	1693	786	365	169
99	WOOLOMES AVENUE	1693	786	365	169
99	DELANO, JCT. RTE. 155	1555	722	335	155
99	DELANO, 13TH AVENUE	1544	716	333	154
99	DELANO, CECIL AVENUE	1544	716	333	154
99	KER/TUL CO LINE (DELANO, NORTH CITY LIMITS)	1544	716	333	154
119	TAFT, JCT. RTE. 33	256	119	55	26
119	TAFT, EAST KERN STREET	275	128	59	27
119	TAFT, SECOND STREET	289	134	62	29
119	HARRISON STREET	344	160	74	34
119	TUPMAN ROAD	538	250	116	54
119	JCT. RTE. 43 NORTH	487	226	105	49
119	JCT. RTE. 5	360	167	78	36
119	BUENA VISTA ROAD	376	175	81	38
119	EAST LIMITS OLD RIVER	416	193	90	42
119	WIBLE ROAD	471	218	101	47
119	JCT. RTE. 99	471	218	101	47
155	DELANO, FREMONT STREET/9th AVE/NB RTE 99	152	70	33	15
155	DELANO, FREMONT STREET/6TH AVENUE	157	73	34	16
155	DELANO, ELLINGTON ST/9TH AVE RAMPS SB RTE 99	196	91	42	20
155	DELANO, ELLINGTON ST/9TH AVE/RAMPS SB RTE 99	262	122	56	26
155	DELANO, ELLINGTON STREET/ 4TH AVE	512	238	110	51
155	DELANO, JCT. RTE. 99	584	271	126	58
155	DELANO, HIGH STREET	584	271	126	58
155	DELANO, LEXINGTON AVENUE	496	230	107	50
155	DELANO, EAST CITY LIMITS, BROWNING ROAD	266	123	57	27
155	ZACHARY AVENUE	159	74	34	16

155	FAMOSO-PORTERVILLE HIGHWAY	129	60	28	13
155	JCT. RTE. 65	51	24	11	5
155	JUNCTION OLD ROUTE 155 AT WOODY ROAD	32	15	7	3
155	GLENVILLE, GRANITE ROAD	71	33	15	7
155	EAST LIMITS GLENVILLE	46	21	10	5
155	ALTA SIERRA, VIA EVANS ROAD	43	20	9	4
155	WOFFORD BOULEVARD	321	149	69	32
155	JUNCTION OLD ROUTE 155	321	149	69	32
155	JCT. RTE. 178	304	141	65	30
166	MARICOPA, JCT. RTE. 33	189	88	41	19
166	PENTLAND ROAD	185	86	40	18
166	OLD RIVER ROAD	300	139	65	30
166	JCT. RTE. 5	173	80	37	17
166	METTLER, JCT. RTE. 99	139	65	30	14
178	JCT RTE 178	126	58	27	13
178	BAKERSFIELD, 23RD & "O" ST	149	69	32	15
178	24TH & "N" ST	149	69	32	15
178	END WB INDEPENDENT ALIGN @24TH AND Q ST	149	69	32	15
178	BAKERSFIELD, 24TH AND Q STREET	149	69	32	15
178	NORTH JCT RTE 204	149	69	32	15
178	JCT. RTES. 99/58	1310	608	282	131
178	BAKERSFIELD, NEAR O STREET	1269	589	273	127
178	BAKERSFIELD, NEAR O STREET (END WB COUPLET)	1269	589	273	127
178	BAKERSFIELD, NEAR O STREET	1269	589	273	127
178	BAKERSFIELD, JCT. RTE. 204	1343	623	289	134
178	BAKERSFIELD, UNION AVENUE	1489	691	321	149
178	BAKERSFIELD, BEALE AVENUE	1489	691	321	149
178	HALEY STREET	1449	673	312	145
178	MOUNT VERNON AVENUE	1318	612	284	132
178	BAKERSFIELD, OSWELL STREET	1109	515	239	111
178	FAIRFAX ROAD	908	421	196	91
178	JCT. RTE. 184	609	283	131	61
178	COTTONWOOD CREEK	237	110	51	24
178	DEMOCRAT SPRINGS ROAD	237	110	51	24
178	CHINA GARDEN ROAD	217	101	47	22
178	KERN CANYON ROAD	245	114	53	24
178	BODFISH	245	114	53	24
178	JCT. RTE. 155	245	114	53	24
178	ISABELLA BOULEVARD	225	104	48	22
178	SIERRA WAY	217	101	47	22
178	KELSO VALLEY ROAD	217	101	47	22
178	JCT. RTE. 14	159	74	34	16
178	JCT. RTE. 395	321	149	69	32
178	RIDGECREST, WEST CITY LIMITS	321	149	69	32
178	NORTH CHINA LAKE BOULEVARD	541	251	117	54
178	RIDGECREST BOULEVARD	681	316	147	68
178	RIDGECREST, RICHMOND ROAD	344	160	74	34

178	SAN BERNARDINO/KERN COUNTY LINE	169	78	36	17
184	JCT. RTE. 223	233	108	50	23
184	WEEDPATCH LOOP	395	183	85	39
184	DI GIORGIO ROAD	562	261	121	56
184	LAMONT, SEGRUE ROAD	646	300	139	65
184	LAMONT; PANAMA ROAD	602	279	130	60
184	PANAMA LANE	451	209	97	45
184	KIMBER AVENUE	686	318	148	69
184	JCT. RTE. 58	686	318	148	69
184	BRUNDAGE LANE	686	318	148	69
184	TEHACHAPI ROAD/ EDISON HIGHWAY	619	287	133	62
184	BAKERSFIELD, NILES STREET	468	217	101	47
184	BAKERSFIELD, JCT. RTE. 178	256	119	55	26
202	TEHACHAPI MENS PRISON	169	78	36	17
202	CUMMINGS VALLEY RD-W	402	187	87	40
202	OLD TOWN ROAD	413	192	89	41
202	WOODFORD ROAD	513	238	111	51
202	TUCKER ROAD	554	257	119	55
202	JCT. RTE. 58	493	229	106	49
204	BAKERSFIELD, JCT. RTE. 58	1154	536	249	115
204	BRUNDAGE LANE	1154	536	249	115
204	BAKERSFIELD, CALIFORNIA AVENUE	957	444	206	96
204	BAKERSFIELD, 21ST STREET	1025	476	221	103
204	BAKERSFIELD, 22ND STREET	517	240	111	52
204	BAKERSFIELD, 24TH STREET	517	240	111	52
204	BAKERSFIELD, JCT. RTE. 178	836	388	180	84
204	BAKERSFIELD, F STREET	1035	480	223	103
204	PIERCE ROAD INTERCHANGE	1035	480	223	103
204	BAKERSFIELD, JCT. RTE. 99	804	373	173	80
223	JCT. RTE. 5	118	55	25	12
223	OLD RIVER ROAD	227	105	49	23
223	WIBLE ROAD	231	107	50	23
223	JCT. RTE. 99	307	142	66	31
223	UNION AVENUE	309	143	67	31
223	JCT. RTE. 184 NORTH	346	160	74	35
223	ARVIN, COMANCHE DRIVE	442	205	95	44
223	ARVIN, A STREET	442	205	95	44
223	ARVIN, DERBY STREET (EL TEJON HIGHWAY)	373	173	80	37
223	TOWERLINE ROAD	229	106	49	23
223	ARVIN, EAST	149	69	32	15
223	JCT. RTE. 58	109	51	24	11
395	SAN BERNARDINO/KERN COUNTY LINE	233	108	50	23
395	REDROCK, RANDSBURG ROAD	245	114	53	24
395	CHINA LAKE ROAD	241	112	52	24
395	JCT. RTE. 178	189	88	41	19
395	JCT. RTE. 14 SOUTH	298	138	64	30
395	KERN/INYO COUNTY LINE	300	139	65	30

Appendix V-2

Vibration Assessment Report

This page intentionally left blank.

CALIFORNIA RESOURCES CORPORATION

September 19, 2015

Chris Mynk
Supervising Planner – Permit Assistance Center
Planning and Community Development Department
County of Kern
2700 M Street
Bakersfield, CA 93301

Re: Geophysical Surveys and Vibration

Dear Mr. Mynk:

Your question regarding vibration from energy sources used in geophysical surveys was referred to me. This letter will explain the types of technology used in conducting the surveys, how we choose which technology to use, and how we manage the surveys to avoid damage to structures or annoyance to people.

By way of background, I am the Chief Geophysicist for California Resources Corporation. In this and previous capacities, I have been responsible for designing, conducting and interpreting the results of geophysical surveys for nearly 35 years. Over the past nine years this effort has been entirely in California where I've been involved with the project management of approximately 1200 square miles of three-dimensional geophysical surveys and another 115 miles of two-dimensional geophysical surveys in Kern County and other parts of the Central Valley. My previous 25 years of experience include similar work in West Texas, New Mexico, Utah, Oklahoma, Wyoming, each with diverse terrains and special situations. Attachment 1 is a copy of my resume.

Purpose of Geophysical Surveys

Oil is found underground in a limited number of rock types. It is usually trapped by geologic formations such as faults or anticlines comprised of impermeable cap rock. The oil bearing formations are typically thousands of feet beneath the surface, so studying surface geology gives very limited information about the oil-bearing potential of an area. Geophysical surveys are used to provide a picture of the geological structuring and layering. This information helps a geologist determine the potential extent of natural gas and oil reserves present, and whether such resources warrant development of additional production.

Geophysical Survey Technologies

Geophysical surveys use low-frequency sound waves. The sound waves are generated by one of two primary means, Vibroseis or shot hole.

The Vibroseis technique utilizes truck-mounted machines to generate vibrations. The Vibroseis trucks are positioned at the source-generation point, a steel plate is lowered from the undercarriage of the vehicle until it rests on the ground, the weight of the vehicle is shifted to the steel plate, and then a vibratory pulse is transmitted through the it to the Earth in order to generate the sound waves. Typically four trucks are utilized in line. The Vibroseis units weigh 63,000 lbs. The drive level refers to the percentage of the weight of the truck that is resting on the steel plate, 70% being a maximum. Less weight generates less force.

For the shot hole method, an explosive charge is detonated at the bottom of a hole. The explosive material is specially designed and manufactured for the geophysical industry. Shot holes are drilled with a rotary drill in areas inaccessible to the Vibroseis trucks such as mountainous or hilly back-country or cultivated farmland. Shot holes vary in depth from 30-50 feet, typically with a diameter of 4 inches, although this can vary slightly depending on drill type. Explosive charges are placed at the bottom of the holes, back-filled with cuttings and bentonite, and detonated during recording to generate seismic waves directed down into the Earth. Typically, the size of the charge ranges from 5 to 20 pounds. The shot holes are typically 110 to 1320 feet apart.

While the Vibroseis and shot hole methods provide the source of energy to generate seismic waves, both methods require the deployment of geophones to record the minute reflected energy that bounces off the deep formations

thousands of feet below the surface. These geophones are positioned in a grid over the survey area. Geophones are increasingly self-contained units that not only detect the seismic reflections coming from deep below, but also record and store the data. These self-contained units are called nodes and require no cables or recording trucks. Older recording systems use small geophones connected by cables, much like strings of Christmas lights that eventually plug into a recording truck (seismograph). The seismic waves travel through the rock and eventually some of the energy bounces back. The grid of geophone detectors receive and record this energy from many hundreds of thousands of subsurface points. How the seismic waves are reflected back to the surface varies depending on the type of rock and its depth and structural position, i.e. if it's steeply dipping, faulted, or flat-lying. The data is processed to generate a three dimensional image of the earth typically from about 1,000 to 20,000 feet deep, and the geoscience team interprets the data to determine the underlying geology.

Regardless of which method is used, the sounds waves are generated for only brief periods. A Vibroseis unit typically operates for only two to five minutes at a location, and during this time the unit alternates between signal generation and listening. For the shot hole method, the detonation of charges is nearly instantaneous.

Vibration, also called ground motion, is measured as peak particle velocity (PPV, inches/second). Because geophysical surveys are designed to create vibrational or impulsive energy for the purpose of obtaining reflections from deep rock layers, the energy sources for both Vibroseis and shot hole methods are designed to direct energy downward rather than up and out. In fact, energy that goes up or out interferes with collection and interpretation of the reflection data from deeper geology. Accordingly, geophysical surveys are designed to result in relatively low PPV levels even at reasonably close surface proximity.

Selection of Geophysical Survey Technology for a Particular Site

The Vibroseis method is preferred, however it may be infeasible or inappropriate in certain circumstances. The shot hole method is required in areas of steep terrain where the specialized Vibroseis-equipped truck cannot operate safely. Also, in agricultural areas, farmers may indicate a preference for the shot hole method, for example, in orchards where low branches cannot accommodate Vibroseis units, or in tilled fields where the truck tires and pads would crush crops or disturb furrows.

Regulatory and Industry Standards

Geophysical surveys are conducted in a vast array of environments from tropical jungles to the Arctic, from deep sea to transitional coastal environments. In the United States, operators generally rely on the U.S. Bureau of Mines (USBM) in Report of Investigations 8507 (November 1980) and the Blasting Guidance Manual (1987) of the U.S. Department of Interior Office of Surface Mining Reclamation and Enforcement in determining the charges to be used in proximity to different receptors and structures. Geophysical surveys for oil and gas development are not directly regulated by the Bureau of Mines or the Office of Surface Mining Reclamation and Enforcement. However, operators routinely refer to the research done by these agencies in designing geophysical surveys, and use the Blasting Guidance Manual to determine stand-off distances. (The stand-off distance means the buffer distance between the source generating the sound wave and a structure or other item - e.g., a water well - in the vicinity that will ensure the structure is not damaged by the vibration.)

According to the Blasting Guidance Manual, velocities as low as 0.50 in/sec may cause threshold damage to brittle materials such as lath and plaster that may be found in older structures, while threshold damage may occur to newer construction materials such as drywall used in interior walls starting at PPV of 0.75 in/sec. Threshold damage is defined by the Bureau of Mines as the loosening of paint, small plaster cracks at joints between construction elements or the lengthening of old plaster cracks. The load bearing or other structural portions of a house normally can experience considerably higher velocities without damage. Similar thresholds are summarized in the California Department of Transportation Vibration Guidance Manual, September 2013.

The Bureau of Mines and Office of Surface Mining Reclamation and Enforcement testing and conclusions are summarized in Attachment 2, which is a report by Matheson Mining Consultants entitled *Utilizing Peak Particle Velocities to Develop Seismic Offset Distances*, published in the Denver Geological Society's monthly publication,

explained above, California Resources Corporation would not use these standoff distances. When working around engineered structures we follow the USBM and OSMRE guidelines.

For the purpose of the Environmental Impact Report and the vibration level for ministerial permitting purposes, I would recommend using the following minimum PPV tolerance limits or stand-off distances:

Energy Source	**Protected Structures**	**PPV Not to Exceed at Protected Structure**	**Stand-off Distance**
Vibroseis	Occupied buildings, water wells, sewer systems, septic tanks, etc.	0.50 in/sec.	150 feet
Shothole	Occupied buildings, water wells, sewer systems, septic tanks, etc.	0.50 in/sec.	300 feet

In response to the comment letter from Pacific Ag Management, dated September 11, 2015: The recommended stand-off distances in the table above **should not** be understood to state that the PPV value is 0.5 in/sec. at 150 ft for Vibroseis or 300 ft for shot-hole. In fact, the PPV values for these energy sources at these stand-off distances are considerably lower and can be derived from the attached reports. We use these stand-off distances because they provide an extra level of protection **above and beyond the USBM and OSMRE guidelines**, and because these are specific numbers that would protect in all situations required for ministerial permitting purposes.

Sincerely,



Cynthia E. Black, Chief Geophysicist
California Resources Corporation
10800 Stockdale Highway
Bakersfield, CA 93311
661-412-5036
cynthia.black@crc.com

Attachment 1

RESUME

CYNTHIA E. BLACK
11524 Indian Hawthorne St.
Bakersfield, CA 93311
Work: (661)412-5036 Cell: (661)343-7328 Email: cynthia.black@crc.com

34 years of successfully managing all phases of geophysical projects from acquisition, processing to final interpretation within exploration, production and exploitation settings in various basins and plays: San Joaquin, Sacramento, Los Angeles, Permian, Anadarko, Paradox, Rockies Overthrust Belt; Geophysical prospector and technical lead

Strengths & Skills

- Seismic Acquisition field management in difficult acquisition and permitting scenarios
- Solid interpretation skills with 2D, 3D, VSP geophysical data & well logs
- Solid geological background
- Peak particle motion studies acquisition, management, and interpretation
- Downhole microseismic – frac mapping and reservoir monitoring
- Interpretation of a variety of structural styles from seismic & wells
- Sequence stratigraphy-based interpretation & close integration of well control
- 2D zero-offset modeling to characterize reservoir problems
- Seismic attribute analysis to evaluate reservoir character (primarily, but not exclusively, amplitude)
- Play analysis, risking of plays and prospects using probabilistic techniques, e.g. Pete Rose
- Workstation interpretation software experience: Landmark suite products, and others
- Many years of working with paper sections 2D CDP and single fold
- Deal-screening; asset evaluation; deal selling
- Strong presentation and communication skills
- Strong people skills
- Industry network & many years working with local SEG-affiliated geophysical societies

Employment & Education History

2014 Dec – date	**California Resources Corporation**, Chief Geophysicist, California (Oxy spin-off)
2009 Sep - 2014	**Occidental Oil & Gas Corp.**, Chief Geophysicist, California
2007 Jan – 2009	**Occidental of Elk Hills, Inc**., Chief Geophysicist, Elk Hills
2005 Feb - 2007	**Oxy Permian** (Occidental Petroleum Corp.), Sr. Geophysical Advisor
2001 Mar - 2005	**Digital Prospectors**, Geophysicist/**Consultant (multiple clients)**
1998 Feb - 2001	**Burlington Resources, Inc.**, Mid-Continent Div., Midland, TX, Geophysical Advisor
1995 Sep - 1998	**Arco Permian**, Midland, TX, Sr. Staff Geophysicist
1987 Aug - 1995	**Exxon Co., U.S.A**., Production Department, Midland, TX, Sr. Petroleum Geophysicist
1982 Dec - 1987	**Exxon Co., U.S.A**., Exploration Department, Midland, TX, Sr. Geophysicist
1981 - 1982	**M.Sc. (Geology) – Texas A&M University** – Prof. Robert R. Berg, advisor (thesis: Environment of Deposition and Reservoir Facies of the Taylor "B" Sandstone, Cotton Valley Group (U. Jurassic), Kildare Field, Cass Co., TX (cores & logs)
1981 – 1982	**Texas A&M University** – Teaching Assistantship for undergraduate Mineralogy & Microscopy; Field Camp
1977 - 1980	**B.Sc. (Hons., I, Geology & Mineralogy) – Aberdeen University**, Scotland
1979 - 1980	**British Geological Survey** – combined 3 months summer work over 2 years – geochemical sampling & site description
1978 – 1980	**Aberdeen University**, Scotland – Demonstrator in numerous 1st, 2nd, and 3rd year labs for Introductory, Intermediate and Advanced Historical, Mineralogy, Igneous, Metamorphic and Sedimentary Petrology Fall 1978 through Spring 1980
1975 - 1977	**Temple University**, Philadelphia (**Geology major**)
1983 – date	Numerous continuing education courses within Exxon, Arco, BR, Oxy, as well as annual symposia for AAPG, SEG, GCAGS (published thesis), PBGS, and minor publications

Work Highlights

9/09 – date **California – San Joaquin Basin/Elk Hills, VPC, THUMS/LBU**

- Rio Lobo 3D (Kettleman North Dome) – 200 mi2 – project management, i.e. planning, approval, contracts, field coordination, permit compliance, processing, etc. (2014-2015)

- Re-vamp 3D in Long Beach – reprocess Thums and 3DVSP, License Signal Hill's 3D over Townlot and Pico; interpret
- Tulainyo 2D – 115 mi – project management
- Antelope Valley 3D – 113 mi2 – project management
- Jacalito 3D – 512 mi2 - project management 09/09 – 06/11
- Belgian Anticline 3D – 65 mi2 – coordinate with operating partner (2010)
- Moco 3D – 96 mi2 – project management & partner coordination 08/09 – 06/11
- Numerous processing & reprocessing projects in extremely difficult data – QC
- Mentoring younger geophysicists and interns
- Oversight various smaller projects; foster geophysical community through regular Geophysical Round Tables
- Project definition, resource allocation, negotiating contracts, working with Supply Chain, Land, Regulatory, Legal
- Budget management
- Some, but not enough interpretation

1/07 – 9/09 **California – San Joaquin Basin/Elk Hills, THUMS/LBU**

- Mentoring/training young career geophysicists and/or interpreters
- Geophysical resource allocation
- Prospecting & interpretation in/around Elk Hills Field
- Passive microseismic reservoir monitoring (Monterey Shale during CO2 injection)
- Zero-offset VSP Acquisition & Interpretation
- Planning & managing 200 mi2 Buena Vista 3D acquisition

3/01 – 1/07 **Permian Basin 3D projects** (consulting for many operators, esp. Oxy, CrownQuest)

- Prospecting throughout Oxy acreage in Delaware (Texas) and Midland basins generating numerous prospects
- Would Have (Clearfork) – Inversion work to image porosity in Clearfork limestone detrital play (used to pick key updip location)
- Howard Co. Canyon play – active exploration/prospect generation
- Winkler Co. – Keystone South (picked #441 location), Flying W, Jasper area
- SE New Mexico: Morrow play; deep structural work on platform edge Pecos Valley/Southern Platform: Detrital chert play in Canyon
- NW Shelf: Clearfork play; Fusselman play; Horseshoe Atoll/Scurry Reef (Diamond M Unit)
- Delaware Basin: Wolfcamp detrital play (Reeves Co.)
- Central Basin Platform: Clearfork detrital play; Wolfcamp reef play
- Midland Basin/Eastern Shelf: Clearfork/Wolfcamp/Pennsylvanian plays
- Tatum Basin, Trinity Field – Wolfcamp play – stratigraphic detection of porosity: use RAVE to correlate seismic attributes to PhiH – 100% success rate in finding porosity and oil

Maverick Basin 3D project (consulting for Conoco)

- Rodessa reef play (Glen Rose); Pearsall Shale

Anadarko Basin/Texas Panhandle (consulting for numerous operators)

- Structural/stratigraphic work in Arbuckle & Granite Washes adjacent to Panhandle Field

2/98 – 2/01 **Anadarko Basin** (for Burlington Resources)

- Washita & Beckham Co.'s, OK - Springer/Morrow, Atoka, Redfork, Granite Wash; multiple prospects generated, one exploratory success in the Atoka, numerous in-field proposals within Elk City Field (basin-centered deep gas) & exploitation prospects generated (one became a major discovery by another operator)
- 250 mi2 of 3D seismic interpreted along with about 1000 mi. of 2D; responsible for project management of 150 mi2 of 3D acquisition (BR's Cordell Anticline 3D)
- Play analysis (Pete Rose techniques/software) and asset evaluation

9/95 – 1/98 **Permian Basin – Valverde basin, southern Central Basin Platform, Delaware basin, Eastern Shelf** for Arco Permian (primarily 3D work; scattered 2D work)

- Prospect generation throughout the southern Midland Basin with detailed work within the Brown Bassett, Benedum, Coyanosa, Waha fields. Extensive experience in Wolfcamp and Strawn plays in Upton and Crockett Co.'s; horizontal Devonian play in Midland Co., and the Parks-Pegasus area; Strawn, Montoya, Devonian and Delaware horizontal plays; Fusselman, Ellenburger, Wolfcamp gas plays; early involvement in Montoya fracture play at Waha field
- Project management of acquisition through interpretation of a number of 3D surveys as well as reprocessing of numerous other vintage 3D's

8/87 – 9/95 **Wyoming Overthrust Trend, Powder River, Williston, Denver, Paradox, & Permian Basins (3D & 2D work) – with Exxon Co., USA Production Department**

- Cordona Lake (Devonian subcrop) field – project management of 3D; initial interpretation to optimize CO2 flood and primary drilling and production
- Collett Creek and Bridger Fork fields in Wyoming Overthrust (Bighorn) – remapping a complex subthrust "pillow" play and identifying reservoir heterogeneity using stratigraphic modeling – using 2D – managed 2D acquisition
- Silo field, Wyoming (horizontal Niobrara) – guiding horizontal drill wells w/ 2D – partnered for new 2D acquisition
- Cane Creek play (horizontal Cane Creek), Paradox Basin, Utah: identifying drilling opportunities, guiding horizontal drill wells; and specifically picked location for the Kane Springs Fed. 1-10 (IP >700 BOPD), completed for 325 BO/.8 MMCF per day; managed 2D acquisition
- Williston, Wind River and Powder River basins; Delaware basin fields such as Gomez, Haley Ut., SE New Mexico

12/82 – 8/87 **Exploration (2D only) – with Exxon Co., USA**

- SE New Mexico (Morrow, Delaware)
- Andrews Co., Texas (detailed structural mapping)
- Midland Basin (stratigraphic work)

Scholarships/Awards

1977	Recipient of Andrew Mutch Scholarship for one-year's study in Scotland presented by the St. Andrews Society of Philadelphia
1979	Recipient of Andrew Carnegie Scholarship at Aberdeen (merit-based)
1981	Recipient of ARCO Scholarship to cover all graduate studies at A&M University

Society Memberships & Activity

2004-2005	President – Permian Basin Geophysical Society
2003-2004	President-Elect - Permian Basin Geophysical Society (but worked as President)
2002-2003	Vice-President – Permian Basin Geophysical Society
1999-2003	Secretary/Newsletter editor – Permian Basin Geophysical Society
1983-date	West Texas Geological Society – Member
2007-date	San Joaquin Geological Society – Member
2007-date	Pacific Coast Section – SEG - Member
1989-date	Society of Exploration Geophysicists – Active member (#014431)
1982-date	American Association of Petroleum Geologists – Active Member (#38113-1)

Other Interests

Travel – Scotland (1977-1980; 1984), Spain (1998), Ireland (2006)

Family - Son US Army Reserve/student, BS Computer Science, Texas State University; Daughter, MS in progress, University of AK, Fairbanks, BS Wildlife Biology, University of Montana Missoula, Blue – 14 year old Catahoula, Zoe – 11 year old Pomeranian, Taiga – 2 yr old Husky/Shepherd mix

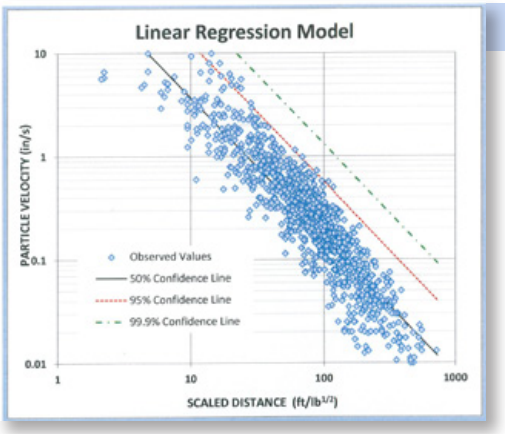
Cycling, hill-walking, camping, reading/writing, Alaska, New Mexico, travel, music

(additional info available upon request)

Attachment 2

Denver Geophysical Society

THE RECORD



SPECIAL REPORT:
Geophysical Survey
Standoff Recommendations

Commenarty By Mark L. Burgus, P.G. pages 4 - 8

VOTING IS NOW OPEN!

page 9

DGS EXECUTIVE COMMITTEE IS LOOKING FOR A FEW GOOD CANDIDATES

VICE PRESIDENT • TREASURER • SECRETARY • EDITOR

page 28

HONORARY MEMBER

Nominate Yourself Or A Deserving Individual

Honorary Members are awarded a lifetime membership!



What Are You Doing With YourCores??

page 21



page 13

COME & PLAY

2014 GEOPHYSICS *Hackathon*

Volunteer Opportunities CLICK HERE

Sponsors Needed CLICK HERE

Denver Geophysical Society

PO Box 181701 Denver, CO 80218
720-400-4567 / Fax: 303-416-4224
office@denvergeo.org

EDITOR — STEVE JENSEN
Crestone Seismic Software 719-641-2133
steven@crestoneseismic.com

GRAPHIC DESIGN — JAY MILLER
MillerInk.....720-296-7205
jaymiller@graphic-designer.com

2014 DGS OFFICERS

PRESIDENT — TIM SCHIELD
Global Geophysical.....720-279-3600
tim.schield@globalgeophysical.com

PRESIDENT ELECT — BRAD ARTMAN
Spectraseis, Inc. 303-658-9163
brad.artman@spectraseis.com

SECRETARY — SARAH GACH
Ultra Petroleum.....303-645-9838
sgach@ultrapetroleum.com

TREASURER — DAMON PARKER
Noble.....303-408-3937
dtparker827@gmail.com

PAST PRESIDENT — BRUCE KARR
FairfieldNodal Industries.....303-716-1630
bkarr@fairfieldnodal.com

PRIOR PAST PRESIDENT — STUART WRIGHT
Dawson Geophysical.....303-723-0440
wright@dawson3d.com

EXECUTIVE DIRECTOR — ASHLEY TOMPKINS
DGS.....720-400-4567
office@denvergeo.org

COMMITTEES

ADVERTISING
Information.....720-400-4567
office@denvergeo.org

3D SEISMIC SYMPOSIUM — MARY SUE PURCELL
WPX Energy .....(303) 606-4286
Mary.Purcell@wpxenergy.com

CONTINUING EDUCATION — BRUCE KARR
FairfieldNodal Industries.....303-716-1630
bkarr@fairfieldnodal.com

CONTINUING EDUCATION — STUART WRIGHT
Dawson Geophysical 720-723-0440
wright@dawson3d.com

GOLF — BRIAN PLUEMER
Information.....303-579-7598
plumbobdlr@gmail.com

GOVERNMENT AFFAIRS — LARRY IRONS
FairfieldNodal.....720-963-2102
lirons@fairfieldnodal.com

LUNCHEON PROGRAM — BRAD ARTMAN
Spectraseis, Inc.....303-658-9163
brad.artman@spectraseis.com

MEMBERSHIP — SARAH GACH
Ultra Petroleum.....303-645-9838
sgach@ultrapetroleum.com

BENEVOLENCE FUND — ASHLEY TOMPKINS
DGS Office.....720-400-4567

WEBSITE — ASHLEY TOMPKINS
DGS.....720-400-4567
office@denvergeo.org

Information for Contributors

Your editorial contributions are encouraged particularly about classes, seminars, personnel news, company news, or other items of interest to the geophysical community. All suggestions and manuscripts should be sent to the Editor, Denver Geophysical Society, PO Box 181701, Denver, CO 80218 or to the DGS website at office@denvergeo.org. Deadline for copy is the first of each month preceding publication date. We reserve the right to edit all material according to standard practices.

The opinions expressed in are solely those of the authors. They are not to be interpreted as those of the Denver Geophysical Society.

© Copyright 2014 by the Denver Geophysical Society. All rights reserved. Material may not be reproduced without written permission.

In This Record . . .

– click over any article to link directly to that page –

For The Record.....3

DGS Special Report 4-8

DGS Executive Committee Election 9

Luncheon Notice.....10-11

Luncheon Sponsor Commitment Form.....12

Geophysics Hackathon.....13

SEG Volunteer 15

Microseismic Study Group 17-18

Cores For Kids Benefit 21

DGS Executive Corner.....22-23

3D Seismic Symposium Call For Papers.....25

DGS Calendar 26-27

Expanded Event Information 28

DGS Honorary Member Form 29

DGS Volunteer Information 33

The Local Scene 35-36

DGS Executive Board Meeting Minutes.....38

DGS Website Advertising Application.....40

The Record Advertising.....41

Submitting Content

Articles to be considered for publication should be submitted at least one month before desired publication date. Notices for DGS events should be received by the 15th of the the month preceding the publication date.

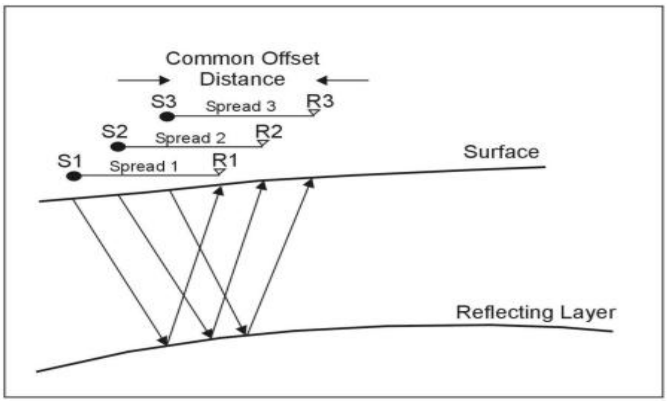
For The Record:



Draconian Rule?

Commentary
By Steve Jensen
DGS Editor

I am relinquishing my normal article this month to make room for an important report on seismic offset distances. It seems the state of Colorado is about to introduce draconian new rules on seismic offset distances from cultural objects. The following report from Mark Burgus at Matheson Mining Consultants tries to put some science behind reasonable seismic acquisition setbacks.



I encourage all geophysicists, oil companies, and seismic contractors to voice their opinion about this very important subject. We can't let others in the state or outside our state attempt to dictate our ability to collect seismic data in Colorado.

Please read Mark's report on seismic offset distances. We need to discuss this in the geophysical community as soon as possible. After we come together on this as a professional group, we can help advise Colorado on reasonable offset distances when collecting seismic data.

Lance Moreland
Business Development Director
neos GEOSOLUTIONS
Denver GeoCenter
143 Union Boulevard, Suite 200
Lakewood, CO 80228
Direct +1 303.953.7618
Cell +1 720.376.6065
lmoreland@neosgeo.com
neosgeo.com

Ubiterra Corporation
UbiSeis™ Cloud for Seismic
303 E. 17th Ave. , Ste. 325
Denver, CO 80203
Office: 303-629-8330
Mobile: 303-564-7580
kencinas@ubitarra.com
Kyrie Encinas
VP of Sales
www.ubiterra.com

PARAGON
GEOPHYSICAL SERVICES, INC
JOHN H. BEURY III
(316) 636-5552 • FAX (316) 636-5572 • Cell (316) 640-3850
3500 N. Rock Rd., Bldg. 800, Suite B • Wichita, Kansas 67226
paragon@paragongeo.com

STERLING
SEISMIC SERVICES LTD.
Jeff Omvig
PRESIDENT, COO
jomvig@sterlingseismic.com
8122 Southpark Lane, Suite 207
Littleton, Colorado 80120
Tel: 303.347.9011
Fax: 303.347.9036
Cell: 303.638.9824
www.sterlingseismic.com

3D IMAGING TECHNOLOGY
Barry Newman
Geophysical Manager
910 Sixteenth Street Ste. 614
Denver, CO 80202
303-588-6821
barryn@3dimagingtechnology.com

– click on the business cards for more information –

SPECIAL REPORT:
Geophysical Survey Standoff Recommendations

Commentary

By Mark L. Burgus, P.G.

UTILYZING PEAK PARTICLE VELOCITIES TO DEVELOP SEISMIC OFFSET DISTANCES

Matheson Mining Consultants (MMC) would like to propose offset distances for various points of concern (locations of sensitive resource objects) for shot hole and Vibroseis geophysical exploration based on statistical peak particle velocity (PPV) ground motion studies and accepted vibration limits obtained from US Bureau of Mines (USBM) and other research papers. MMC has performed well over a hundred ground motion attenuation studies throughout the western United States. A shot hole analysis was run on 1366 shot hole data points taken from 42 different studies. A Vibroseis analysis was run on 459 data pairs from 12 studies that all used four 60,000 pound or higher peak force vibrators operating at 70% or higher drive levels. Data was taken from studies performed in California, Utah, Wyoming, Montana, Colorado, New Mexico, Texas, and Oklahoma.

The geophysical exploration industry has often used the offset tables found in the BLM 3150 Handbook, Illustration 16, 1/9/2007. These tables have been widely used for recommended offset distances on federal projects. Stock ponds, springs and wetland/riparian areas have recently been analyzed for potential impacts. Since very little research exists on the effects of ground motion on stock ponds, springs and riparian/wetland areas, PPVs/Offsets could not be developed for these Objects at this time. Some existing Object categories have been re-evaluated and/or re-grouped into categories with similar impact protection standards. Results from the summary shot hole and Vibroseis analyses were used in developing these updated geophysical survey offset tables.

BACKGROUND ON GROUND MOTION ATTENUATION STUDIES

Ground motion attenuation studies are performed in accordance with Federal Code of Regulations guidelines. Although these guidelines specify +95% confidence level equations be used, an additional set of tables is presented using +99.9% confidence levels. The ground motion attenuation study is designed to statistically predict (with a confidence level of 95%) safe surface stand-off distances from points of concern (such as residences, businesses, water wells, and oil and gas wells and pipelines) within the survey area. Particle velocity data acquired in the field are input into a least squares linear regression analysis program. This program has been approved by the United States Office of Surface Mining and Reclamation Enforcement (OSMRE) and is defined in 30 CFR 816.67(d)(3)(ii). The regression analysis yields a site-specific attenuation formula in the form:

$$PPV = H(SD)^{-B}$$

Where,

H = the velocity (y axis intercept) at a scaled distance of one,

B = the slope of the curve,

PPV = the peak particle velocity in inches per second, and

SD = Scaled Distance = Distance from shot to recorder divided by the square root of the charge weight = Distance for Vibroseis studies

The program also yields the correlation coefficient (goodness of fit), , with 1.0 being perfect. Thirty data points are required for statistical validity.

Once the equation for the ground motion has been defined, shot hole predictions may be made for PPV, charge weight, or offset distance by manipulating the equation and holding two of the variables constant and for Vibroseis, predictions may be made for PPV or distance by manipulating the equation and by holding one of the variables constant.

– continued on next page –

SPECIAL REPORT:
Geophysical Survey Standoff Recommendations

– continued from previous page –

For Vibroseis studies, a complete statistical data set is acquired for each set of parameters the Vibroseis are expected to operate under. The data presented below is from studies using four vibrators with at least 60,000 pound peak force operating at high force (70% or higher drive levels).

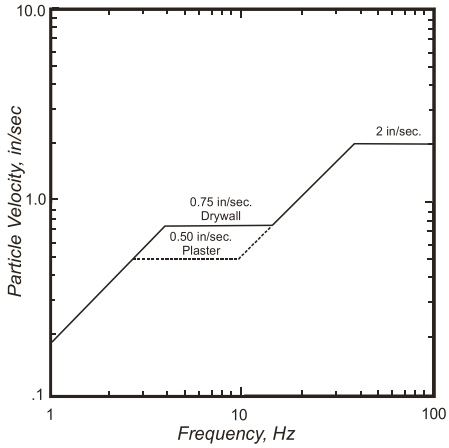
Vibration measurements are taken perpendicular to the Vibroseis array from the center vibrator base plate (experience, azimuthal studies around the vibrator array, and research dictate this is the direction of highest surface ground motion). In order to effectively establish the end points of the curve, data is acquired at distances of less than 10 feet from the vibrator base plate to perhaps 250 feet or more (until readings of <0.05 inches per second (ips) are obtained).

For individual shot hole studies, typically, from six to eight test holes are drilled in a line on 25-foot centers. In order to achieve a good correlation coefficient, test holes were drilled to the same depth for each study and were loaded with sufficiently large charges to provide a good signal at the recording locations (usually 2.2 pounds or greater). Shot holes are typically stemmed with bentonite and cuttings and are allowed to "sleep" for over a day to ensure no blow outs occur. Shot holes are individually detonated. Recording locations are placed in a logarithmic manner. The summary study uses data from 0.5, 1.1, 2.2, 3.3, 4.4, 5.5, 10, 11, and 20 pound charge sizes in hole depths ranging from seven to one hundred twenty feet.

The studies are designed to be conservative in nature. They are located in representative areas of each survey area that will provide worst-case results; topographically flat and in an area with near surface water saturation. Vibroseis PPV measurements are typically much less during production that during studies due to changes in the vibrator array with respect to the point of concern.

RECOMMENDED VIBRATION LIMITS

MMC recommends adherence with USBM and/or OSMRE (US Office of Surface Mining and Reclamation Enforcement) Variable Frequency versus Particle Velocity criteria. Adherence to these criteria provides a maximum level of protection. Documented cases of structural damage have never been observed in any structure, historic, exceptionally fragile, residential, or commercial, at particle velocities less than those recommended in the USBM and OSMRE standards.



USBM Criteria from RI-8507, November 1980

Under typical circumstances ground vibrations need to exceed the USBM recommendations or the OSMRE regulations by a considerable amount in order to produce threshold damage such as plaster or drywall cracking or paint flaking. Applying a peak vibration limit of 0.50 ips provides a high degree of protection for engineered structures and is the threshold level for possible damage to plaster-on-lath, considered the most fragile of modern construction materials. The threshold of human perception is around 0.03 ips and complaints rise when residents experience levels over about 0.25 ips.

– continued on next page –

SPECIAL REPORT:

Geophysical Survey Standoff Recommendations

– continued from previous page –

Bell Labs states that a limit of 4.00 ips is safe for fiber optic cable. The USBM states that 4.92 ips is a safe level for all buried pipelines, regardless of material, age, or pressurization, and that this limit is also applicable to wells. Railroad tracks and main paved roads experience high vibration levels when trains or traffic are present and a limit of 4.00 ips is conservative. Vibroseis operations in urban areas cause no damage when they are directly on pavement or concrete.

Much of the western U.S. has experienced light earthquakes (instrumental intensity IV). Instrumental intensity is an instrumentally-derived, estimated Modified Mercalli Intensity scale. These have not caused damage to stock ponds, springs or riparian and wetland areas. According to the USGS, this equates to peak ground velocities of up to 1.34 ips. Detonation of shot holes and vibrator production induce short duration events, whereas earthquakes typically are of much higher intensity, longer duration and are of much lower frequency. Thus, seismic source generation should not pose the risk of soil liquefaction that earthquakes do, since it is of low intensity and short signal duration. In riparian and wetland areas, wet or hydric soils do not structurally or biologically need an offset buffer as shot hole detonation and vibrators can be (and are commonly) used directly in these environments. Potential rutting would be of more concern than source generation offsets/buffers.

The following table from the USGS relates perceived shaking, potential damage, peak acceleration, peak ground velocity (in cm/sec) and instrumental intensity:

Perceived Shaking	Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
Potential Damage	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
Peak ACC (%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
Peak Vel (in/s)	<.04	0.04-0.43	0.43-1.34	1.34-3.19	3.19-6.30	6.30-12.20	12.20-23.62	23.62-45.70	>45.70
Instrumental Intensity	I	II-III	IV	V	VI	VII	VIII	IX	X+

MMC has experience monitoring pictographs and petroglyphs. Pictographs in Montana near a large scale surface coal mine have been monitored for over 14 years. The highest reading was 3.4 ips with around a 1.0 ips level measured approximately 40 times. Blasting has occurred about once per day. The pictographs are on massive sandstone and no degradation to the pictographs has occurred to date.

In another major project for railroad construction in Abo Canyon in New Mexico, dozens of shots were measured at pictographs and petroglyphs sites on massive sandstones. Levels as high as 1.13 ips were measured with no degradation observed.

In yet another project, MMC monitored Vibroseis production at pictographs on massive sandstone in Nine Mile Canyon outside of Price, Utah. An imposed limit of 0.75 ips was never exceeded and road construction induced higher vibration levels near the rock art than the Vibroseis production. No degradation occurred.

The massive rock layers experience large environmental stresses due to diurnal temperature changes. These stresses can equate to high particle velocities on the order of inches per second. However, due to the sensitive and valuable nature of these cultural resources, MMC recommends a plaster limit of 0.50 ips.

The following tables, from Illustration 16 in the BLM 3150 Handbook, 1/9/2007, have been adapted using conservative MMC ground motion attenuation study results. A column of PPV limits has been added. Point of concern categories (Objects) have been added for springs, riparian areas, stock ponds, high risk earthen dams, and pictograph and petroglyph panels. Water well, building, and pipeline categories have been re-combined in similar groups for resource protection analysis purposes. The Vibroseis table has been changed to reflect the same categories as in the shot hole table. Offset distances derived from the +95% confidence level

– continued on next page –

SPECIAL REPORT:

Geophysical Survey Standoff Recommendations

– continued from previous page –

equations are in black and offset distances derived from the +99.9% confidence level equations are in green.

+99.9% Confidence Level
Offset in feet (to the nearest foot), from Certain Objects
(Based on pounds of explosive charge, ½ lb – 10 lbs)

Object	Conservative PPV Limit (ips)	½ lb	1 lb	2 lbs	3 lbs	4 lbs	5 lbs	6 lbs	7 lbs	8 lbs	9 lbs	10 lbs
Pipelines: all diameters and materials for pressurized and non-pressurized	4.92	14' 27'	20' 38'	28' 53'	35' 65'	40' 75'	45' 84'	49' 92'	53' 99'	57' 106'	60' 113'	64' 119'
Buried Fiber Optic Telephone Line	4.00	17' 31'	24' 44'	33' 62'	41' 76'	47' 88'	53' 98'	58' 107'	62' 116'	66' 124'	71' 131'	74' 138'
RR Track or main paved road	4.00	17' 31'	24' 44'	33' 62'	41' 76'	47' 88'	53' 98'	58' 107'	62' 116'	66' 124'	71' 131'	74' 138'
Large High Tension Overhead Power Line Tower	2.00	28' 52'	39' 73'	56' 104'	68' 127'	79' 147'	88' 164'	97' 180'	104' 194'	111' 209'	118' 220'	125' 232'
Residential, culinary or irrigation wells	4.92	14' 27'	20' 38'	28' 53'	35' 65'	40' 75'	45' 84'	49' 92'	53' 99'	57' 106'	60' 113'	64' 119'
Buildings: frame, brick, concrete block, underground cistern	0.50	78' 146'	111' 207'	157' 292'	192' 358'	222' 413'	248' 462'	272' 506'	293' 547'	314' 584'	333' 620'	351' 653'
Producing oil & gas wells, tank farms	4.92	14' 27'	20' 38'	28' 53'	35' 65'	40' 75'	45' 84'	49' 92'	53' 99'	57' 106'	60' 113'	64' 119'
High Risk Earthen Dam	0.50	78' 146'	111' 207'	157' 292'	192' 358'	222' 413'	248' 462'	272' 506'	293' 547'	314' 584'	333' 620'	351' 653'
Cultural Standing Structures, Pictographs and Petroglyphs	0.50	78' 146'	111' 207'	157' 292'	192' 358'	222' 413'	248' 462'	272' 506'	293' 547'	314' 584'	333' 620'	351' 653'

+95% Confidence Level
+99.9% Confidence Level
Offset in feet (to the nearest foot), from Certain Objects
(Based on pounds of explosive charge, 11 lbs-20 lbs)

Object	Conservative PPV Limit (ips)	11 lbs	12 lbs	13 lbs	14 lbs	15 lbs	16 lbs	17 lbs	18 lbs	19 lbs	20 lbs
Pipelines: all diameters and materials for pressurized and non-pressurized	4.92	67' 124'	70' 130'	73' 135'	75' 140'	78' 146'	81' 150'	83' 155'	85' 159'	88' 164'	90' 168'
Buried Fiber Optic Telephone Line	4.00	78' 145'	81' 152'	85' 158'	88' 164'	91' 170'	94' 175'	97' 181'	100' 186'	102' 191'	105' 196'
RR Track or main paved road	4.00	78' 145'	81' 152'	85' 158'	88' 164'	91' 170'	94' 175'	97' 181'	100' 186'	102' 191'	105' 196'
Large High Tension Overhead Power Line Tower	2.00	131' 244'	137' 254'	142' 265'	147' 275'	153' 284'	158' 294'	162' 303'	167' 312'	172' 320'	176' 328'
Residential, culinary or irrigation wells	4.92	67' 124'	70' 130'	73' 135'	75' 140'	78' 146'	81' 150'	83' 155'	85' 159'	88' 164'	90' 168'
Buildings: frame, brick, concrete block, underground cistern	0.50	368' 685'	384' 716'	400' 745'	415' 773'	429' 800'	443' 826'	457' 852'	470' 876'	483' 900'	496' 924'
Producing oil & gas wells, tank farms	4.92	67' 124'	70' 130'	73' 135'	75' 140'	78' 146'	81' 150'	83' 155'	85' 159'	88' 164'	90' 168'
High Risk Earthen Dam	0.50	368' 685'	384' 716'	400' 745'	415' 773'	429' 800'	443' 826'	457' 852'	470' 876'	483' 900'	496' 924'
Cultural Standing Structures, Pictographs and	0.50	368' 685'	384' 716'	400' 745'	415' 773'	429' 800'	443' 826'	457' 852'	470' 876'	483' 900'	496' 924'

+95% Confidence Level
+99.9% Confidence Level
Minimum Safe Offset in Feet for Vibrator Truck Operations
(Based on 4 Vibrators, >=60,000 pound peak force)

Structures	Conservative PPV Limit (ips)	Distance (ft)
Pipelines: all diameters, pressurized, non-pressurized, steel, PVC, concrete, plastic flow lines	4.92	4' 8'
Buried Fiber Optic Telephone Line	4.00	5' 11'
RR Track or main paved road	4.00	5' 11'
Large High Tension Overhead Power Line Tower	2.00	11' 27'
Residential, culinary or irrigation wells	4.92	4' 8'
Buildings: frame, brick, concrete block, underground cistern	0.50	69' 167'
Producing oil & gas wells, tank farms	4.92	4' 8'
High Risk Earthen Dam	0.50	69' 167'
Cultural Standing Structures, Pictographs and Petroglyphs	0.50	69' 167'

Additional considerations may be necessary for selecting offset distances for sensitive points of concern, that are not solely based on scientific data. In addition, considerations for human perception may need to be taken into account. The use of a plaster limit (0.50ips) in these situations is appropriate.

A Western US Shot Hole Summary and Summary of Western US Vibroseis Studies analyses for both +95% and +99.9% confidence levels are attached.

The shot hole analysis used values generated by +95% and +99.9% confidence level tables of particle velocity vs. distance for 0.5, 1, 2, 3, 5, 10, 15, and 20 pound charges. The correlation coefficient is 0.809, which indicates a good fit of the data.

The Vibroseis analysis includes +95% confidence level tables of particle velocity vs. distance covering two different ranges of data. The correlation coefficient is 0.784, which indicates an average fit of the data. Data scatter is largely attributed to different operating parameters, such as differing frequency ranges, sweep tapers, sweep durations, and sweep boost.

Sincerely,

Mark L. Burgus, P.G.
Texas Registered Geophysicist #3920



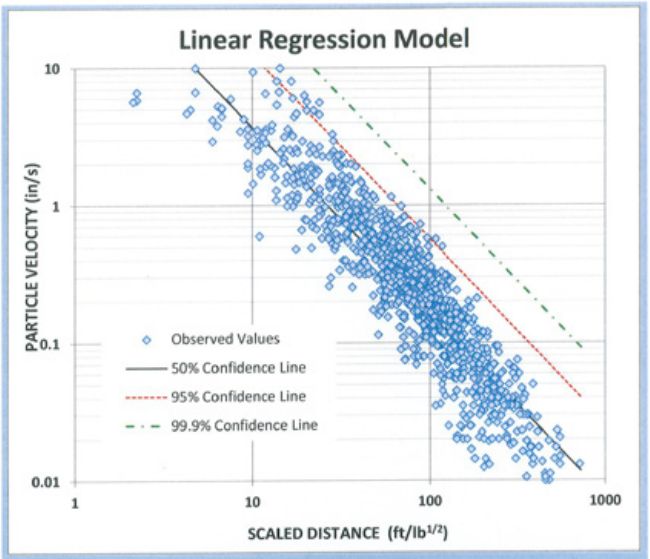
– continued on next page –

SPECIAL REPORT:

Geophysical Survey Standoff Recommendations

– continued from previous page –

Matheson Mining Consultants, Inc.
Summary of Western US Shot Hole Studies
April 28, 2014



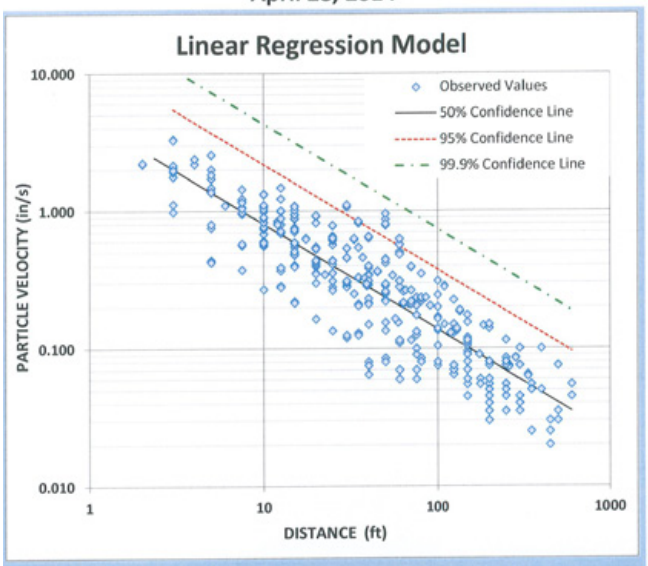
95% Confidence Equation

$PPV = 275.04 \times (SD)^{-1.34}$

Data Correlation Coefficient

$R^2 = 0.809$

Matheson Mining Consultants, Inc.
Summary of Western US Vibroseis Studies
4 Vibes >= 60,000 pound peak force
April 28, 2014



95% Confidence Equation

$PPV = 12.64 \times (D)^{-0.76}$

Data Correlation Coefficient

$R^2 = 0.784$

SUPPLEMENTAL REFERENCE CHARTS

Attachment 3

Matheson Mining Consultants, Inc.

2801 Youngfield Street, Suite 171
Golden, CO 80401
303-456-5638
Toll Free 888-456-5638
Fax 303-456-5639
www.mathesonmining.com

RECOMMENDED VIBRATION LIMITS

The U.S. Bureau of Mines (USBM) in Report of Investigations 8507 (November 1980) recommends a Variable Particle Velocity versus Frequency standard for assuring non-damage to all structures (see Figure 1). The Office of Surface Mining, Reclamation and Enforcement (OSMRE) regulations, as outlined in their Blasting Guidance Manual, employ a similar variable particle velocity versus frequency limit, the least restrictive and most accurate of their four compliance options. These two standards are the most often quoted limits for ground vibration from blasting or other ground motion producing operations and are very conservative. Under typical circumstances ground vibrations need to exceed the USBM recommendations or the OSMRE regulations by a considerable amount in order to cause threshold damage such as plaster or drywall cracking, or paint flaking. Engineered structures such as pipelines and wells are able to withstand significantly greater peak vibration levels. Human response is often the limiting factor in determining a reasonable ground vibration limit.

Matheson Mining Consultants, Inc. recommends adherence with USBM and/or OSMRE Variable Frequency versus Particle Velocity criteria. Adherence to these criteria provides a maximum level of liability protection and is the least restrictive in allowing the highest particle velocities at close distance. Documented cases of structural damage have never been observed in any structure (historic, exceptionally fragile, residential, or commercial) at particle velocities less than or equal to those recommended in the USBM and OSMRE standards.

More restrictive ground vibration standards exist internationally, notably the German vibration standards (DIN 4150) and Australian standard (CA 23-1967). These restrictive standards are based on prevention of annoyance, not for any technical or damage related justification.

RESIDENTIAL STRUCTURES

Seismological research by the U.S. Bureau of Mines, foreign investigative groups, and individual seismologists has established criteria relating the occurrence of structural damage to certain frequencies and levels of ground motion.

USBM Report of Investigations 8507, "Structure Response and Damage Produced by Ground Vibration From Surface Mine Blasting,"[1] states that residential structures are most prone to damage as a result of vibration energy within the frequency range of 4-12 hertz. Within this range, a 0.5-inch per second maximum particle velocity is recommended to preclude 'threshold' damage to the plaster-on-wood lathe interior portions of older structures. The line that separates real from alleged

[1] Siskind, D.E., M.S. Stagg, J.W. Kopp, and C.H. Dowding. Structure Response and Damage Produced by Ground Vibration From Surface Mine Blasting. U.S. Bureau of Mines Report of Investigations 8507, 1980, p. 1.

or imagined damage is ill defined. Therefore, it is common to talk in terms of probability or possibility of damage.

In general, very high particle velocities are necessary to cause any damage. Ground motion blast vibration damage is well documented, and the points at which threshold damage can occur are well defined. "Failure can occur to brittle materials such as plaster at particle velocities less than one inch per second at very low frequencies (1.5 to 10 Hz). The majority of failures will not begin to occur, however, until vibration levels exceed 3 to 4 inches per second."[2]

In addition to the threshold level of damage being dependent on peak particle velocity and frequency, it is also dependent on other factors such as: the geography and type of terrain the structure sits on, the type of structure, the height of the structure, the natural frequency of the structure, and the state of repair, or disrepair, of the structure. "…Some of these conditions may combine so that even if actual damage is unlikely below 2 or 3 inches per second, it is nevertheless possible that threshold damage might occur under some conditions at velocities as low as 0.50 to 0.70 inches per second…the (government) regulations are designed to provide positive protection against damage to private and public property."[2] Therefore, these regulations are as conservative as possible.

Threshold damage is defined by the USBM as the loosening of paint, small plaster cracks at joints between construction elements or the lengthening of old plaster cracks. A maximum of 0.75 inch per second is recommended for the protection of modern drywall interior construction. The damage threshold is normally considerably higher for load bearing or other structural portions of a house.

Above 12 hertz, the allowable vibration increases as the frequency increases, up to 40 hertz. Above 40 hertz, a constant 2.0 inches per second level is recommended to protect the interior walls and ceilings of structures, regardless of construction material. A graphic representation of the USBM recommended criteria is shown in Figure 1.[1]

All buildings are characterized by a single natural fundamental frequency. This means that, as with a pendulum or a tuning fork, there is one dominant frequency to which a particular building will respond. The structures fundamental frequency depends primarily upon its height. Tall buildings are more flexible and respond to low frequencies. Low-rise structures, being stiffer, respond to higher frequencies.

[1] Ibid, p. 7.

UNITED STATES BUREAU OF MINES CRITERIA
(From Report RI-8507, November, 1980)

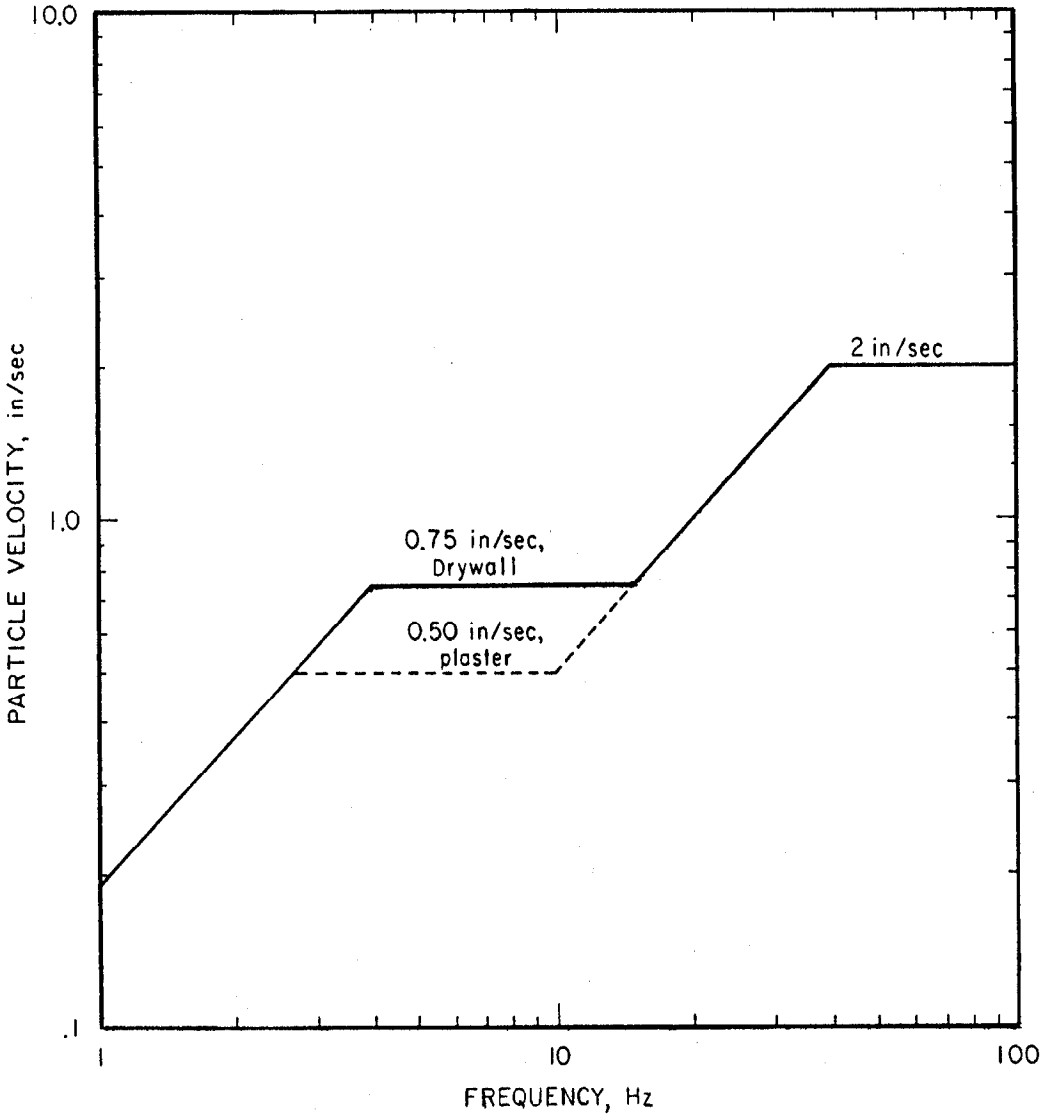


Figure 1: USBM Criteria from RI-8507, November 1980

CONCRETE DAMAGE

In order for damage to occur to a concrete pad, the supporting soil must fail. It is therefore nearly impossible to damage concrete with elastic ground vibrations. Nearly all concrete has suffered some form of environmental damage. This is due primarily to initial curing shrinkage and thermal expansion and contraction. Expansive soils (such as clays), erosion, and settlement are also common causes of concrete damage. The peak displacement associated with most surface vibrations is of no consequence to concrete. For example, a shot recently measured by MMC at 1.20 inches per second had a peak displacement of only 0.0146 inches. "Typical deflections in bridge deck, building floors, and highway slabs are often greater by up to a factor of ten…The only known cause of damage to concrete slabs from typical external industrial and construction sources of vibrations comes from very close or intense sources that can directly rupture the concrete, as in the crater zone of a blast,"[3]

ENVIRONMENTAL FORCES

Environmental forces that act on structures include both internal and external stresses. Internal stresses include: changes in moisture, changes in temperature, curing of lumber, drying and curing of plaster, stucco, concrete, or adobe; changes in application of internal heat, aging, the loss of coulomb friction, and gravity. External sources include: poorly compacted or expansive soils, poor drainage, water damage, wind, freeze/thaw cycle, and vegetation. Environmental forces are generally static (non-vibratory).

Most environment forces act silently. Therefore, most people are unaware of the large stresses and large strains induced in structures and materials. Many people who feel they have incurred damage from a ground vibration find it difficult to believe the silent environmental forces cause more stress than the vibration they felt and heard. Environmental forces are responsible for on going, time-dependent damage and deterioration to all structures and materials. "A careful study of buildings shows that cracks continue to increase in size and number as the building ages."[3]

Figure 2 shows typical environmental stresses and equivalent ground vibrations. This table is taken from Vibroseis Operations in an Urban Environment by L.L. Oriard. This was derived from information in USBM R.I. 8896, Effects of Repeated Blasting on a Wood-Frame House (Stagg, 1984)[3]. Environmental forces may induce equivalent ground vibrations as high as eight inches per second in a structure.

---

[3] Oriard, L.L. Vibroseis Operations in an Urban Environment. Bulletin of the Association of Engineering Geologists, Vol. XXXI, No.3, 1994, pp. 353-354.

[3] Ibid, p. 356.

[3] Ibid, p. 358.

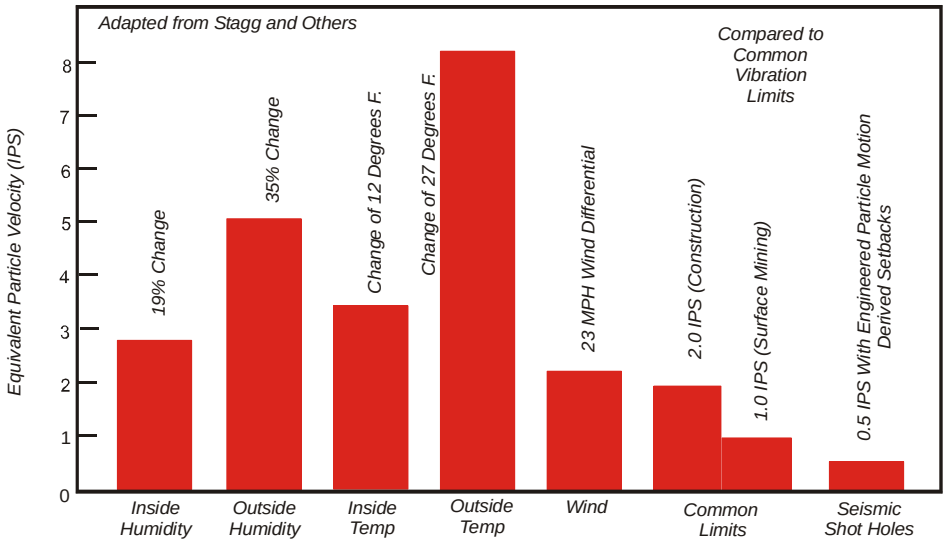


Figure 2: Typical Environmental Stresses & Equivalent Ground Vibrations

EVERYDAY ACTIVITIES

Stresses are also induced in structures as a result of human activities, traffic, and industrial activities. Human activities include door slams, walking, jumping, pounding nails into a wall, etc… These stresses are not as intense as environmentally induced stresses but nevertheless may produce equivalent ground vibrations as high as 2 inches per second. These stresses often account for hairline cracks in plaster and sheetrock around doorways and window frames. Figure 3 shows vibrations from everyday activities and equivalent ground motions and is taken from Vibroseis Operations in an Urban Environment by L.L. Oriard and was also adapted from USBM R.I. 8896, Nicholls, 1971, and others.[3]

[3] Ibid, p. 359.

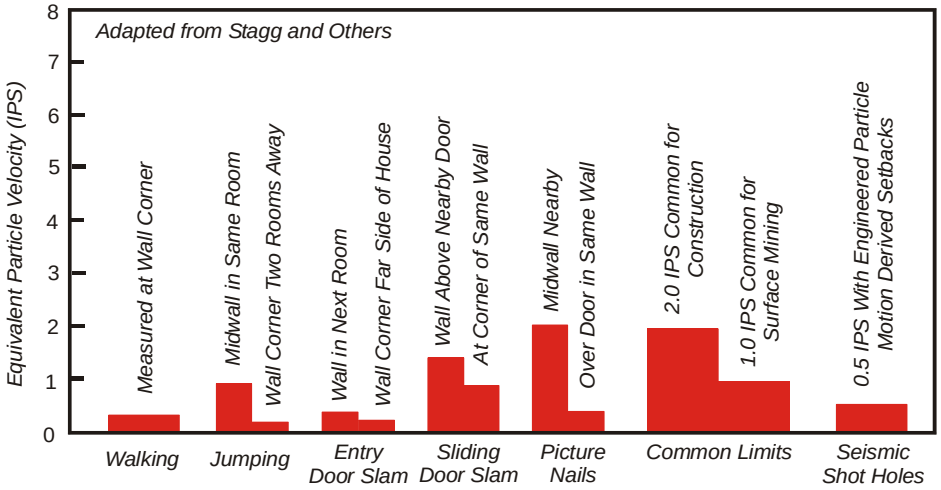


Figure 3: Vibrations for Everyday Activities

CYCLE FATIGUE

There is often a misapprehension by property owners that repeated blasting has a cumulative effect on the structure. USBM study R.I. 8896, Effects of Repeated Blasting on a Wood-frame House is an investigation of this concept. In this study, the USBM built a wood-frame test house in the path of advancing surface coal mining. Structural fatigue and damage were assessed over a two-year period.

The house was subjected to vibrations from 587 production blasts with particle velocities that varied from 0.10 to 6.94 inches per second. Later, the entire house was shaken mechanically to produce fatigue cracking. Failure strain characteristics of construction materials were evaluated as a basis for comparing strains induced by blasting and shaker loading to those induced by weather and household activities.

Cosmetic or hairline cracks 0.01 to .010 mm wide occurred during construction of the house and also during periods when no blasts were detonated. The formation of cosmetic cracks increased from 0.3 to 1.0 cracks per week when ground motions exceeded 1.0 in/s. Human activity and changes in temperature and humidity cause strains in walls that were equivalent to those produced by ground motions up to 1.2 in/s. When the entire structure was mechanically shaken, the first crack appeared after 56,000 cycles, the equivalent of 28 years of shaking by blast-generated ground motions of 0.5 in/s twice a day.[4]

[4] Stagg, M.S., D.E. Siskind, M.G. Stevens, and C.H. Dowding. Effects of Repeated Blasting on a Wood Frame House. U.S. Bureau of Mines, Report of Investigations 8896, 1984, p. 1.

HUMAN RESPONSE TO GROUND MOTION

"Vibration levels that are completely safe for structures are annoying and even uncomfortable when viewed subjectively by people."[5] Figure 4 was taken from Bulletin 656 and shows subjective response of the human body to vibratory motion. These limits were based on empirical results for sinusoidal vibration.

According to the Office of Surface Mining Reclamation and Enforcement's (OSMRE) Blasting Guidance Manual, "Most researchers agree that the threshold of human perception of ground motion is around 0.03 inches per second. Depending on activity, sensitivity, and whether or not the subject knows when the event is to occur, a few humans can sense ground motion…to about 0.01 inches per second.

Although complaints can occur at any level perceptible to humans, they are unusual below 0.08 inches per second or so…At, say, 0.25 inches per second, a level that is eminently safe, and well within OSMRE limits, except below 2 Hz, complaints can be expected."[1] Human reactions to ground motion from blasting can be the limiting factor. Vibration levels can be felt that are considerably lower than those required to produce damage. "Particle velocities of 0.5 in/sec…should be tolerable to about 95% of the people perceiving it as 'distinctly perceptible.'"[1]

What is annoying to one person may not be annoying to another. Each person perceives movement differently. Factors that can influence how human beings perceive blasting are:

- The frequency content of the blast events.
- The number of events per day or week.
- The time of day. The structure response.
- The condition of the property.
- The degree of activity of the person.
- The state of health of the person.
- The state of mind of the individual.
- The position and attitude of the person, i.e., in bed, working, sitting, inside or outside, etc…
- The local perception of the operation.
- The history of local damage claim payments (including "good neighbor" payments related to damage claims where liability was denied.

In some cases, regardless of the levels of ground motion experienced, complaints may still arise. "No amount of objective data will convince a person who "feels" strong vibrations that the vibration level as measured was barely perceptible-similarly with noises and air blasts. Personal

---

5 Nichols, H.R., C.F. Johnson, and W.I. Duvall. Blasting Vibrations and Their Effects on Structures. U.S. Bureau of Mines Bulletin 656, 1971, p. 27.

1 Ibid, p. 34.

1 Ibid, p. 37.

contact and strong efforts in public relations help alleviate the problem but convince few."[5] In this event, pre-survey inspections, a monitoring program, and good record keeping can be invaluable should matters proceed to the legal arena. In extreme cases, dishonest individuals may see this as an opportunity for repairs or new water well.

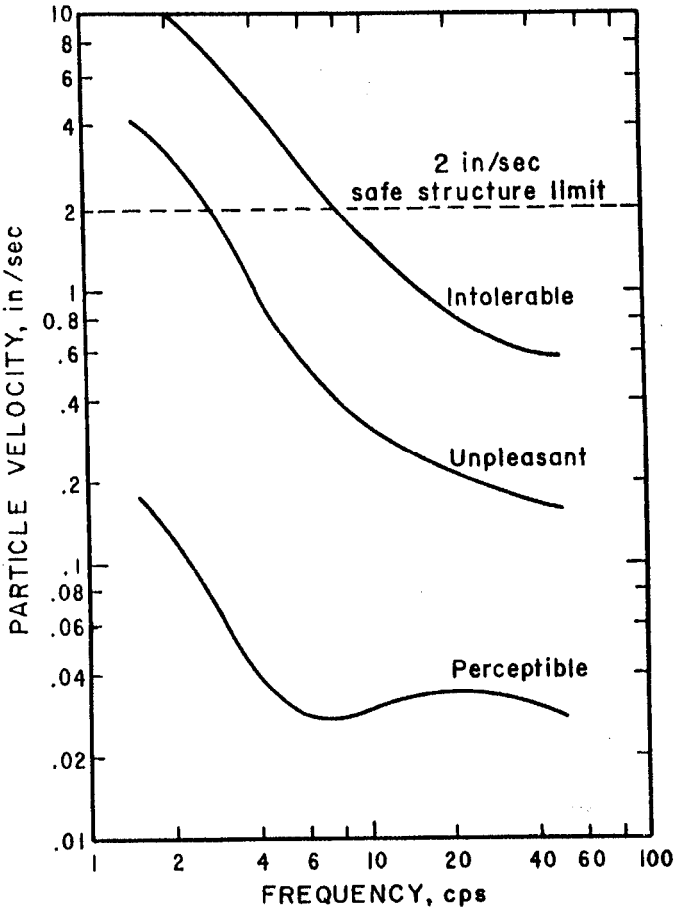


Figure 4: Subjective Response of the Human Body to Vibratory Motion
(From USBM Bulletin 656, 1971)

[5] Ibid, p. 27.

WATER WELLS AND AQUIFERS

Water wells and aquifers exhibit a constrained response when subject to ground vibration. That is to say, they move in concert with the geologic material that surrounds them. In general, this geologic material surrounding the well must be disrupted to cause damage to a water well. In the case of the aquifer, a change in its structure (permeability) would be the necessary affect for it to have undergone changes as a result of blast vibration. Furthermore, the amplitude of the ground motion greatly decreases with depth. Following is general information on hydrology as well as information from studies on shothole geophysical exploration and surface mine blasting effects on water wells and aquifers.

Hydrology

A groundwater system is a dynamic system where water moves down-gradient from a recharge area to a discharge area (ie., a spring). Normally, ground water moves slowly, the rate ranging from a fraction of an inch per year to a few feet per day. The geology determines the rate of ground-water recharge and movement. Most sedimentary aquifers consist of sandstone, limestone, Tertiary sediments, Recent alluvium, or coal seams. Aquifers can also exist in fractured metamorphic rocks and igneous rocks. Hydraulic characteristics of aquifers include porosity, permeability, transmissivity, and the coefficient of storage. These characteristics differ greatly among different rock types.

Porosity is the volume of void space in a unit volume of material (this space can be occupied by water). Permeability is a measure of the capability of a geologic material to transmit water through a unit area. Transmissivity is defined as the permeability times the vertical thickness of the material, usually an aquifer. Coefficient of storage is defined as the volume of water that an aquifer can release from or take into storage per unit surface area, per unit change in head in a line normal to that surface.

Shot-Hole Geophysical Exploration

In "A Study of the Influence of Seismic Shotholes on Groundwater and Aquifers in Eastern Montana,"[6] five widely distributed sites in eastern Montana were chosen and monitored: (1) a 25 pound charge at a 197 foot depth, 150 feet away from the 150 foot deep test well, (2) a 25 pound charge at a 197 foot depth, a 165 foot distance away from the 90 foot deep test well, (3) a 80 pound charge at a 200 foot depth, 400 feet away from an 80 foot deep test well and a 25 pound charge at a depth of 150 feet, 150 feet away from the same test well, (4) a 25 pound charge at a 200 foot depth, 150 feet away from a test well with a 22 foot depth and a test well with a 96 foot depth, and (5) a 25 pound charge at a 200 foot depth, 150 feet away from a 135 foot deep test well and a 207 foot deep test well.

[6] Bond, E.W., A Study of the Influence of Seismic Shotholes on Groundwater and Aquifers in Eastern Montana, State of Montana - Montana Bureau of Mines and Geology, Special Publication 67, 1975.

> Pumping tests of existing water wells and specially drilled observation wells, before and at several times after the firing of a seismic shot, revealed no detectable change in the physical properties of the aquifers. Analyses of water samples collected from water wells, observation wells, and test holes, at frequent intervals throughout the study period, showed only the random minor variations expectable in water from shallow aquifers. A few water samples from shotholes showed minor temporary increases in some chemical constituents, but these were not enough to affect the use of the water. Water-level measurements during the pumping tests showed that most of the shotholes were virtually sealed through the aquifer within a few months, at most, but tests could not be repeated over a long enough period to determine the final sealing date of all shotholes.
>
> Any mechanical change in aquifer structure as a result of seismic shooting should be indicated by change in permeability of the aquifer material. None of the aquifer tests conducted at the five test sites showed any change in aquifer structure, although poor efficiency of common well construction was evident…A change in aquifer permeability would require either a change in the packing arrangement of the aquifer material or an alteration of the cement holding the aquifer material together.
>
> Because drill holes for seismic programs average only about 200 feet in depth, multiple aquifers would have relatively small differences in hydrostatic head, and the quality of the waters would probably be similar.[6]

This indicates minimal interflow between aquifers.

In "The Effects of Seismic Blasting on Shallow Water Wells and Aquifers in Western North Dakota,"[7] the results of a literature search, a preliminary investigation, a field investigation, and an experimental investigation are presented. The preliminary investigation involved sending questionnaires to federal, state, county, and city agencies, certified water well contractors, as well as, grazing and environmental groups.

The questionnaires along with a news release, resulted in numerous personal letters alleging effects during and after seismic testing. A third of these wells were field investigated. Both old and new wells were investigated. Eighteen wells were less than twenty years old and twenty five wells were more than twenty years old. This indicates the problem is not restricted to older wells. Effects that were described by owners include long term decline in water quality (over a several year period), an abrupt (over several hours) decline in water quality, and 53 of 76 questionnaires cited decreased yield. In some instances these wells were not pumped wells, but rather were flowing wells. A gradual decline in a flowing well (or spring) is a naturally occurring result of usage.

Few instances of legal action were found during the study's preliminary search. Few people have good or complete records of their wells with respect to production and water quality. This causes difficulties when defending their position. A few respondents claimed to have replaced wells and

---

6 Ibid.

7 Beaver, F.W. The Effects of Seismic Blasting on Shallow Water Wells and Aquifers in Western North Dakota, Master's Thesis Submittal, University of North Dakota, 1984.

equipment at their own expense. Also, because of the lack of background information on the wells, it is difficult to draw definitive conclusions regarding changes in water quality and production.

> Pumping tests conducted in a sand a coal aquifer system showed no apparent physical effects when shots were detonated one quarter mile away from the pumping wells. Shots 500 feet distant resulted in to permanent effects. Shots 100 feet or closer increased the yield from wells finished in the sand aquifer and decreased the yield from the coal aquifer. Fracturing of the poorly indurated sandstone aquifer is suggested as the mechanism for the increase. Collapse of the fractures is suggested as the failure mechanism in the coal aquifer. Well casings remained intact after 25 pound charges were detonated as close as 10 feet from a well screen…
>
> During the pumping tests, no significant long term chemical or mineralogical equilibrium changes were observed which could be attributed to the blasting.[6]

Surface Mining

The source of these comments is the U.S. Bureau of Mines (USBM) study "Survey of Blasting Effects on Ground Water Supplies in Appalachia."[8] This study relates to coal mine blasting where large per delay explosive weights exceeding 5000 pounds are common. The USBM study included four test sites chosen for geographic and geologic diversity. Maximum resultant particle velocities of up to 5.44 inches per second were recorded at the surface next to the wells.

> No direct evidence of change in water quality or well performance was produced by blast vibrations, but removal of downslope support by excavation does cause lateral stress relief which permits the water-bearing fractures to become more open. This additional storage capacity causes the static water level to drop and for well-bore permeability to improve. Static water level recovers if sufficient recharge is available and well performance is improved.
>
> The well continues to perform in the same manner although blast induced round vibrations at the surface may approximate 2.0 inches per second maximum resultant particle velocity, until surface mining approaches to within about 300 feet of the water well.
>
> State agencies and coal companies in Appalachia were contacted to develop a list of reportedly blast damaged wells. Of 36 wells so reported, 24 were investigated in the field but there was no clear evidence that the problem was blast related. In most cases, it was evident that other factors were responsible for changes in well behavior.
>
> Maximum ground vibration levels at the four test wells, measured as close as practical to the well heads, were 2.2, 5.44, 2.14, and .84 inches per second resultant particle velocity.

---

6 Ibid.

8 Robertson, D.A., Gould, J.A., Straw, J.A., and Dayton, M.A., Survey of Blasting Effects on Ground Water Supplies in Appalachia, U.S. Bureau of Mines Contract J-0285029, prepared by Philip R. Berger & Associates, 1980.

> Based on observable change in well conditions immediately after a blast, there was no direct evidence of any significant change as a result of blasting. At three sites, when mining approached within a distance of approximately 300 feet, a fairly abrupt drop in static water level occurred followed by a significant improvement in well performance as indicated by specific capacity. At the fourth site, there was no change.
>
> Measurements made at the bottoms of wells indicated that vibrations were considerably attenuated at depths of 140 to 160 feet.[7]

This study found the vibrations at the bottom of an observation well to be between 14 to 68 % as strong as those at the surface (approximately 150 feet deep). The largest effects on vibration attenuation with depth are the geometric relationship between the charge location and the well and the degree of confinement of the shot.

This study quotes another study, "Water Well Design for Earthquake Induced Motions,"[9] a survey of published reports describing the conditions of numerous water wells during and after three major earthquakes. This study involved 350 wells in areas where severe damage to structures occurred. Almost all wells reported to be permanently damaged were in regions of permanent displacement of the surrounding earth, primarily landsliding. Eight wells were destroyed, four were inoperable but reparable, and forty five wells were damage but operable. The intensity of the earthquakes in the study were modified Mercalli scale magnitudes VIII, IX, and X (impossible for a person to stand, furniture broken, partial to total collapse of structures, general destruction, landslides, soil failure).

---

7 Ibid.

9 Nazarian, H.N. Water Well Design for Earthquake Induced Motions. ASCE J. Power Div., V. 99, No. P02, Paper 10176, November 1973, pp. 377-394.

PIPELINE RESPONSE

Five pipeline sections were studied by the U.S. Bureau of Mines in conjunction with the State of Indiana and AMAX Coal and its consultants in the advance of coal mine overburden blasting (USBM R.I. 9523).[10] These tests were conducted on the highwall of the Minnehaha Mine near Sullivan, Indiana and were designed for testing to failure.

All five pipeline sections were 76 m (249 ft) long. Four sections were welded steel pipe and one section was PVC. The pipeline sections were laid parallel to one another, 3 m (9.8 ft) apart, with 1 m (3.3 ft) depths of burial. They were buried in a clay soil. Each pipeline had three uprights for pressurization and gage access. Following is a summary of the pipeline attributes:

Outside Diameter, cm, (in)	Wall Thickness, mm, (in)	Fill Material	Age	Material Type
Steel:				
16.8, (6.6)	4.78, (.188)	Gas	Used	X-42
32.4, (12.8)	6.35, (.250)	Gas	Used	Grade B
32.4, (12.8)	6.35, (.250)	Gas	New	X-42
50.8, (20.0)	6.63, (.261)	Water	Used	X-56
PVC:				
21.9, (8.6)	8.43, (.332)	Water	Used	SDR26

Steel Pipelines: Initial pressurization 6.2 MPa (900 psi).
PVC Pipeline: Initial pressurization 0.62 MPa (90 psi).

The pipelines were monitored for vibration, strain, and pressure for a period of 6 months while production advanced up to a point 15 m (49 ft) away. 29 productions blasts were measured. The blasts used maximum charge weights per delay of up to 950 kg (2090 pounds) in 31 cm (12.25 inch) diameter holes.

Following the production blasts, a single row of four blast holes was drilled between the pipelines to complete the destructive test. The explosive charge was below the pipes at 5 to 6 m (16.4 to 19.7 ft) distances. The vibration level measured was greater than 900 mm/s (35.43 in/s), however, this was non-elastic response. The result of the destructive test on each pipeline is as follows: 1) 16.8 cm (6.6 in) diameter steel pipe - severely bent but unbroken, 2) new 32.4 cm (12.8 in) diameter steel pipe - bowed, but unbroken, 3) used 32.4 cm (12.8 in) diameter steel pipe - cleanly broken at the risers, 4) water filled 50.8 cm (20.0 in) diameter steel pipe - uplifted, parted, fell back down, and 5) 22 cm (8.6 in) diameter PVC pipe - came apart at O-rings, but unbroken.

[10] Siskind, D.E., M.S. Stagg, J.E. Wiegand, and D.L. Schulz. Surface Mine Blasting Near Pressurized Transmission Pipelines. U.S. Bureau of Mines, Report of Investigations 9523, 1994, 51 pp.

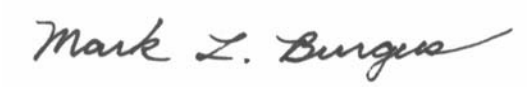
The results of the closest production blast (15 m (49.2 ft) distant from the closest pipeline) resulted in a 635 mm/s (25.00 in/s) measurement at the surface and 234 to 274 mm/s (9.21 to 9.84 in/s) on two instrumented pipelines.

> Analysis found low pipe responses, strains, and calculated stresses from even large blasts. Ground vibration of 120 to 250 mm/s (4.72 to 9.84 in/s) produced worst case strains that were about 25% of the strains resulting from normal pipeline operations and calculated stresses of only about 10% to 18% of the ultimate tensile strength. No pressurization failures or permanent strains occurred even at vibration amplitudes of 600 mm/s (23.62 in/s)…
>
> …Although particle velocities of over 600 mm/s (23.62 in/s) were sustained without loss of pipe integrity, it is recommended that 125 mm/s (4.92 in/s) measured at the surface is a safe-level criterion for large surface mine blasts for Grade B or better steel pipelines. The same criterion is recommended for SDR 26 or better PVC pipe…Also, no adjustment is believed needed for pipeline age, assuming the protective coating is intact, unless the pipeline is known to be at higher risk from previous damage or other causes. The same safe-level criterion also appears applicable, at a minimum, to vertical wells and telephone lines.[10]

The primary blasting risk to pipelines appears to be from block motion or from having the pipeline in the actual crater zone. In both cases, permanent strain has occurred in the surrounding geologic material, which is weaker than the pipe.

In the early 1960's work was undertaken by the American Gas Association Pipeline Research Committee to establish limits for charge size (pounds per delay) and distance from a blast to high-pressure gas transmission pipelines. The primary research found that there had been no reported case of pipeline failure due to normal blasting activities. Only when explosives were detonated directly adjacent to a pipeline, were failures recorded.

Sincerely,



Mark L. Burgus, P.G.
Texas Registered Geoscientist (Geophysics) #3920



[10] Ibid., pp. 1, 36

Attachment 4

APPENDIX III

BACKGROUND ON GROUND MOTION STUDIES

The ground motion is measured in terms of peak particle velocity and is a combination of body and surface waves (Figure 1)[1]. The body waves attenuate more rapidly with distance from the shot (or Vibroseis) than the surface waves. Body waves spread spherically, whereas the surface waves expand in two dimensions. The principal cause of ground motion attenuation with distance is due to simple geometric spreading. As the ground motion wave train spreads outwards from the energy source, the medium's individual particles are set in retrograde elliptical motion about their rest positions. The wave is generated as each particle transmits energy to the next particle. Some energy loss occurs with each transmission of energy from one particle to the next, which is also a cause of ground motion attenuation with distance. The ground motion is a complex wave train consisting of many different wave types (Figure 2)[1]. As the body waves impinge upon the surface, they are converted to surface waves. Body waves may also be reflected and refracted to the surface to become converted to surface waves. As the surface wave spreads out, the various components of the wave train have different particle motions, travel at different velocities, and have different geometric constraints.

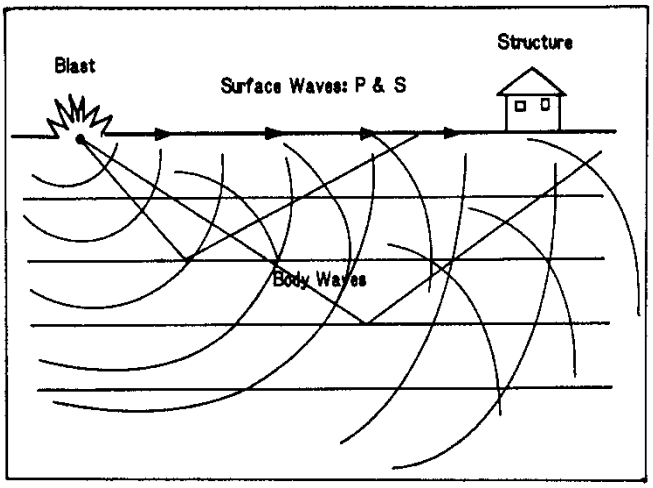


Figure 1 - Surface and Body Waves

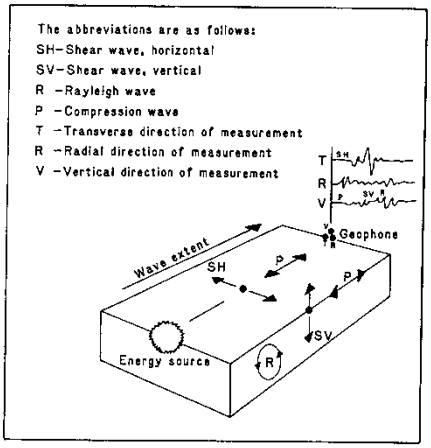


Figure 2 - Types of Ground Motion Waves

Particle velocity has been determined to be the most significant single parameter, in terms of the potential for damage (as opposed to acceleration or displacement). Furthermore, the peak particle velocity found on any of the three geophone channels is the parameter used, rather than the resultant vector sum particle velocity. All research has been done and all regulations have been written in terms of peak particle velocity (PPV). Using the PPV instead of the vector sum allows for easier, more consistent comparison of values. A true resultant velocity could be calculated from

[1] Rosenthal, M.F., and G.L. Morlock. Blasting Guidance Manual. U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement, March, 1987, p.11.

[1] Ibid., p. 12.

the peak measurements for all three components if they occurred at the same instant of time. In addition, there is variability in how different seismograph manufacturers calculate the vector sum. Some actually calculate a pseudo resultant sum. These models take the peak levels on all three channels, regardless of where they individually occurred in time, to calculate the vector sum.

Since the 1920's or earlier, ground vibrations have been studied extensively to determine their potential for damage to various structures and construction materials. Blasting activities are among the most common sources of ground motion, have therefore been studied the most, and have thus prompted the ordinances and regulations that are in place. At the present time, the only federal regulation that pertains to ground motion is from the Office of Surface Mining and Reclamation Enforcement (OSMRE). This regulation was written to protect residential structures. Complaints of damage to residences were, and are, the most common form of complaint resulting from the perception of ground motion.

The ground motion attenuation study is designed to statistically predict safe surface standoff distances from residences and other points of concern. Particle velocity data acquired in the field are input into a least squares linear regression analysis program. This program has been approved by the United States Office of Surface Mining and Reclamation Enforcement (OSMRE). The regression analysis yields a site-specific attenuation formula in the form:

$$PPV = H(SD)^{-B}$$

Where:
H = the velocity (y axis intercept) at a scaled distance of one,
B = the slope of the curve,
PPV = the peak particle velocity in inches per second, and
SD = scaled distance = distance from shot to recorder divided by the square root of the charge weight = distance for Vibroseis studies.

The program also yields the correlation coefficient (goodness of fit), r^2. 1.0 is perfect.

Once the equation for the ground motion is defined, predictions may be made for PPV or distance (or scaled distance for the shot hole studies) by manipulating the equation and by holding one of the variables constant. Thirty data points for each study are desired for statistical validity.

Attachment 5

Matheson Mining Consultants, Inc.

2801Youngfield Street, Suite 171
Golden, CO 80401-2266
303-456-5638
Toll Free 888-456-5638
Fax 303-456-5639
www.mathesonmining.com

OCCIDENTAL OF ELK HILLS – BUENA VISTA 3D
SUMMARY OF VIBROSEIS GROUND MOTION ATTENUATION STUDY

Matheson Mining Consultants, Inc. (MMC) was asked to perform a low force (60% drive) Vibroseis ground motion attenuation study in the Buena Vista 3D survey area in order to recommend safe stand-off distances from points of concern that primarily include residences, oil and gas pipelines and wells, water wells, and irrigation structures. Data was acquired on October 31, 2009 for a low force study with four 62,000 pound peak force Vibrators operating under the following parameters: sweep duration of 6 seconds from 2 to 64 Hz, linear array and sweep, with a 0.6 second start taper and a 0.4 second end taper. A complete report will follow.

The study was designed to be as conservative in nature as possible. The area chosen for the survey was flat and the Vibroseis were parked in the same position for the entire study. Data was taken in a perpendicular direction from the number two Vibrator (experience and research dictate this is the direction of highest ground motion).

Recommended Vibration Limits

The U.S. Bureau of Mines (USBM) in Report of Investigations 8507 (November 1980) recommends a Variable Particle Velocity versus Frequency standard for assuring non-damage to all structures (see Figure 1). The Office of Surface Mining, Reclamation and Enforcement (OSMRE) regulations, as outlined in their Blasting Guidance Manual, employ a similar variable particle velocity versus frequency limit. These two standards are the most often quoted limits for ground vibration from blasting operations and are very conservative. Under typical circumstances ground vibrations need to exceed the USBM recommendations or the OSMRE regulations by a considerable amount in order to observe threshold damage such as plaster or drywall cracking or paint flaking. Engineered structures such as pipelines and wells are able to withstand significantly greater peak vibration levels. Human response is often the limiting factor in determining a reasonable ground vibration limit.

Matheson Mining Consultants, Inc. recommends adherence with USBM and/or OSMRE Variable Frequency versus Particle Velocity criteria. Adherence to these criteria provides a maximum level of liability protection and is the least restrictive in allowing the highest particle velocities at close distance. Documented cases of structural damage have never been observed in any structure, historic, exceptionally fragile, residential, or commercial, at particle velocities less than those recommended in the USBM and OSMRE standards.

The OSMRE Variable Particle Velocity versus Frequency standard states that from 4-12 hertz (Hz), a 0.50 inches per second (ips) maximum particle velocity is recommended to preclude "threshold" damage to plaster-on-lath, the most fragile of construction materials. Above 12 hertz, the allowable vibration increases as the frequency increases, up to 40 hertz. Above 40 hertz, a constant 2.0 inches per second level is recommended to protect the interior walls and ceilings of structures, regardless of construction material. A graphic representation of the USBM recommended criteria is shown in Figure 1.

Applying a peak vibration limit of 0.50 inches per second (ips) provides a high degree of protection for engineered structures (the threshold level for possible damage to plaster-on-lath construction). However, complaints from residents often begin at levels of 0.25 ips of less. Oil and gas wells, pipelines, and fiber optic cables can withstand significantly higher levels and a level of 2.00 ips is conservative. For example, Bell Labs states that a limit of 4.00 ips is safe for their fiber optic cable and the U.S. Bureau of Mines states that a limit of 4.92 ips is safe for a variety of pipeline materials and ages.

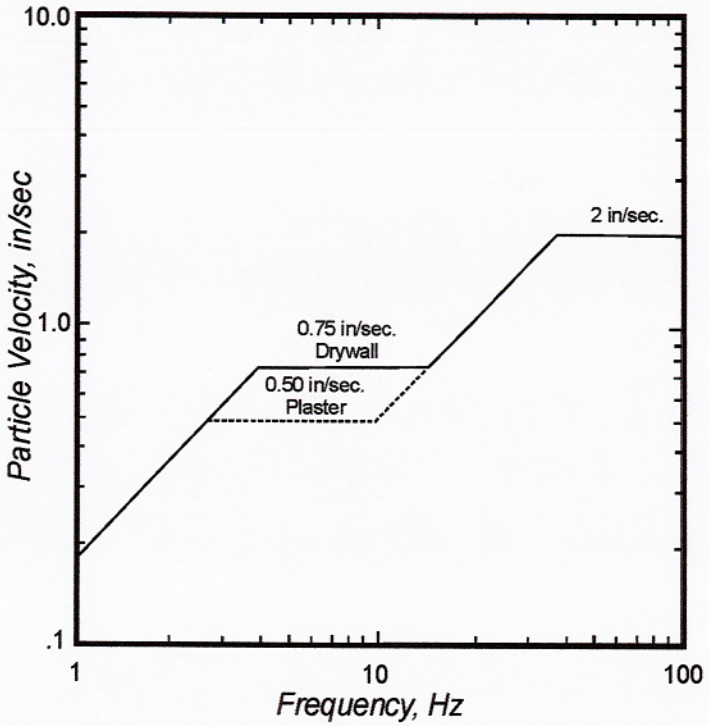


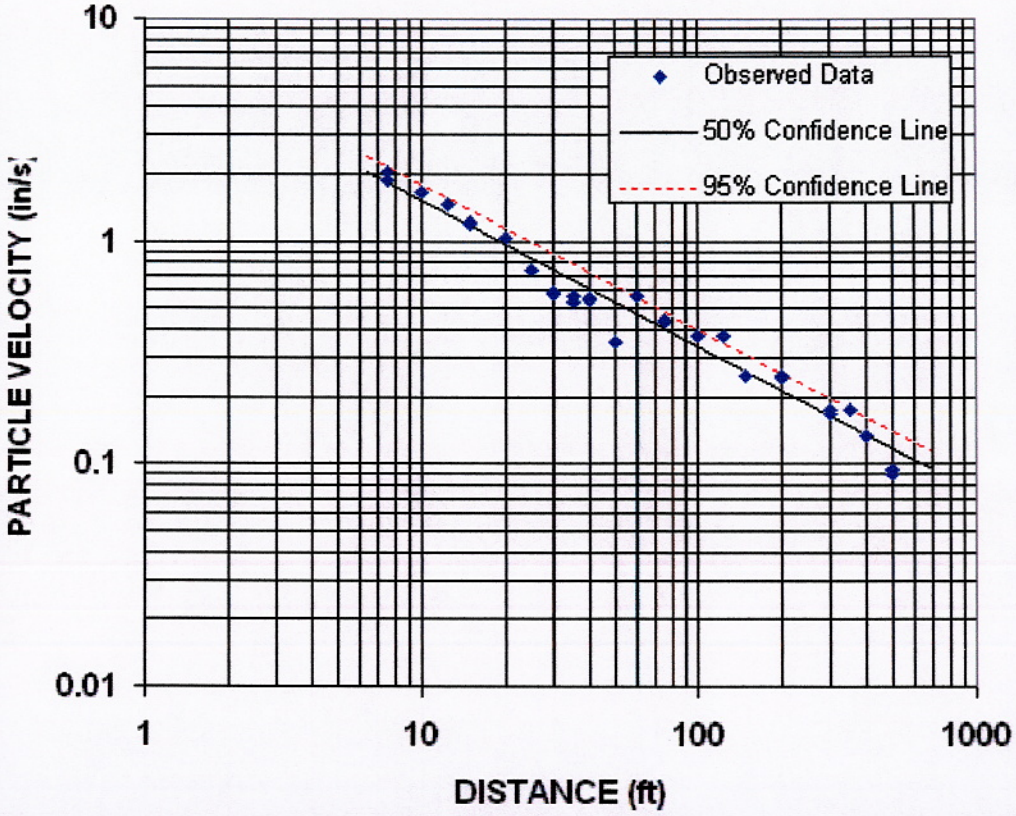
Figure 1: USBM Criteria from RI-8507, November 1980

Following is the regression curve and table of recommended stand-off distances to not exceed various particle velocities based on the derived +95% confidence level equation for the high force study.

The study has an excellent correlation coefficient ($r^2 = 0.962$).

Occidental of Elk Hills
Buena Vista 3D
October 31, 2009
4 Vibes @ 60%, 6 sec, 2-64Hz, Linear, .6 start, .4 end tapers

REGRESSION ANALYSIS



The Correlation Coefficient

$R^2 = 0.962$

The 95% Confidence Equation

$PV = 8.10 \times (D)^{-0.651}$

Occidental of Elk Hills
Buena Vista 3D
October 31, 2009
4 Vibes @ 60%, 6 sec, 2-64Hz, Linear, .6 start, .4 end tapers

95% Confidence Equation: PPV= 8.10 x (D)^-0.651 -- R^2 = 0.962

Particle Velocity vs. Distance

Particle Velocity (in/s)	Distance (ft)
0.10	854.38
0.20	294.64
0.25	209.14
0.50	**72.13**
0.75	38.69
1.00	24.87
1.50	13.34
2.00	8.58
4.00	2.96

Conclusions

Applying limits for plaster-on-lath (the most fragile of modern construction materials) will also provide a large factor of safety for any engineered structures that may exist within the survey area (pipelines, wells, fiberoptic cable...). In order to not exceed 0.50 ips with 4 Vibroseis at 60% drive (the parameters used in and around towns), the offset distance is 72 feet. This study was very conservative. During production, particle velocities will typically be lower than those measured during the study due to a more virgin earth surface, a reduced number of sweeps per location, and changes in the Vibroseis array orientation with respect to the point of concern.

Sincerely,

Mark L. Burgus

Mark L. Burgus, PG
Geophysicist



Attachment 6

Matheson Mining Consultants, Inc.

2801 Youngfield Street, Suite 171
Golden, CO 80401-2266
303-456-5638
Toll Free 888-456-5638
Fax 303-456-5639
www.mathesonmining.com

VINTAGE PRODUCTION CALIFORNIA, LLC
RIO LOBO 3D

SUMMARY OF VIBROSEIS GROUND MOTION ATTENUATION STUDIES

July 31, 2014
Fresno County, California

Matheson Mining Consultants, Inc. (MMC) acquired Vibroseis data in two locations within the Rio Lobo 3D survey area in order to recommend safe offset distances from points of concern. Site 1 was located near staging and Site 2 was located off of the Skyline Drive Road. At each location, both high (70% drive) and low (40% drive) force data sets were acquired. Four 63,000 pound I/O AHV-IV vibrators parked in a linear array were employed for the studies. Sweep parameters were: 12 second duration, 2-70 Hz, linear boost, and a 800 ms start taper and 400 ms end taper. A complete report will follow.

Additional analyses were performed grouping high force data for both sites and low force data for both sites.

The ground motion attenuation study is designed to statistically predict safe surface standoff distances from residences, pipelines, wells and other points of concern. Particle velocity data acquired in the field are input into a least squares linear regression analysis program. This program has been approved by the United States Office of Surface Mining and Reclamation Enforcement (OSMRE). The regression analysis yields a site-specific attenuation formula in the form:

$$PPV = H(SD)^{-B}$$

Where:
H = the velocity (y axis intercept) at a scaled distance of one,
B = the slope of the curve,
PPV = the peak particle velocity in inches per second, and
SD = scaled distance = distance (feet) from shot to recorder divided by the square root of the charge weight (pounds) = **Distance for Vibroseis studies**

The program also yields the correlation coefficient (goodness of fit), r^2. 1.0 is perfect.

The regression analysis yields a site-specific attenuation formula. Once the equation is derived, it can be solved to predict peak particle velocities based on fixed distances or it can be solved to predict distances for fixed peak particle velocities.

Recommended Vibration Limits

The U.S. Bureau of Mines (USBM) in Report of Investigations 8507 (November 1980) recommends a Variable Particle Velocity versus Frequency standard for assuring non-damage to all structures (see Figure 1). The Office of Surface Mining, Reclamation and Enforcement (OSMRE) regulations, as outlined in their Blasting Guidance Manual, employ a similar variable particle velocity versus frequency limit. These two standards are the most often quoted limits for ground vibration from blasting operations and are very conservative. Under typical circumstances ground vibrations need to exceed the USBM recommendations or the OSMRE regulations by a considerable amount in order to observe threshold damage such as plaster or drywall cracking or paint flaking. Engineered structures such as pipelines and wells are able to withstand significantly greater peak vibration levels. Human response is often the limiting factor in determining a reasonable ground vibration limit.

Matheson Mining Consultants, Inc. recommends adherence with USBM and/or OSMRE Variable Frequency versus Particle Velocity criteria. Adherence to these criteria provides a maximum level of liability protection and is the least restrictive in allowing the highest particle velocities at close distance. Documented cases of structural damage have never been observed in any structure, historic, exceptionally fragile, residential, or commercial, at particle velocities less than those recommended in the USBM and OSMRE standards.

The OSMRE Variable Particle Velocity versus Frequency standard states that from 4-12 hertz (Hz), a 0.50 inches per second (ips) maximum particle velocity is recommended to preclude "threshold" damage to plaster-on-lath, the most fragile of construction materials. Above 12 hertz, the allowable vibration increases as the frequency increases, up to 40 hertz. Above 40 hertz, a constant 2.0 inches per second level is recommended to protect the interior walls and ceilings of structures, regardless of construction material. A graphic representation of the USBM recommended criteria is shown in Figure 1.

Applying a peak vibration limit of 0.50 inches per second (ips) provides a high degree of protection for engineered structures (the threshold level for possible damage to plaster-on-lath construction). However, complaints from residents often begin at levels of 0.25 ips of less. Oil and gas wells, pipelines, and fiber optic cables can withstand significantly higher levels and a level of 2.00 ips is conservative. For example, Bell Labs states that a limit of 4.00 ips is safe for their fiber optic cable and the U.S. Bureau of Mines states that a limit of 4.92 ips is safe for a variety of pipeline materials and ages and wells.

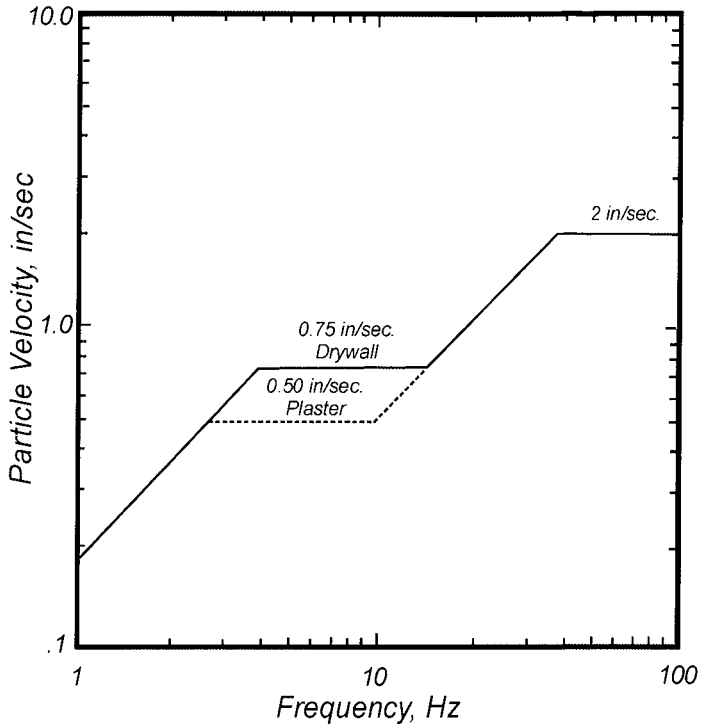


Figure 1: USBM Criteria from RI-8507, November 1980

Results

The following table summarizes the coefficients of determination, the number of data pairs, and the +95% confidence formula derived for each of the analyses. All six analyses showed excellent fits of data. Attached to this summary are the curves and tables of Peak Particle Velocity vs. Distance. All graphs and tables are based on the +95% confidence level equation derived from each analysis.

Summary of Shot Hole Analyses Results

Analysis	Derived Formula	Coefficient of Determination	Number of Data Pairs
Site 1, 70% Drive	$PPV = 41.88(D)^{-1.02}$	0.940	35
Site 1, 40% Drive	$PPV = 10.72(D)^{-0.83}$	0.926	34
Site 2, 70% Drive	$PPV = 40.69(D)^{-0.99}$	0.943	35
Site 2, 40% Drive	$PPV = 10.81(D)^{-0.84}$	0.918	31
Sites 1 & 2, 70% Drive	$PPV = 41.80(D)^{-1.01}$	0.939	70
Sites 1 & 2, 40% Drive	$PPV = 10.74(D)^{-0.83}$	0.923	65

Conclusions

Applying limits for plaster-on-lath (the most fragile of modern construction materials) will also provide a large factor of safety for any engineered structures that may exist within the survey area (pipelines, wells, fiber optic cable...). Results for both areas are very similar. The following table summarizes stand-off distances for recommended vibration limits for each of the analyses.

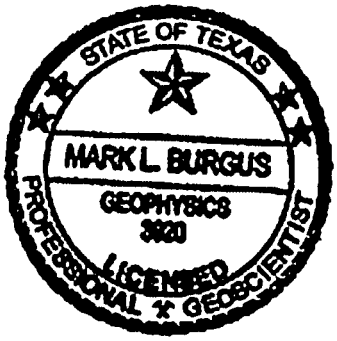
+95% Confidence Level Stand-off Distances for Fixed Particle Velocities and Charge Weights

Analysis	0.25 ips (approx. human annoyance limit)	0.50 ips (plaster-on-lath limit)	0.75 ips (sheetrock limit)	2.00 ips (conservative, water well, well, pipeline limit)	4.92 ips (pipeline limit)
Site 1, 70% Drive	149'	76'	51'	20'	8'
Site 1, 40% Drive	94'	41'	25'	8'	3'
Site 2, 70% Drive	170'	84'	56'	21'	8'
Site 2, 40% Drive	90'	39'	24'	8'	3'
Sites 1&2, 70% Drive	160'	81'	54'	20'	8'
Sites 1&2, 40% Drive	92'	40'	25'	8'	3'

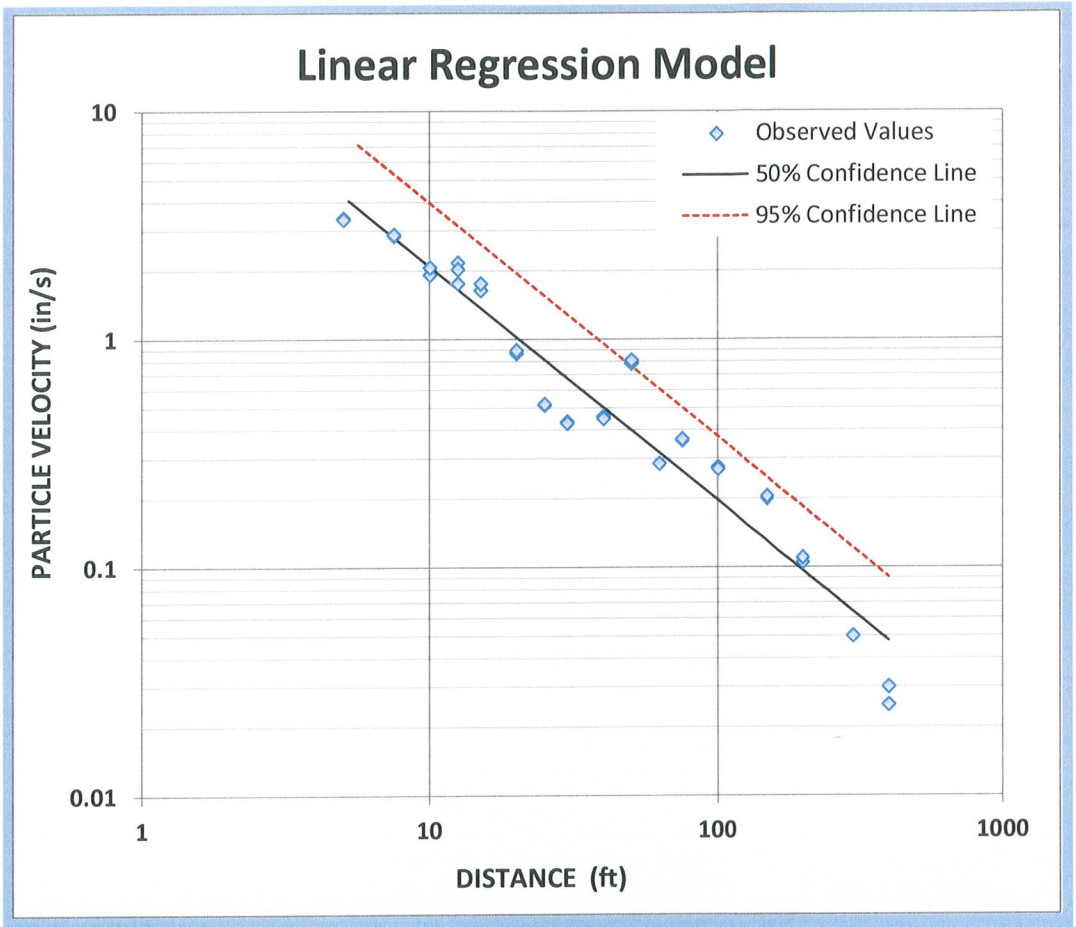
Sincerely,

Mark L. Burgus

Mark L. Burgus, PG
Geophysicist



Vintage Production California, LLC
Rio Lobo 3D - Site 1, 70% Drive
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 41.88 \times (D)^{-1.02}$

Data Correlation Coefficient

$R^2 = 0.940$

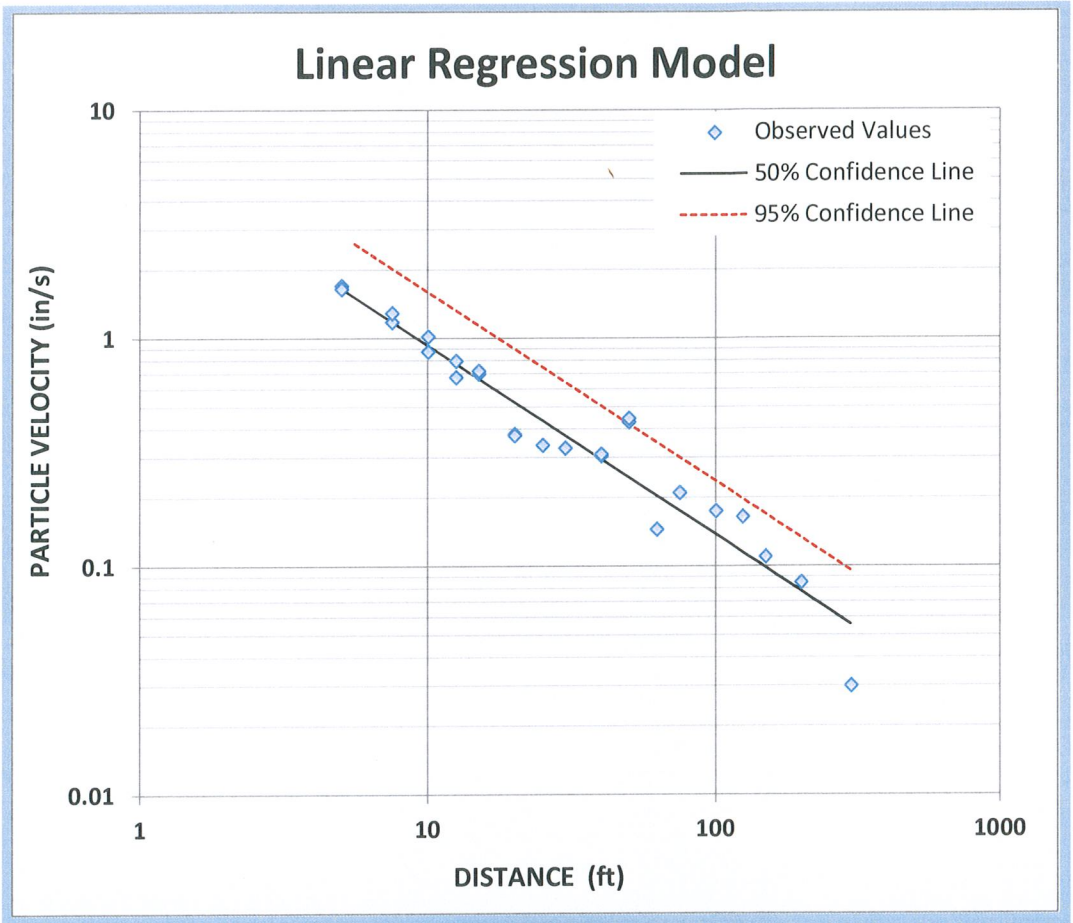
Vintage Production California, LLC
Rio Lobo 3D - Site 1, 70% Drive
July 31, 2014
Fresno County, California

95% Confidence

Standoff Distance and Expected Particle Velocities

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	715.3	1.80	21.6
0.10	363.5	1.85	21.0
0.15	244.7	1.90	20.5
0.20	184.7	1.95	20.0
0.25	148.6	2.00	19.5
0.30	124.3	2.05	19.0
0.35	107.0	2.10	18.6
0.40	93.9	2.15	18.2
0.45	83.7	2.20	17.8
0.50	75.5	2.25	17.4
0.55	68.8	2.30	17.0
0.60	63.2	2.35	16.7
0.65	58.4	2.40	16.3
0.70	54.4	2.45	16.0
0.75	50.8	2.50	15.7
0.80	47.7	2.55	15.4
0.85	45.0	2.60	15.1
0.90	42.5	2.65	14.8
0.95	40.3	2.70	14.5
1.00	38.4	2.75	14.3
1.05	36.6	2.80	14.0
1.10	35.0	2.85	13.8
1.15	33.5	2.90	13.6
1.20	32.1	2.95	13.3
1.25	30.9	3.00	13.1
1.30	29.7	3.05	12.9
1.35	28.6	3.10	12.7
1.40	27.6	3.15	12.5
1.45	26.7	3.20	12.3
1.50	25.8	3.25	12.1
1.55	25.0	3.30	12.0
1.60	24.2	3.35	11.8
1.65	23.5	3.40	11.6
1.70	22.9	3.45	11.4
1.75	22.2	3.50	11.3

Vintage Production California, LLC
Rio Lobo 3D - Site 1, 40% Drive
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 10.72 \times (D)^{-0.83}$

Data Correlation Coefficient

$R^2 = 0.926$

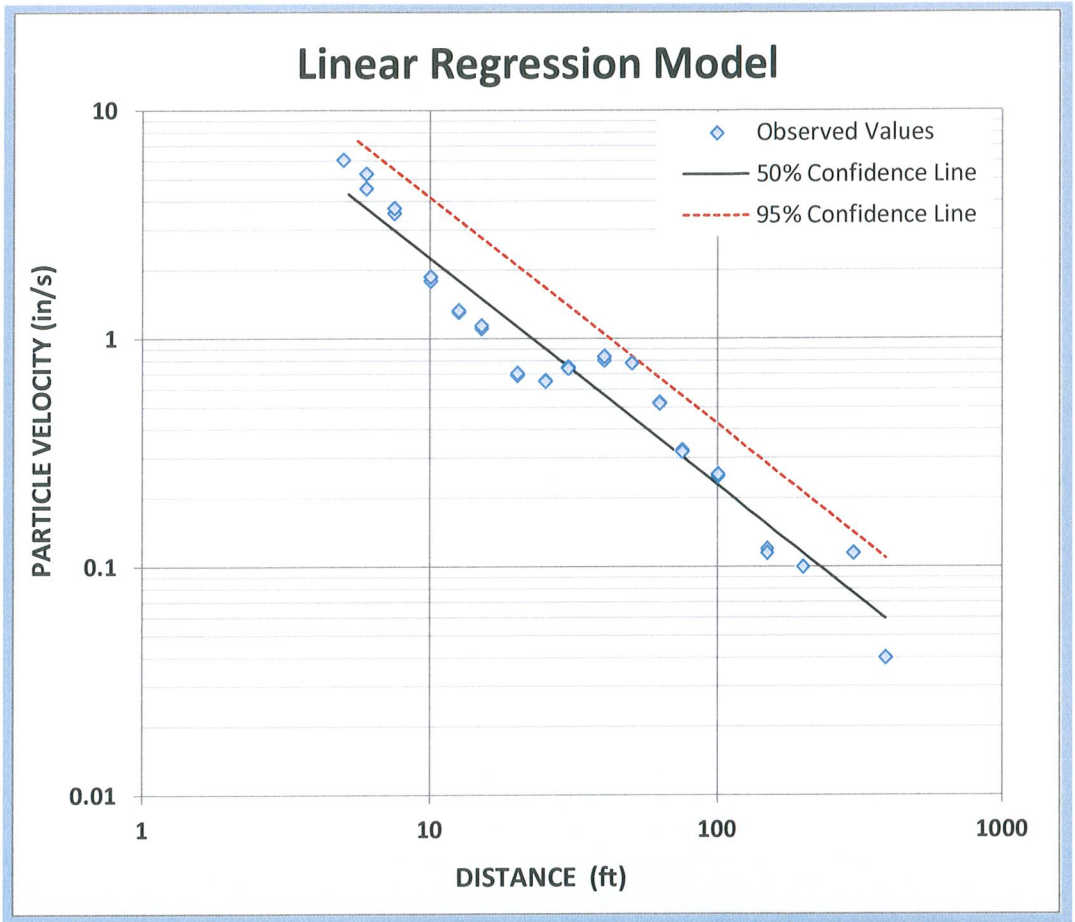
Vintage Production California, LLC
Rio Lobo 3D - Site 1, 40% Drive
July 31, 2014
Fresno County, California

95% Confidence

Standoff Distance and Expected Particle Velocities

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	656.2	1.80	8.6
0.10	284.0	1.85	8.4
0.15	174.0	1.90	8.1
0.20	122.9	1.95	7.8
0.25	93.8	2.00	7.6
0.30	75.3	2.05	7.4
0.35	62.5	2.10	7.2
0.40	53.2	2.15	7.0
0.45	46.1	2.20	6.8
0.50	40.6	2.25	6.6
0.55	36.2	2.30	6.4
0.60	32.6	2.35	6.3
0.65	29.6	2.40	6.1
0.70	27.0	2.45	6.0
0.75	24.9	2.50	5.8
0.80	23.0	2.55	5.7
0.85	21.4	2.60	5.5
0.90	20.0	2.65	5.4
0.95	18.7	2.70	5.3
1.00	17.6	2.75	5.2
1.05	16.6	2.80	5.1
1.10	15.7	2.85	5.0
1.15	14.8	2.90	4.9
1.20	14.1	2.95	4.8
1.25	13.4	3.00	4.7
1.30	12.8	3.05	4.6
1.35	12.2	3.10	4.5
1.40	11.7	3.15	4.4
1.45	11.2	3.20	4.3
1.50	10.8	3.25	4.2
1.55	10.3	3.30	4.2
1.60	10.0	3.35	4.1
1.65	9.6	3.40	4.0
1.70	9.3	3.45	3.9
1.75	8.9	3.50	3.9

Vintage Production California, LLC
Rio Lobo 3D - Site 2, 70% Drive
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 40.69 \times (D)^{-0.99}$

Data Correlation Coefficient

$R^2 = 0.943$

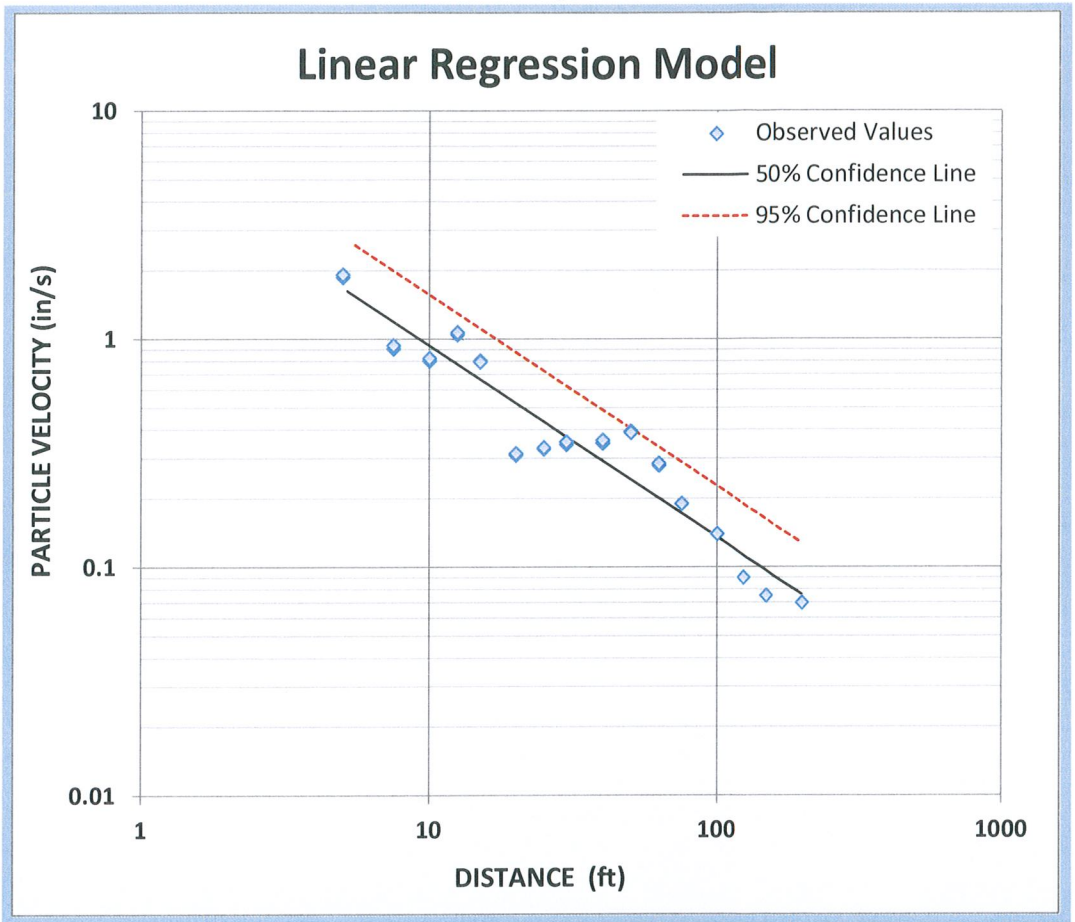
Vintage Production California, LLC
Rio Lobo 3D - Site 2, 70% Drive
July 31, 2014
Fresno County, California

95% Confidence

Standoff Distance and Expected Particle Velocities

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	859.3	1.80	23.2
0.10	427.2	1.85	22.6
0.15	283.9	1.90	22.0
0.20	212.4	1.95	21.4
0.25	169.6	2.00	20.8
0.30	141.1	2.05	20.3
0.35	120.8	2.10	19.8
0.40	105.6	2.15	19.4
0.45	93.8	2.20	18.9
0.50	84.3	2.25	18.5
0.55	76.6	2.30	18.1
0.60	70.2	2.35	17.7
0.65	64.7	2.40	17.3
0.70	60.1	2.45	17.0
0.75	56.0	2.50	16.6
0.80	52.5	2.55	16.3
0.85	49.4	2.60	16.0
0.90	46.6	2.65	15.7
0.95	44.2	2.70	15.4
1.00	41.9	2.75	15.1
1.05	39.9	2.80	14.9
1.10	38.1	2.85	14.6
1.15	36.4	2.90	14.3
1.20	34.9	2.95	14.1
1.25	33.5	3.00	13.9
1.30	32.2	3.05	13.6
1.35	31.0	3.10	13.4
1.40	29.9	3.15	13.2
1.45	28.8	3.20	13.0
1.50	27.9	3.25	12.8
1.55	27.0	3.30	12.6
1.60	26.1	3.35	12.4
1.65	25.3	3.40	12.2
1.70	24.6	3.45	12.0
1.75	23.9	3.50	11.9

Vintage Production California, LLC
Rio Lobo 3D - Site 2, 40% Drive
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 10.81 \times (D)^{-0.84}$

Data Correlation Coefficient

$R^2 = 0.918$

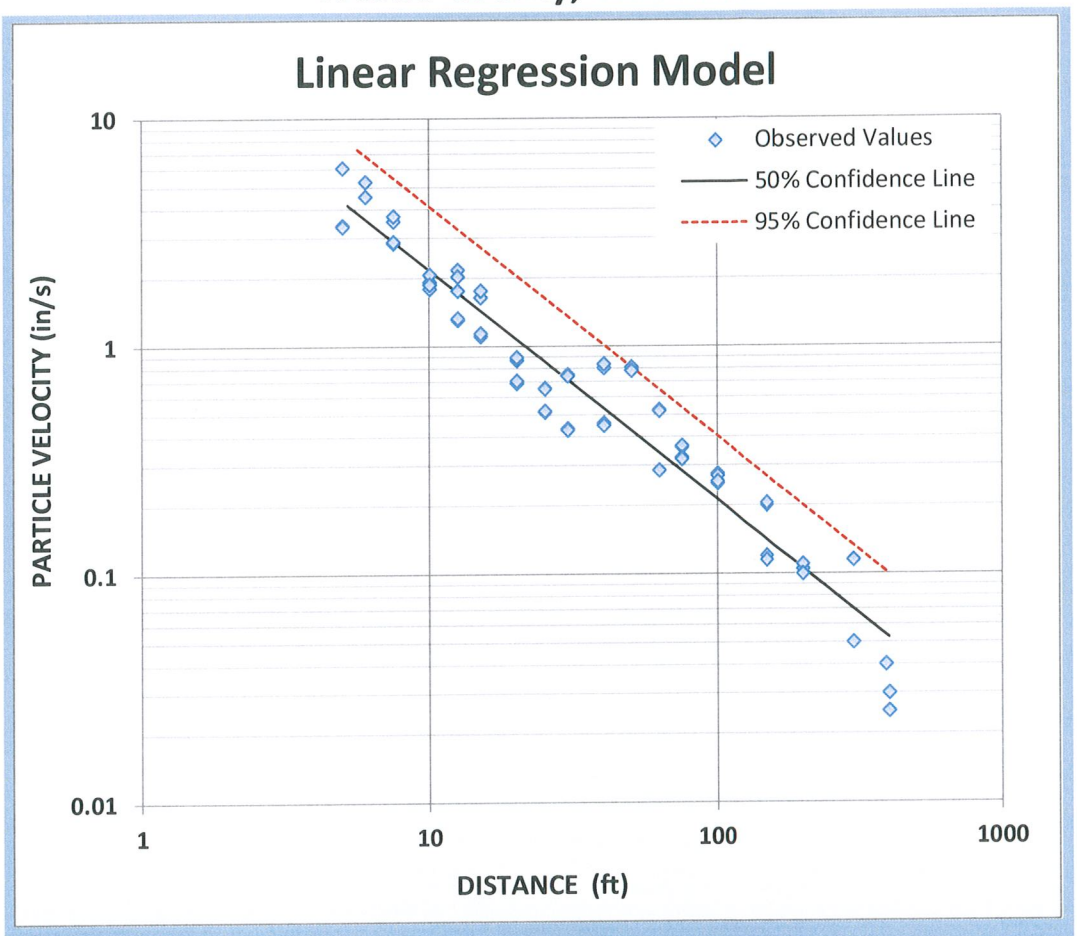
Vintage Production California, LLC
Rio Lobo 3D - Site 2, 40% Drive
July 31, 2014
Fresno County, California

95% Confidence

Standoff Distance and Expected Particle Velocities

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	611.1	1.80	8.5
0.10	267.2	1.85	8.2
0.15	164.7	1.90	8.0
0.20	116.9	1.95	7.7
0.25	89.5	2.00	7.5
0.30	72.0	2.05	7.3
0.35	59.9	2.10	7.1
0.40	51.1	2.15	6.9
0.45	44.4	2.20	6.7
0.50	39.2	2.25	6.5
0.55	34.9	2.30	6.3
0.60	31.5	2.35	6.2
0.65	28.6	2.40	6.0
0.70	26.2	2.45	5.9
0.75	24.1	2.50	5.7
0.80	22.3	2.55	5.6
0.85	20.8	2.60	5.5
0.90	19.4	2.65	5.4
0.95	18.2	2.70	5.2
1.00	17.1	2.75	5.1
1.05	16.2	2.80	5.0
1.10	15.3	2.85	4.9
1.15	14.5	2.90	4.8
1.20	13.8	2.95	4.7
1.25	13.1	3.00	4.6
1.30	12.5	3.05	4.5
1.35	12.0	3.10	4.4
1.40	11.5	3.15	4.4
1.45	11.0	3.20	4.3
1.50	10.6	3.25	4.2
1.55	10.2	3.30	4.1
1.60	9.8	3.35	4.0
1.65	9.4	3.40	4.0
1.70	9.1	3.45	3.9
1.75	8.8	3.50	3.8

Vintage Production California, LLC
Rio Lobo 3D - Sites 1 & 2, 70% Drive
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 41.80 \times (D)^{-1.01}$

Data Correlation Coefficient

$R^2 = 0.939$

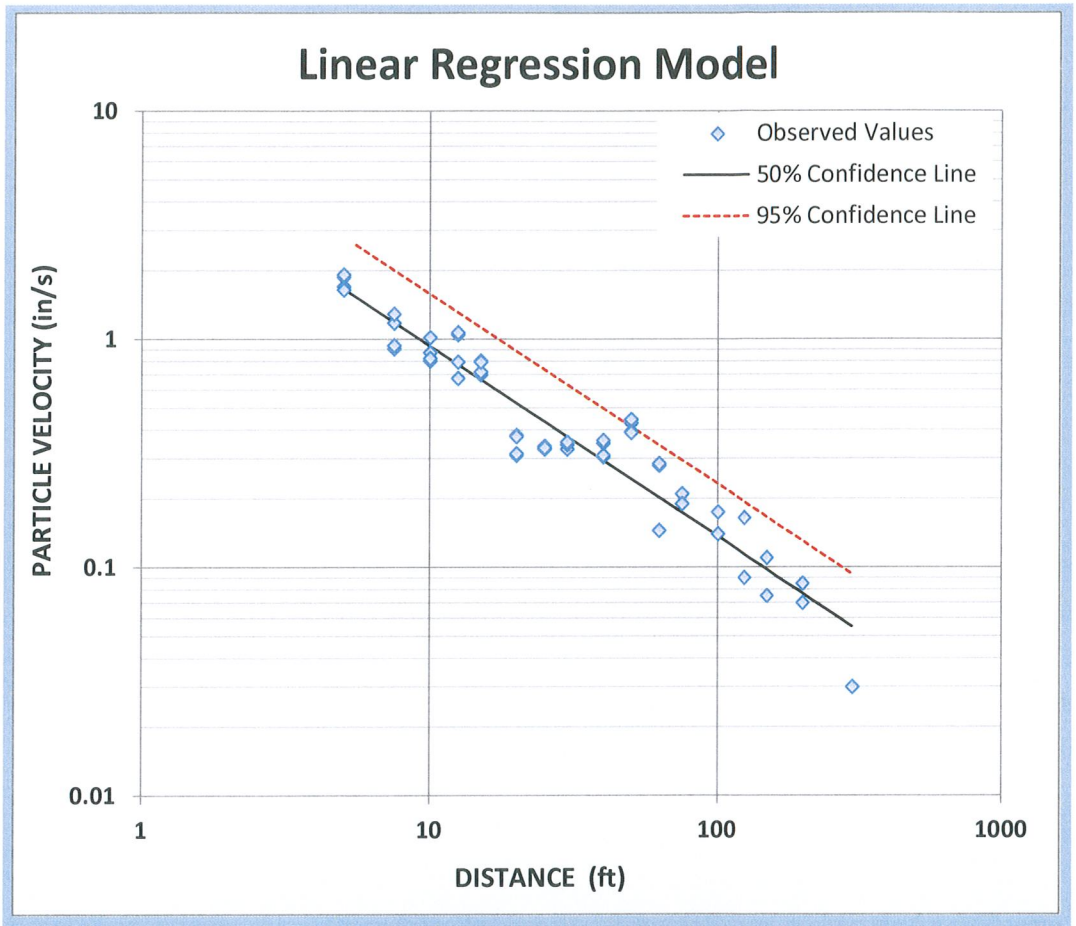
Vintage Production California, LLC
Rio Lobo 3D - Sites 1 & 2, 70% Drive
July 31, 2014
Fresno County, California

95% Confidence

Standoff Distance and Expected Particle Velocities

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	791.9	1.80	22.6
0.10	398.2	1.85	22.0
0.15	266.3	1.90	21.5
0.20	200.2	1.95	20.9
0.25	160.4	2.00	20.4
0.30	133.9	2.05	19.9
0.35	114.9	2.10	19.4
0.40	100.7	2.15	19.0
0.45	89.6	2.20	18.6
0.50	80.7	2.25	18.1
0.55	73.4	2.30	17.8
0.60	67.3	2.35	17.4
0.65	62.2	2.40	17.0
0.70	57.8	2.45	16.7
0.75	54.0	2.50	16.3
0.80	50.6	2.55	16.0
0.85	47.7	2.60	15.7
0.90	45.0	2.65	15.4
0.95	42.7	2.70	15.1
1.00	40.6	2.75	14.9
1.05	38.6	2.80	14.6
1.10	36.9	2.85	14.4
1.15	35.3	2.90	14.1
1.20	33.9	2.95	13.9
1.25	32.5	3.00	13.6
1.30	31.3	3.05	13.4
1.35	30.1	3.10	13.2
1.40	29.1	3.15	13.0
1.45	28.1	3.20	12.8
1.50	27.1	3.25	12.6
1.55	26.3	3.30	12.4
1.60	25.4	3.35	12.2
1.65	24.7	3.40	12.0
1.70	24.0	3.45	11.9
1.75	23.3	3.50	11.7

Vintage Production California, LLC
Rio Lobo 3D - Sites 1 & 2, 40% Drive
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 10.74 \times (D)^{-0.83}$

Data Correlation Coefficient

$R^2 = 0.923$

Vintage Production California, LLC
Rio Lobo 3D - Sites 1 & 2, 40% Drive
July 31, 2014
Fresno County, California

95% Confidence

Standoff Distance and Expected Particle Velocities

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	636.5	1.80	8.6
0.10	276.6	1.85	8.3
0.15	169.9	1.90	8.0
0.20	120.2	1.95	7.8
0.25	91.9	2.00	7.5
0.30	73.8	2.05	7.3
0.35	61.3	2.10	7.1
0.40	52.2	2.15	6.9
0.45	45.3	2.20	6.7
0.50	39.9	2.25	6.5
0.55	35.6	2.30	6.4
0.60	32.1	2.35	6.2
0.65	29.1	2.40	6.1
0.70	26.7	2.45	5.9
0.75	24.5	2.50	5.8
0.80	22.7	2.55	5.6
0.85	21.1	2.60	5.5
0.90	19.7	2.65	5.4
0.95	18.5	2.70	5.3
1.00	17.4	2.75	5.1
1.05	16.4	2.80	5.0
1.10	15.5	2.85	4.9
1.15	14.7	2.90	4.8
1.20	13.9	2.95	4.7
1.25	13.3	3.00	4.6
1.30	12.7	3.05	4.5
1.35	12.1	3.10	4.5
1.40	11.6	3.15	4.4
1.45	11.1	3.20	4.3
1.50	10.7	3.25	4.2
1.55	10.3	3.30	4.1
1.60	9.9	3.35	4.1
1.65	9.5	3.40	4.0
1.70	9.2	3.45	3.9
1.75	8.9	3.50	3.8

Attachment 7

Matheson Mining Consultants, Inc.

2801 Youngfield Street, Suite 171
Golden, CO 80401-2266
303-456-5638
Toll Free 888-456-5638
Fax 303-456-5639
www.mathesonmining.com

VINTAGE PRODUCTION CALIFORNIA, LLC
RIO LOBO 3D

SUMMARY OF SHOT HOLE GROUND MOTION ATTENUATION STUDIES

July 31, 2014
Fresno County, California

Matheson Mining Consultants, Inc. (MMC) acquired data in two locations within the Rio Lobo 3D survey area in order to recommend safe offset distances from points of concern. Site 1 was located near staging and Site 2 was located off of the Skyline Drive Road. At each location, three test holes were drilled and loaded, one with a 5.5 pound charge, one with an 11 pound charge, and one with a 13.2 pound charge of dBX. The 5.5 pound charges were placed in 30 foot deep holes and the 11 and 13.2 pound charges were placed in 50 foot deep holes. The test holes were 4 inch diameter and each charge was stemmed with a bag of bentonite, a hole plug was placed, and then the rest of the hole was stemmed with native cuttings. Each set of three test holes was monitored with six seismographs. A complete report will follow.

Although 30 data points are desired for statistical validity, additional analyses were performed for: Site 1 – All Data, Site 2 – All Data, All 5.5 pound Data, All 11 pound Data, and All 13.2 pound Data. These analyses all exhibited clear trends and good coefficients of determination.

The ground motion attenuation study is designed to statistically predict safe surface standoff distances from residences, pipelines, wells and other points of concern. Particle velocity data acquired in the field are input into a least squares linear regression analysis program. This program has been approved by the United States Office of Surface Mining and Reclamation Enforcement (OSMRE). The regression analysis yields a site-specific attenuation formula in the form:

$$PPV = H(SD)^{-B}$$

Where:
H = the velocity (y axis intercept) at a scaled distance of one,
B = the slope of the curve,
PPV = the peak particle velocity in inches per second, and
SD = scaled distance = distance (feet) from shot to recorder divided by the square root of the charge weight (pounds)

The program also yields the correlation coefficient (goodness of fit), r^2. 1.0 is perfect.

The regression analysis yields a site-specific attenuation formula. Once the equation is derived, it can be solved to predict peak particle velocities based on fixed distances and fixed charge weights or it can be solved to predict distances for fixed peak particle velocities and fixed charge weights.

Recommended Vibration Limits

The U.S. Bureau of Mines (USBM) in Report of Investigations 8507 (November 1980) recommends a Variable Particle Velocity versus Frequency standard for assuring non-damage to all structures (see Figure 1). The Office of Surface Mining, Reclamation and Enforcement (OSMRE) regulations, as outlined in their Blasting Guidance Manual, employ a similar variable particle velocity versus frequency limit. These two standards are the most often quoted limits for ground vibration from blasting operations and are very conservative. Under typical circumstances ground vibrations need to exceed the USBM recommendations or the OSMRE regulations by a considerable amount in order to observe threshold damage such as plaster or drywall cracking or paint flaking. Engineered structures such as pipelines and wells are able to withstand significantly greater peak vibration levels. Human response is often the limiting factor in determining a reasonable ground vibration limit.

Matheson Mining Consultants, Inc. recommends adherence with USBM and/or OSMRE Variable Frequency versus Particle Velocity criteria. Adherence to these criteria provides a maximum level of liability protection and is the least restrictive in allowing the highest particle velocities at close distance. Documented cases of structural damage have never been observed in any structure, historic, exceptionally fragile, residential, or commercial, at particle velocities less than those recommended in the USBM and OSMRE standards.

The OSMRE Variable Particle Velocity versus Frequency standard states that from 4-12 hertz (Hz), a 0.50 inches per second (ips) maximum particle velocity is recommended to preclude "threshold" damage to plaster-on-lath, the most fragile of construction materials. Above 12 hertz, the allowable vibration increases as the frequency increases, up to 40 hertz. Above 40 hertz, a constant 2.0 inches per second level is recommended to protect the interior walls and ceilings of structures, regardless of construction material. A graphic representation of the USBM recommended criteria is shown in Figure 1.

Applying a peak vibration limit of 0.50 inches per second (ips) provides a high degree of protection for engineered structures (the threshold level for possible damage to plaster-on-lath construction). However, complaints from residents often begin at levels of 0.25 ips of less. Oil and gas wells, pipelines, and fiber optic cables can withstand significantly higher levels and a level of 2.00 ips is conservative. For example, Bell Labs states that a limit of 4.00 ips is safe for their fiber optic cable and the U.S. Bureau of Mines states that a limit of 4.92 ips is safe for a variety of pipeline materials and ages and wells.

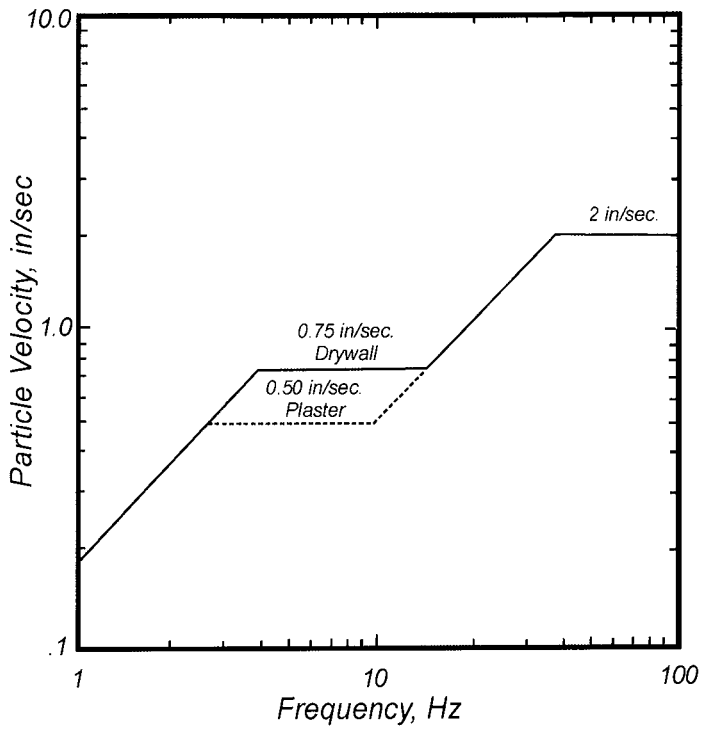


Figure 1: USBM Criteria from RI-8507, November 1980

Results

The following table summarizes the coefficients of determination, the number of data pairs, and the +95% confidence formula derived for each of the analyses. All six analyses showed good fits of data. Attached to this summary are the curve and tables of Peak Particle Velocity vs. Distance for 5.5, 11, and 13.2 pound charges for each of the six analyses. All graphs and tables are based on the +95% confidence level equation derived from each analysis.

Summary of Shot Hole Analyses Results

Analysis	Derived Formula	Coefficient of Determination	Number of Data Pairs
Sites 1 & 2, All Data	$PPV = 499.58(SD)^{-1.63}$	0.823	36
Site 1, All Data	$PPV = 419.48(SD)^{-1.70}$	0.870	18
Site 2, All Data	$PPV = 435.11(SD)^{-1.57}$	0.873	18
All 5.5 # Data	$PPV = 335.89(SD)^{-1.54}$	0.920	12
All 11 # Data	$PPV = 503.35(SD)^{-1.75}$	0.894	12
All 13.2 # Data	$PPV = 1157.51(SD)^{-1.96}$	0.883	12

Conclusions

Applying limits for plaster-on-lath (the most fragile of modern construction materials) will also provide a large factor of safety for any engineered structures that may exist within the survey area (pipelines, wells, fiber optic cable…). The following table summarizes stand-off distances for recommended vibration limits for each of the analyses.

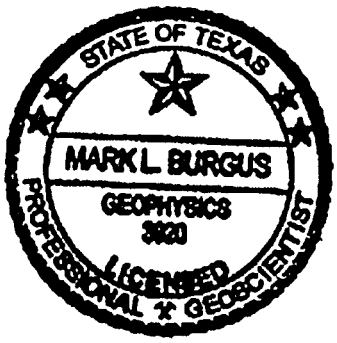
+95% Confidence Level Stand-off Distances for Fixed Particle Velocities and Charge Weights

Analysis	Charge Weight (lbs)	0.25 ips (approx. human annoyance limit)	0.50 ips (plaster-on-lath limit)	0.75 ips (sheetrock limit)	2.00 ips (conservative, water well, well, pipeline limit)	4.92 ips (pipeline limit)
Sites 1&2, All Data	5.5	251'	164'	128'	70'	40'
	11	355'	232'	181'	99'	57'
	13.2	389'	254'	198'	108'	62'
Site 1, All Data	5.5	187'	124'	98'	55'	32'
	11	265'	176'	138'	78'	46'
	13.2	290'	193'	152'	85'	50'
Site 2, All Data	5.5	269'	173'	134'	72'	41'
	11	381'	245'	189'	102'	57'
	13.2	417'	269'	208'	111'	63'
All 5.5 # Data	5.5	252'	161'	124'	65'	36'
	11	357'	227'	175'	92'	52'
	13.2	391'	249'	191'	101'	56'
All 11 # Data	5.5	180'	121'	96'	55'	33'
	11	254'	171'	136'	78'	47'
	13.2	278'	188'	149'	85'	51'
All 13.2 # Data	5.5	174'	122'	99'	60'	38'
	11	246'	173'	141'	85'	54'
	13.2	270'	189'	154'	93'	59'

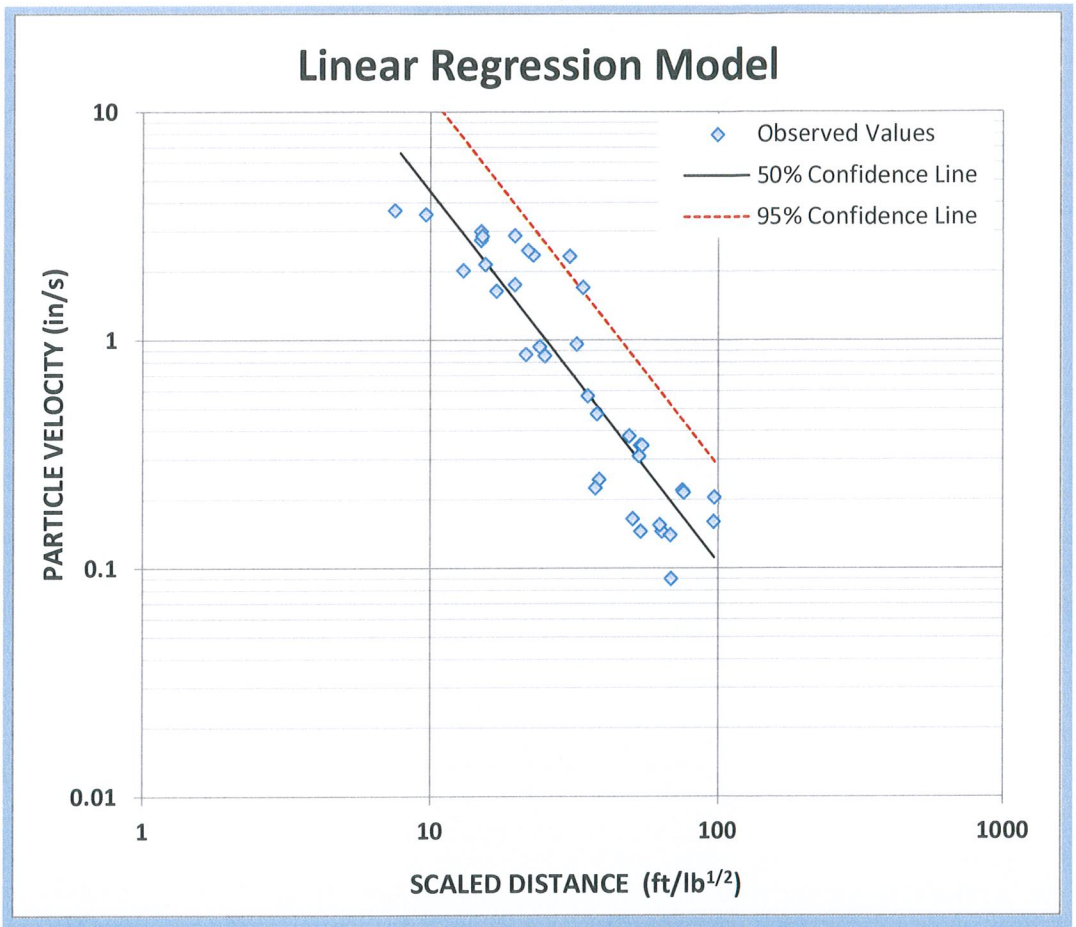
Sincerely,

Mark L. Burgus

Mark L. Burgus, PG
Geophysicist



Vintage Production California, LLC
Rio Lobo 3D - Sites 1 & 2, All Data
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 499.58 \times (SD)^{-1.63}$

Data Correlation Coefficient

$R^2 = 0.823$

Vintage Production California, LLC
Rio Lobo 3D - Site 1 & 2 All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 5.5 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	674.5	1.80	74.5
0.10	440.5	1.85	73.3
0.15	343.3	1.90	72.1
0.20	287.6	1.95	70.9
0.25	250.8	2.00	69.8
0.30	224.2	2.05	68.8
0.35	203.9	2.10	67.8
0.40	187.8	2.15	66.8
0.45	174.7	2.20	65.9
0.50	163.8	2.25	65.0
0.55	154.4	2.30	64.1
0.60	146.4	2.35	63.2
0.65	139.4	2.40	62.4
0.70	133.2	2.45	61.6
0.75	127.6	2.50	60.9
0.80	122.7	2.55	60.2
0.85	118.2	2.60	59.4
0.90	114.1	2.65	58.7
0.95	110.4	2.70	58.1
1.00	106.9	2.75	57.4
1.05	103.8	2.80	56.8
1.10	100.9	2.85	56.2
1.15	98.1	2.90	55.6
1.20	95.6	2.95	55.0
1.25	93.2	3.00	54.4
1.30	91.0	3.05	53.9
1.35	88.9	3.10	53.3
1.40	87.0	3.15	52.8
1.45	85.1	3.20	52.3
1.50	83.4	3.25	51.8
1.55	81.7	3.30	51.3
1.60	80.1	3.35	50.9
1.65	78.6	3.40	50.4
1.70	77.2	3.45	50.0
1.75	75.8	3.50	49.5

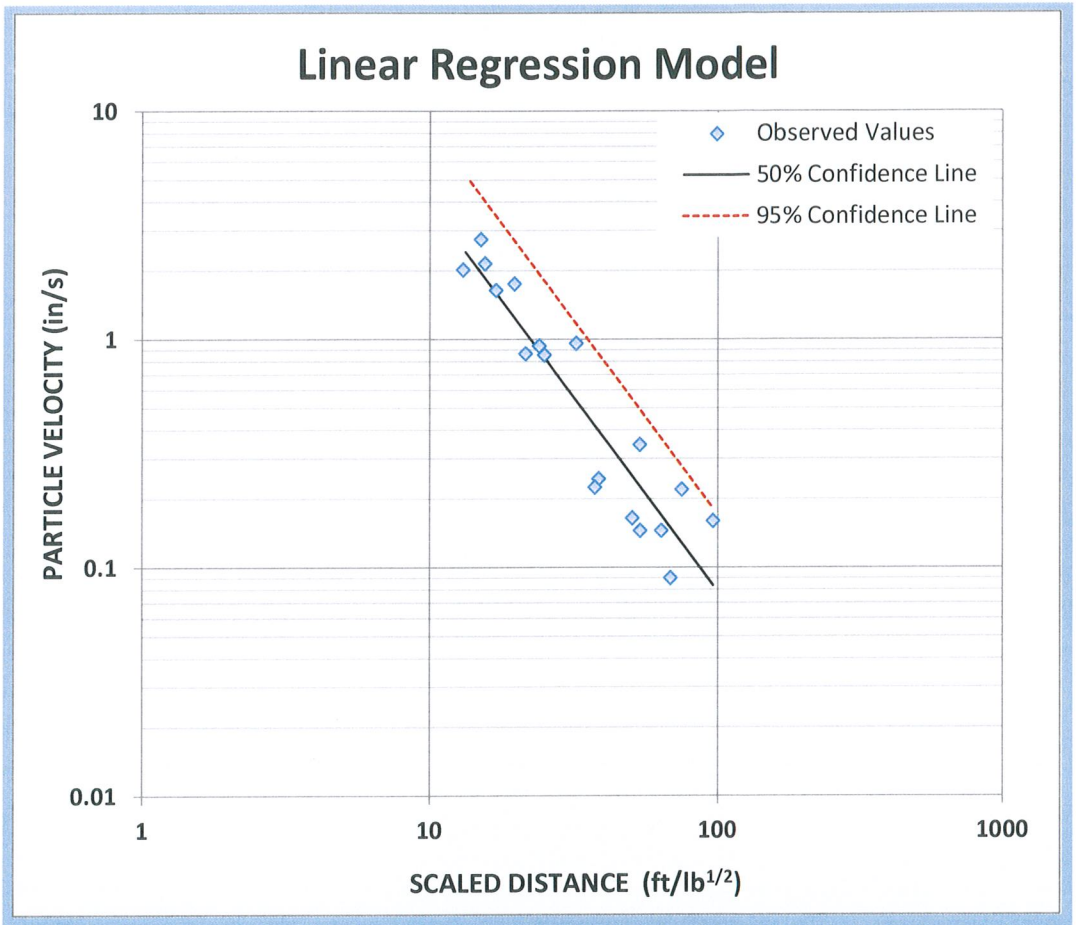
Vintage Production California, LLC
Rio Lobo 3D - Site 1 & 2 All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 11 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	953.9	1.80	105.4
0.10	622.9	1.85	103.6
0.15	485.5	1.90	101.9
0.20	406.8	1.95	100.3
0.25	354.6	2.00	98.8
0.30	317.0	2.05	97.3
0.35	288.4	2.10	95.9
0.40	265.7	2.15	94.5
0.45	247.1	2.20	93.1
0.50	231.6	2.25	91.9
0.55	218.4	2.30	90.6
0.60	207.0	2.35	89.4
0.65	197.1	2.40	88.3
0.70	188.3	2.45	87.2
0.75	180.5	2.50	86.1
0.80	173.5	2.55	85.1
0.85	167.1	2.60	84.1
0.90	161.4	2.65	83.1
0.95	156.1	2.70	82.1
1.00	151.2	2.75	81.2
1.05	146.8	2.80	80.3
1.10	142.6	2.85	79.4
1.15	138.8	2.90	78.6
1.20	135.2	2.95	77.8
1.25	131.9	3.00	77.0
1.30	128.7	3.05	76.2
1.35	125.8	3.10	75.4
1.40	123.0	3.15	74.7
1.45	120.4	3.20	74.0
1.50	117.9	3.25	73.3
1.55	115.5	3.30	72.6
1.60	113.3	3.35	71.9
1.65	111.2	3.40	71.3
1.70	109.1	3.45	70.6
1.75	107.2	3.50	70.0

Vintage Production California, LLC
Rio Lobo 3D - Site 1 & 2 All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 13.2 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	1044.9	1.80	115.4
0.10	682.4	1.85	113.5
0.15	531.8	1.90	111.7
0.20	445.6	1.95	109.9
0.25	388.5	2.00	108.2
0.30	347.3	2.05	106.6
0.35	315.9	2.10	105.0
0.40	291.0	2.15	103.5
0.45	270.7	2.20	102.0
0.50	253.7	2.25	100.6
0.55	239.3	2.30	99.3
0.60	226.8	2.35	98.0
0.65	215.9	2.40	96.7
0.70	206.3	2.45	95.5
0.75	197.7	2.50	94.3
0.80	190.0	2.55	93.2
0.85	183.1	2.60	92.1
0.90	176.8	2.65	91.0
0.95	171.0	2.70	90.0
1.00	165.7	2.75	89.0
1.05	160.8	2.80	88.0
1.10	156.3	2.85	87.0
1.15	152.0	2.90	86.1
1.20	148.1	2.95	85.2
1.25	144.4	3.00	84.3
1.30	141.0	3.05	83.5
1.35	137.8	3.10	82.6
1.40	134.7	3.15	81.8
1.45	131.8	3.20	81.0
1.50	129.1	3.25	80.3
1.55	126.6	3.30	79.5
1.60	124.1	3.35	78.8
1.65	121.8	3.40	78.1
1.70	119.6	3.45	77.4
1.75	117.5	3.50	76.7

Vintage Production California, LLC
Rio Lobo 3D - Site 1 All Data
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 419.48 \times (SD)^{-1.70}$

Data Correlation Coefficient

$R^2 = 0.870$

Vintage Production California, LLC
Rio Lobo 3D - Site 1 All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 5.5 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	483.5	1.80	58.4
0.10	321.3	1.85	57.5
0.15	252.9	1.90	56.6
0.20	213.5	1.95	55.7
0.25	187.1	2.00	54.9
0.30	168.1	2.05	54.1
0.35	153.5	2.10	53.3
0.40	141.8	2.15	52.6
0.45	132.3	2.20	51.9
0.50	124.3	2.25	51.2
0.55	117.5	2.30	50.5
0.60	111.7	2.35	49.9
0.65	106.5	2.40	49.3
0.70	102.0	2.45	48.7
0.75	97.9	2.50	48.1
0.80	94.2	2.55	47.6
0.85	90.9	2.60	47.0
0.90	87.9	2.65	46.5
0.95	85.2	2.70	46.0
1.00	82.6	2.75	45.5
1.05	80.3	2.80	45.0
1.10	78.1	2.85	44.5
1.15	76.1	2.90	44.1
1.20	74.2	2.95	43.6
1.25	72.4	3.00	43.2
1.30	70.8	3.05	42.8
1.35	69.2	3.10	42.4
1.40	67.7	3.15	42.0
1.45	66.4	3.20	41.6
1.50	65.0	3.25	41.2
1.55	63.8	3.30	40.9
1.60	62.6	3.35	40.5
1.65	61.5	3.40	40.1
1.70	60.4	3.45	39.8
1.75	59.4	3.50	39.5

Vintage Production California, LLC
Rio Lobo 3D - Site 1 All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 11 lbs

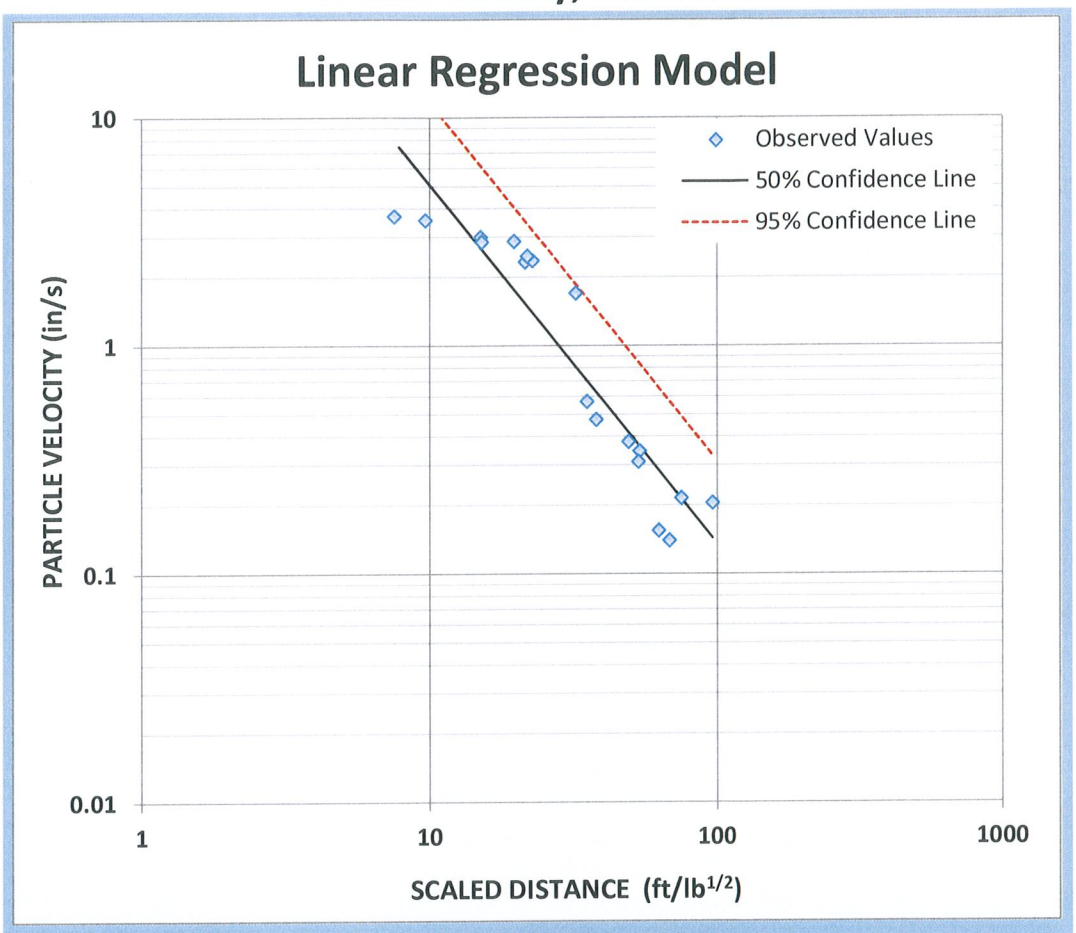
Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	683.8	1.80	82.6
0.10	454.3	1.85	81.3
0.15	357.7	1.90	80.0
0.20	301.9	1.95	78.8
0.25	264.7	2.00	77.6
0.30	237.7	2.05	76.5
0.35	217.0	2.10	75.4
0.40	200.6	2.15	74.4
0.45	187.1	2.20	73.4
0.50	175.8	2.25	72.4
0.55	166.2	2.30	71.5
0.60	157.9	2.35	70.6
0.65	150.6	2.40	69.7
0.70	144.2	2.45	68.9
0.75	138.4	2.50	68.1
0.80	133.3	2.55	67.3
0.85	128.6	2.60	66.5
0.90	124.3	2.65	65.8
0.95	120.4	2.70	65.0
1.00	116.8	2.75	64.3
1.05	113.5	2.80	63.7
1.10	110.5	2.85	63.0
1.15	107.6	2.90	62.4
1.20	104.9	2.95	61.7
1.25	102.4	3.00	61.1
1.30	100.1	3.05	60.5
1.35	97.9	3.10	59.9
1.40	95.8	3.15	59.4
1.45	93.8	3.20	58.8
1.50	92.0	3.25	58.3
1.55	90.2	3.30	57.8
1.60	88.6	3.35	57.3
1.65	87.0	3.40	56.8
1.70	85.4	3.45	56.3
1.75	84.0	3.50	55.8

Vintage Production California, LLC
Rio Lobo 3D - Site 1 All Data
July 31, 2014
Fresno County, California
95% Confidence

Allowable Distances Calculated From Given Particle Velocities for Charge Weight 13.2 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	749.1	1.80	90.5
0.10	497.7	1.85	89.0
0.15	391.8	1.90	87.7
0.20	330.7	1.95	86.3
0.25	289.9	2.00	85.0
0.30	260.4	2.05	83.8
0.35	237.7	2.10	82.6
0.40	219.7	2.15	81.5
0.45	205.0	2.20	80.4
0.50	192.6	2.25	79.3
0.55	182.1	2.30	78.3
0.60	173.0	2.35	77.3
0.65	165.0	2.40	76.4
0.70	158.0	2.45	75.4
0.75	151.7	2.50	74.6
0.80	146.0	2.55	73.7
0.85	140.9	2.60	72.8
0.90	136.2	2.65	72.0
0.95	131.9	2.70	71.2
1.00	128.0	2.75	70.5
1.05	124.4	2.80	69.7
1.10	121.0	2.85	69.0
1.15	117.9	2.90	68.3
1.20	114.9	2.95	67.6
1.25	112.2	3.00	67.0
1.30	109.6	3.05	66.3
1.35	107.2	3.10	65.7
1.40	105.0	3.15	65.1
1.45	102.8	3.20	64.5
1.50	100.8	3.25	63.9
1.55	98.8	3.30	63.3
1.60	97.0	3.35	62.7
1.65	95.3	3.40	62.2
1.70	93.6	3.45	61.7
1.75	92.0	3.50	61.1

Vintage Production California, LLC
Rio Lobo 3D - Site 2, All Data
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 435.11 \times (SD)^{-1.57}$

Data Correlation Coefficient

$R^2 = 0.873$

Vintage Production California, LLC
Rio Lobo 3D - Site 2, All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 5.5 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	748.9	1.80	76.8
0.10	482.1	1.85	75.4
0.15	372.5	1.90	74.2
0.20	310.3	1.95	73.0
0.25	269.2	2.00	71.8
0.30	239.8	2.05	70.7
0.35	217.4	2.10	69.6
0.40	199.7	2.15	68.6
0.45	185.3	2.20	67.6
0.50	173.3	2.25	66.6
0.55	163.1	2.30	65.7
0.60	154.3	2.35	64.8
0.65	146.7	2.40	63.9
0.70	139.9	2.45	63.1
0.75	133.9	2.50	62.3
0.80	128.5	2.55	61.5
0.85	123.7	2.60	60.8
0.90	119.3	2.65	60.0
0.95	115.2	2.70	59.3
1.00	111.5	2.75	58.6
1.05	108.1	2.80	58.0
1.10	105.0	2.85	57.3
1.15	102.1	2.90	56.7
1.20	99.3	2.95	56.1
1.25	96.8	3.00	55.5
1.30	94.4	3.05	54.9
1.35	92.2	3.10	54.3
1.40	90.1	3.15	53.8
1.45	88.1	3.20	53.3
1.50	86.2	3.25	52.7
1.55	84.4	3.30	52.2
1.60	82.7	3.35	51.7
1.65	81.1	3.40	51.2
1.70	79.6	3.45	50.8
1.75	78.2	3.50	50.3

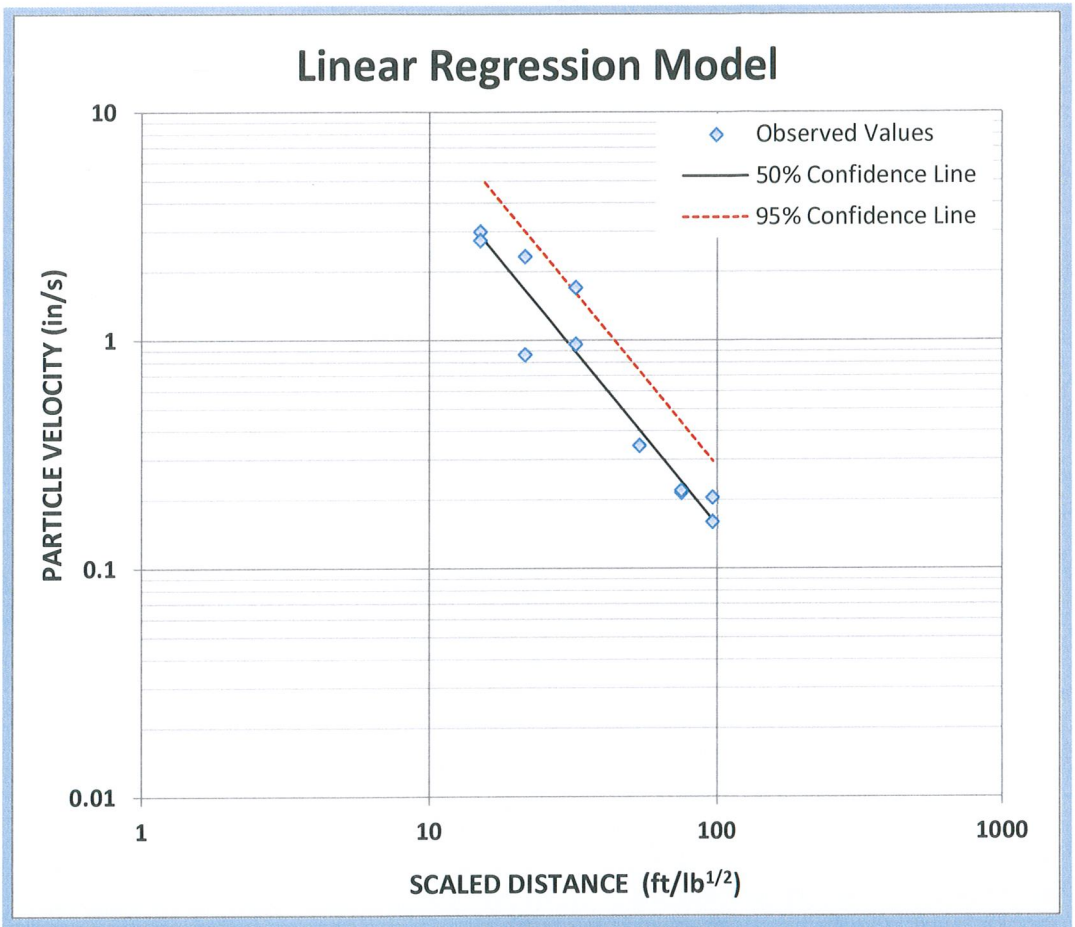
Vintage Production California, LLC
Rio Lobo 3D - Site 2, All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 11 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	1059.2	1.80	108.6
0.10	681.7	1.85	106.7
0.15	526.8	1.90	104.9
0.20	438.8	1.95	103.2
0.25	380.8	2.00	101.5
0.30	339.1	2.05	99.9
0.35	307.4	2.10	98.4
0.40	282.4	2.15	97.0
0.45	262.1	2.20	95.6
0.50	245.1	2.25	94.2
0.55	230.7	2.30	92.9
0.60	218.3	2.35	91.6
0.65	207.4	2.40	90.4
0.70	197.9	2.45	89.2
0.75	189.4	2.50	88.1
0.80	181.8	2.55	87.0
0.85	174.9	2.60	85.9
0.90	168.7	2.65	84.9
0.95	163.0	2.70	83.9
1.00	157.7	2.75	82.9
1.05	152.9	2.80	82.0
1.10	148.5	2.85	81.1
1.15	144.3	2.90	80.2
1.20	140.5	2.95	79.3
1.25	136.9	3.00	78.5
1.30	133.5	3.05	77.6
1.35	130.3	3.10	76.8
1.40	127.4	3.15	76.1
1.45	124.6	3.20	75.3
1.50	121.9	3.25	74.6
1.55	119.4	3.30	73.9
1.60	117.0	3.35	73.1
1.65	114.7	3.40	72.5
1.70	112.6	3.45	71.8
1.75	110.5	3.50	71.1

Vintage Production California, LLC
Rio Lobo 3D - Site 2, All Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 13.2 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	1160.3	1.80	118.9
0.10	746.8	1.85	116.9
0.15	577.1	1.90	114.9
0.20	480.7	1.95	113.0
0.25	417.1	2.00	111.2
0.30	371.5	2.05	109.5
0.35	336.8	2.10	107.8
0.40	309.4	2.15	106.2
0.45	287.1	2.20	104.7
0.50	268.5	2.25	103.2
0.55	252.7	2.30	101.8
0.60	239.1	2.35	100.4
0.65	227.2	2.40	99.1
0.70	216.8	2.45	97.8
0.75	207.5	2.50	96.5
0.80	199.1	2.55	95.3
0.85	191.6	2.60	94.1
0.90	184.8	2.65	93.0
0.95	178.5	2.70	91.9
1.00	172.8	2.75	90.8
1.05	167.5	2.80	89.8
1.10	162.6	2.85	88.8
1.15	158.1	2.90	87.8
1.20	153.9	2.95	86.9
1.25	149.9	3.00	86.0
1.30	146.3	3.05	85.1
1.35	142.8	3.10	84.2
1.40	139.5	3.15	83.3
1.45	136.4	3.20	82.5
1.50	133.5	3.25	81.7
1.55	130.8	3.30	80.9
1.60	128.2	3.35	80.1
1.65	125.7	3.40	79.4
1.70	123.3	3.45	78.6
1.75	121.1	3.50	77.9

Vintage Production California, LLC
Rio Lobo 3D - All 5.5# Data
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 335.89 \times (SD)^{-1.54}$

Data Correlation Coefficient

$R^2 = 0.920$

Vintage Production California, LLC
Rio Lobo 3D - All 5.5# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 5.5 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	716.8	1.80	70.0
0.10	457.0	1.85	68.7
0.15	351.2	1.90	67.5
0.20	291.4	1.95	66.4
0.25	252.1	2.00	65.3
0.30	223.9	2.05	64.3
0.35	202.6	2.10	63.3
0.40	185.8	2.15	62.3
0.45	172.1	2.20	61.4
0.50	160.7	2.25	60.5
0.55	151.1	2.30	59.7
0.60	142.8	2.35	58.8
0.65	135.5	2.40	58.0
0.70	129.2	2.45	57.3
0.75	123.5	2.50	56.5
0.80	118.4	2.55	55.8
0.85	113.9	2.60	55.1
0.90	109.7	2.65	54.4
0.95	105.9	2.70	53.8
1.00	102.5	2.75	53.1
1.05	99.3	2.80	52.5
1.10	96.3	2.85	51.9
1.15	93.6	2.90	51.3
1.20	91.0	2.95	50.8
1.25	88.6	3.00	50.2
1.30	86.4	3.05	49.7
1.35	84.3	3.10	49.1
1.40	82.4	3.15	48.6
1.45	80.5	3.20	48.1
1.50	78.7	3.25	47.7
1.55	77.1	3.30	47.2
1.60	75.5	3.35	46.7
1.65	74.0	3.40	46.3
1.70	72.6	3.45	45.8
1.75	71.2	3.50	45.4

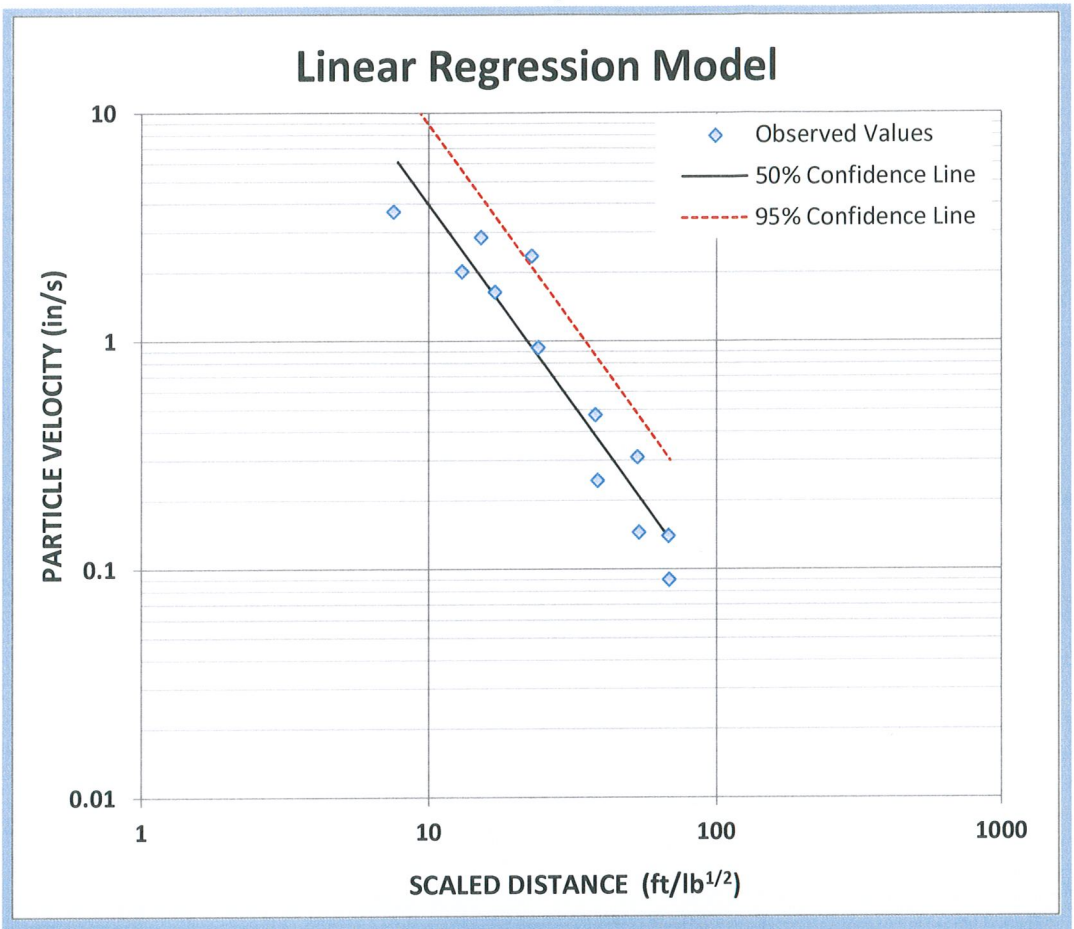
Vintage Production California, LLC
Rio Lobo 3D - All 5.5# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight
11 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	1013.7	1.80	98.9
0.10	646.3	1.85	97.2
0.15	496.7	1.90	95.5
0.20	412.1	1.95	93.9
0.25	356.5	2.00	92.4
0.30	316.7	2.05	90.9
0.35	286.5	2.10	89.5
0.40	262.7	2.15	88.1
0.45	243.4	2.20	86.8
0.50	227.3	2.25	85.6
0.55	213.6	2.30	84.4
0.60	201.9	2.35	83.2
0.65	191.7	2.40	82.1
0.70	182.7	2.45	81.0
0.75	174.7	2.50	79.9
0.80	167.5	2.55	78.9
0.85	161.0	2.60	77.9
0.90	155.2	2.65	77.0
0.95	149.8	2.70	76.0
1.00	144.9	2.75	75.1
1.05	140.4	2.80	74.3
1.10	136.2	2.85	73.4
1.15	132.3	2.90	72.6
1.20	128.7	2.95	71.8
1.25	125.4	3.00	71.0
1.30	122.2	3.05	70.2
1.35	119.2	3.10	69.5
1.40	116.5	3.15	68.8
1.45	113.8	3.20	68.1
1.50	111.4	3.25	67.4
1.55	109.0	3.30	66.7
1.60	106.8	3.35	66.1
1.65	104.7	3.40	65.5
1.70	102.7	3.45	64.8
1.75	100.8	3.50	64.2

Vintage Production California, LLC
Rio Lobo 3D - All 5.5# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 13.2 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	1110.4	1.80	108.4
0.10	708.0	1.85	106.5
0.15	544.1	1.90	104.6
0.20	451.4	1.95	102.9
0.25	390.5	2.00	101.2
0.30	346.9	2.05	99.6
0.35	313.9	2.10	98.0
0.40	287.8	2.15	96.6
0.45	266.6	2.20	95.1
0.50	249.0	2.25	93.8
0.55	234.0	2.30	92.4
0.60	221.2	2.35	91.1
0.65	210.0	2.40	89.9
0.70	200.1	2.45	88.7
0.75	191.3	2.50	87.6
0.80	183.5	2.55	86.4
0.85	176.4	2.60	85.4
0.90	170.0	2.65	84.3
0.95	164.1	2.70	83.3
1.00	158.7	2.75	82.3
1.05	153.8	2.80	81.3
1.10	149.2	2.85	80.4
1.15	145.0	2.90	79.5
1.20	141.0	2.95	78.6
1.25	137.3	3.00	77.8
1.30	133.9	3.05	76.9
1.35	130.6	3.10	76.1
1.40	127.6	3.15	75.4
1.45	124.7	3.20	74.6
1.50	122.0	3.25	73.8
1.55	119.4	3.30	73.1
1.60	117.0	3.35	72.4
1.65	114.7	3.40	71.7
1.70	112.5	3.45	71.0
1.75	110.4	3.50	70.4

Vintage Production California, LLC
Rio Lobo 3D - All 11# Data
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 503.35 \times (SD)^{-1.75}$

Data Correlation Coefficient

$R^2 = 0.894$

Vintage Production California, LLC
Rio Lobo 3D - All 11# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 5.5 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	449.9	1.80	58.3
0.10	303.0	1.85	57.4
0.15	240.5	1.90	56.5
0.20	204.1	1.95	55.7
0.25	179.7	2.00	54.9
0.30	161.9	2.05	54.1
0.35	148.3	2.10	53.4
0.40	137.4	2.15	52.7
0.45	128.5	2.20	52.0
0.50	121.0	2.25	51.3
0.55	114.6	2.30	50.7
0.60	109.1	2.35	50.1
0.65	104.2	2.40	49.5
0.70	99.9	2.45	48.9
0.75	96.0	2.50	48.3
0.80	92.6	2.55	47.8
0.85	89.4	2.60	47.3
0.90	86.5	2.65	46.7
0.95	83.9	2.70	46.3
1.00	81.5	2.75	45.8
1.05	79.3	2.80	45.3
1.10	77.2	2.85	44.8
1.15	75.3	2.90	44.4
1.20	73.4	2.95	44.0
1.25	71.8	3.00	43.6
1.30	70.2	3.05	43.1
1.35	68.7	3.10	42.7
1.40	67.3	3.15	42.4
1.45	65.9	3.20	42.0
1.50	64.7	3.25	41.6
1.55	63.5	3.30	41.2
1.60	62.3	3.35	40.9
1.65	61.2	3.40	40.6
1.70	60.2	3.45	40.2
1.75	59.2	3.50	39.9

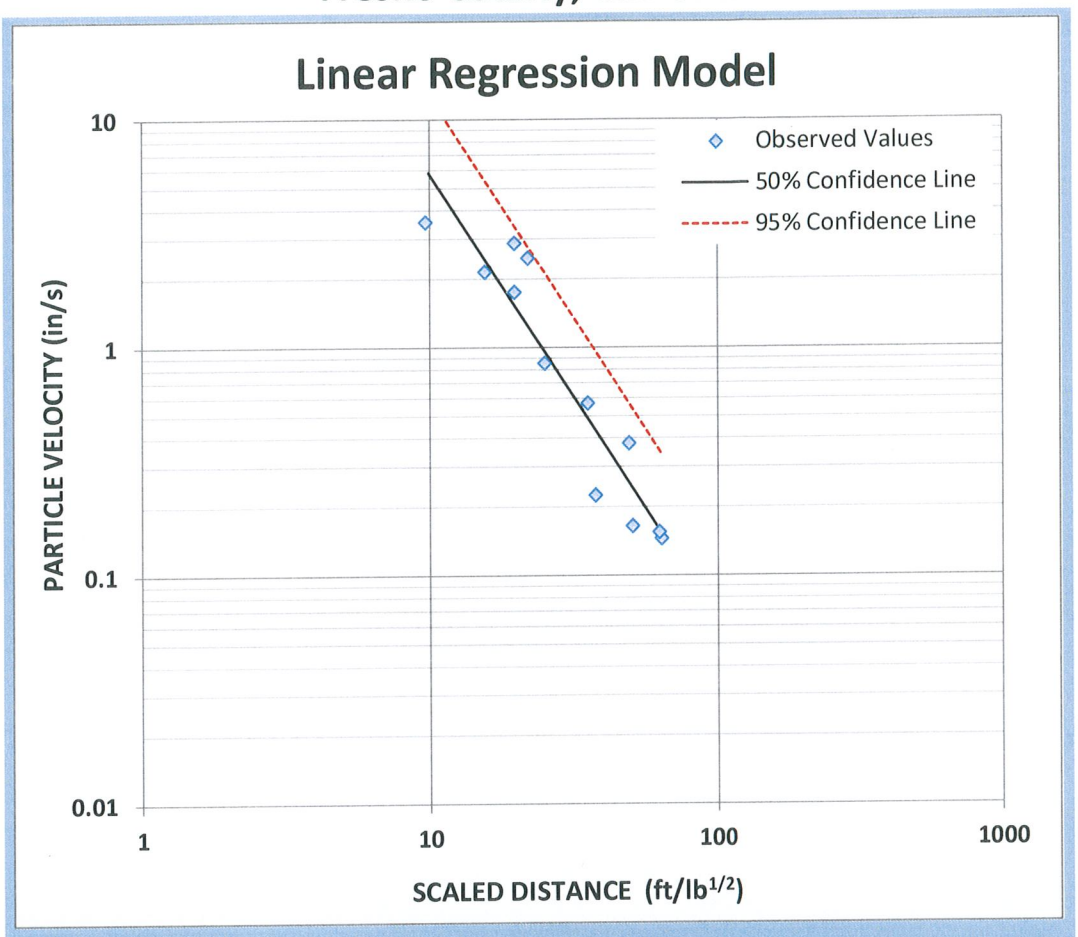
Vintage Production California, LLC
Rio Lobo 3D - All 11# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 11 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	636.3	1.80	82.4
0.10	428.5	1.85	81.1
0.15	340.1	1.90	79.9
0.20	288.6	1.95	78.7
0.25	254.1	2.00	77.6
0.30	229.0	2.05	76.5
0.35	209.7	2.10	75.5
0.40	194.4	2.15	74.5
0.45	181.7	2.20	73.5
0.50	171.1	2.25	72.6
0.55	162.1	2.30	71.7
0.60	154.2	2.35	70.8
0.65	147.4	2.40	70.0
0.70	141.3	2.45	69.1
0.75	135.8	2.50	68.3
0.80	130.9	2.55	67.6
0.85	126.4	2.60	66.8
0.90	122.4	2.65	66.1
0.95	118.7	2.70	65.4
1.00	115.3	2.75	64.7
1.05	112.1	2.80	64.1
1.10	109.2	2.85	63.4
1.15	106.4	2.90	62.8
1.20	103.9	2.95	62.2
1.25	101.5	3.00	61.6
1.30	99.2	3.05	61.0
1.35	97.1	3.10	60.5
1.40	95.1	3.15	59.9
1.45	93.2	3.20	59.4
1.50	91.5	3.25	58.8
1.55	89.8	3.30	58.3
1.60	88.2	3.35	57.8
1.65	86.6	3.40	57.4
1.70	85.2	3.45	56.9
1.75	83.8	3.50	56.4

Vintage Production California, LLC
Rio Lobo 3D - All 11# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 13.2 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	697.0	1.80	90.3
0.10	469.4	1.85	88.9
0.15	372.5	1.90	87.6
0.20	316.1	1.95	86.3
0.25	278.4	2.00	85.0
0.30	250.9	2.05	83.8
0.35	229.8	2.10	82.7
0.40	212.9	2.15	81.6
0.45	199.1	2.20	80.5
0.50	187.5	2.25	79.5
0.55	177.6	2.30	78.5
0.60	169.0	2.35	77.6
0.65	161.4	2.40	76.6
0.70	154.7	2.45	75.7
0.75	148.8	2.50	74.9
0.80	143.4	2.55	74.0
0.85	138.5	2.60	73.2
0.90	134.1	2.65	72.4
0.95	130.0	2.70	71.7
1.00	126.3	2.75	70.9
1.05	122.8	2.80	70.2
1.10	119.6	2.85	69.5
1.15	116.6	2.90	68.8
1.20	113.8	2.95	68.1
1.25	111.2	3.00	67.5
1.30	108.7	3.05	66.8
1.35	106.4	3.10	66.2
1.40	104.2	3.15	65.6
1.45	102.1	3.20	65.0
1.50	100.2	3.25	64.5
1.55	98.3	3.30	63.9
1.60	96.6	3.35	63.4
1.65	94.9	3.40	62.8
1.70	93.3	3.45	62.3
1.75	91.8	3.50	61.8

Vintage Production California, LLC
Rio Lobo 3D - All 13.2# Data
July 31, 2014
Fresno County, California



95% Confidence Equation

$PPV = 1157.51 \times (SD)^{-1.96}$

Data Correlation Coefficient

$R^2 = 0.883$

Vintage Production California, LLC
Rio Lobo 3D - All 13.2# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 5.5 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	395.6	1.80	63.6
0.10	277.8	1.85	62.7
0.15	225.8	1.90	61.8
0.20	195.0	1.95	61.0
0.25	174.0	2.00	60.2
0.30	158.6	2.05	59.5
0.35	146.6	2.10	58.7
0.40	136.9	2.15	58.0
0.45	128.9	2.20	57.4
0.50	122.2	2.25	56.7
0.55	116.4	2.30	56.1
0.60	111.3	2.35	55.5
0.65	106.9	2.40	54.9
0.70	102.9	2.45	54.3
0.75	99.3	2.50	53.7
0.80	96.1	2.55	53.2
0.85	93.2	2.60	52.7
0.90	90.5	2.65	52.2
0.95	88.1	2.70	51.7
1.00	85.8	2.75	51.2
1.05	83.7	2.80	50.7
1.10	81.7	2.85	50.3
1.15	79.9	2.90	49.8
1.20	78.2	2.95	49.4
1.25	76.6	3.00	49.0
1.30	75.0	3.05	48.6
1.35	73.6	3.10	48.2
1.40	72.2	3.15	47.8
1.45	71.0	3.20	47.4
1.50	69.7	3.25	47.0
1.55	68.6	3.30	46.6
1.60	67.5	3.35	46.3
1.65	66.4	3.40	45.9
1.70	65.4	3.45	45.6
1.75	64.5	3.50	45.3

Vintage Production California, LLC
Rio Lobo 3D - All 13.2# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 11 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	559.5	1.80	89.9
0.10	392.8	1.85	88.6
0.15	319.4	1.90	87.4
0.20	275.8	1.95	86.3
0.25	246.1	2.00	85.2
0.30	224.2	2.05	84.1
0.35	207.3	2.10	83.1
0.40	193.6	2.15	82.1
0.45	182.3	2.20	81.1
0.50	172.8	2.25	80.2
0.55	164.6	2.30	79.3
0.60	157.4	2.35	78.4
0.65	151.1	2.40	77.6
0.70	145.5	2.45	76.8
0.75	140.5	2.50	76.0
0.80	135.9	2.55	75.2
0.85	131.8	2.60	74.5
0.90	128.0	2.65	73.8
0.95	124.5	2.70	73.1
1.00	121.3	2.75	72.4
1.05	118.3	2.80	71.7
1.10	115.6	2.85	71.1
1.15	113.0	2.90	70.5
1.20	110.5	2.95	69.9
1.25	108.3	3.00	69.3
1.30	106.1	3.05	68.7
1.35	104.1	3.10	68.1
1.40	102.2	3.15	67.6
1.45	100.4	3.20	67.0
1.50	98.6	3.25	66.5
1.55	97.0	3.30	66.0
1.60	95.4	3.35	65.5
1.65	94.0	3.40	65.0
1.70	92.5	3.45	64.5
1.75	91.2	3.50	64.0

Vintage Production California, LLC
Rio Lobo 3D - All 13.2# Data
July 31, 2014
Fresno County, California
95% Confidence
Allowable Distances Calculated From Given Particle Velocities for Charge Weight 13.2 lbs

Particle Velocity (in/s)	Distance (feet)	Particle Velocity (in/s)	Distance (feet)
0.05	612.9	1.80	98.5
0.10	430.3	1.85	97.1
0.15	349.9	1.90	95.8
0.20	302.1	1.95	94.5
0.25	269.6	2.00	93.3
0.30	245.6	2.05	92.1
0.35	227.1	2.10	91.0
0.40	212.1	2.15	89.9
0.45	199.7	2.20	88.9
0.50	189.3	2.25	87.9
0.55	180.3	2.30	86.9
0.60	172.5	2.35	85.9
0.65	165.6	2.40	85.0
0.70	159.4	2.45	84.1
0.75	153.9	2.50	83.3
0.80	148.9	2.55	82.4
0.85	144.4	2.60	81.6
0.90	140.2	2.65	80.8
0.95	136.4	2.70	80.1
1.00	132.9	2.75	79.3
1.05	129.6	2.80	78.6
1.10	126.6	2.85	77.9
1.15	123.7	2.90	77.2
1.20	121.1	2.95	76.5
1.25	118.6	3.00	75.9
1.30	116.2	3.05	75.2
1.35	114.0	3.10	74.6
1.40	111.9	3.15	74.0
1.45	109.9	3.20	73.4
1.50	108.1	3.25	72.8
1.55	106.3	3.30	72.3
1.60	104.6	3.35	71.7
1.65	102.9	3.40	71.2
1.70	101.4	3.45	70.6
1.75	99.9	3.50	70.1

Hughes, David J., 2013. Drilling California, A reality Check on the Monterey Shale, December. Accessed at: http://montereyoil.org/the-report/ Accessed on: September 14, 2015.

Kern County. 2015. Draft Environmental Impact Report, SCH #2013081079, Revisions to the Kern County Zoning Ordinance – 2015 (C). Planning and Community Development Department. July 2015.

National Energy Technology Laboratory (NETL), 2013. Modern Shale Gas Development in the United States: An Update, September.

Ong, S. et al., Land-Use Requirements for Solar Power Plants in the United States, NREL,TP-6A20-56290, June 2013

Preliminary Report of California Oil and Gas Production Statistics, Department of Conservation and Division of Oil, Gas, and Geothermal Resources, August 2011

Preliminary Report of California Oil and Gas Production Statistics, Department of Conservation and Division of Oil, Gas, and Geothermal Resources, April 2012

Redden, Jim, 2012. Unlocking the Secrets of the U.S.'s Largest Onshore Oil Reserves, Monterey/Santos, World Oil, November 2012 Issue, pgs. 88-96

The Economic Contribution of the Oil and Gas Industry In Kern County, Kern County Economic Development Foundation (KCEDF), 2015

U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 2010b. San Joaquin kit fox (Vulpes macrotis mutica) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 2010c. Tipton kangaroo rat (Dipodomys nitratoides nitratoides) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California.

Zoellick, Bruce W., Charles E. Harris, Brian T. Kelly, Thomas P. O'Farrel, Thomas K. Kato, and Marni E. Koopman, 2002. Movements and Home Ranges of San Joaquin Kit Foxes (Vulpes Macrotis Mutica) Relative to Oil-Field Development. Western North American Naturalist 62(2), pp. 151–159.